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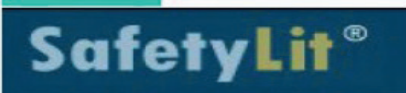


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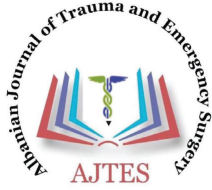


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Analyzing Mortality in Burned Patients with Lethal Area 50.

Bajram Abdullahu¹, Monika Belba^{2*}

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Abstract

Background; Clinical outcome is the most measurable of the critical care activity. Although every burn center has its own particular limitations, it is clear that exists a minimum standard of survival after burn injury which is LA50 (Lethal Area 50).

The aim of this study is to present demographic and epidemiologic features of severe burns in Albania in the period 2009-2019 and to analyze burn mortality as an important outcome measure analyzing LA 50.

Material and Methods; The study is retrospective clinical and analytical. Since our burn center is the only one in the country it encompasses all the cases with moderate burns from the capital and severe burns. The data used are obtained by the analysis of the medical records' of 1684 patients hospitalized in Burns Service ICU near University Hospital Center in Tirana, Albania during 2009-2019.

Results; While comparing the decade (2009-2019) with the previous one (1998-2008) there is a progressive decrease of mortality (6.89% versus 10.5%) of our burn patient population although mean BSA (%) burned increased to 25.6±19.1 % (versus 22.8±14.7%). LA 50 for all patients was 80.04%, for children was 77.7%, for adults was 87% and for elderly was 52.28%. The mortality rate of all ICU burns as an average for 2009-2019 was 0.35 cases per 100000 population/year.

Conclusions; The long-term studies and the comparison of our results with the ones of other burn centers have allowed us to determine the actual level of care and as well as to build up contemporary protocols in order to improve the treatment with the objection decreasing the mortality. Improvements in overall mortality expressed by LA 50 noticed it as an important outcome measure.

Keywords: Burns, Mortality, Lethal Area 50

Introduction

Clinical outcome is the most measurable of the critical care activity. It can be measured from different perspectives: patients, ICU staff, health managers and the population as a whole.

The aims of healthcare staff and society should be to improve patients' outcomes such as survival, functional outcome and quality of life. The outcome of the burn injury depends on the nature of the injury, the nature of the patient and the treatment available. Epidemiological studies on burns provide vital information for the development of effective burn prevention strategies [1-2].

The aim of this study is to present demographic and epidemiologic features of severe burns in Albania in the period 2009-2019 and to analyze burn mortality as an important outcome measure analyzing LA 50 (Lethal Area 50).

Material and Method

The data used are obtained by the analysis of the medical records' of 1684 patients hospitalized in Burns Service ICU near University Hospital Center in Tirana, Albania

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during 2009-2019. The study is retrospective clinical and analytical. Since our burn center is the only one in the country it encompasses all the cases with moderate burns from the capital and severe burns. All cases are from all over the country and need a specialized medical treatment. From this point of view, the data is characterized nationally wide and it represents the medical strategies with institutional character.

The patients' diagnoses were given according to ICD-9 codes while the admission criteria in ICU were based on American Burn Association [3]. The parameters of the patients included are as follows:

- Age, Group-Age [Children (0-14 years); Adults (15-60 years); Elderly (>60 years)]
- Gender (Male, Female)
- Etiology of burns (Scalds; Flame; Electrical; Chemical; Others)
- Body Surface Area (BSA) (%) burned: (0-10%; 11-20%; 21-40%; 41-60%; 61-80%; 81-100%)
- Degree (Partial-thickness; Full-thickness)
- o Length of Hospital Stay - LOS
- o Mortality in percentage and for 100,000 persons/year
- o LA 50 (body surface area that kills 50% of the people)

Statistical analysis

SPSS 23 software was used for the conduction of the statistical analysis. Incidence density rates are calculated as the number of burn admissions in any age category in one year multiplied by 100000 and divided by the total persons at risk (the population at specific year taken from Institute of Statistic in Albania). Descriptive Statistics were conducted to summarize data for the central tendency (Mean) and variability (Standard Deviation). We have used Inferential Statistics through probability theory to draw conclusions. Concretely Simple Linear Regression for estimating Lethal Area 50 (LA 50). We use Line graphs for presentation of our data. Statistical significance was defined as $p < 0.05$.

Results

A total of 3355 patients had a burn-related primary admission in the Service of Burns and Plastic Surgery of the UHC in Tirana, Albania from 2009 to 2019, from which 1684 were admissions in the Intensive Care Unit.

From all the patients admitted 1033 or 61.3% were male and 651 or 38.7% were female with 1.58:1 as a ratio. The total number of cases increases across the age range from 1 month to 93 years old with burn incidence appearing

to peak at 24.9 years (mean age is 24.9 ± 25.5 years). A large percentage of children burns (50.7%) are observed followed by 36.05 % in adults and 13.18 % in aged. The mean age of children was 3.2 ± 2.7 years, median 2, of adults was 38.7 ± 12.3 years, median 40 and for aged was 70.4 ± 8.37 years, median 68 (Table 1). The most frequent subgroup-ages were as follows: 28.2% (475) were children 2-4.9 years, 12.9% (218) were children 0-1.9 years and 9.4% (158) were adults 40-49.9 years while the less frequent were elderly older than 80 years 2.4% (41).

The BSA (%) burned for all patients was 25.6 ± 19.1 %. Presence of Full-thickness burns was present in 17% (287 patients) of all patients, increasing in an age-related fashion reaching 41.6% in the group-age +80 years. Scalds were the predominant cause of burns in children (82% of them) admitted to the burn ICU particularly in the subgroup age 2-4.9 years.

In other groups, flame was the predominant cause (66% of adults and 74% of elderly patients) with the peak in subgroup age 40-69.9 years. Mean LOS was 11.2 ± 15.58 days.

Table 1-Demographic, clinical and burn injury characteristics 2009-2019 (n=1684)

	% of cases	No of cases
Age, mean (SD)	24.9 (19,1)	
Gender		
• Female	38.7	651
• Male	61.3	1033
Group ages		
• Children (0-14y)	50.77	855
• Adults (15-60 y)	36.05	607
• Elderly ≥ 60 y	13.18	222
Etiology of burns		
• Scalds	49.6	835
• Flame	39.5	666
• Electrical	5.1	86
• Chemical	5	85
• Others	0.7	12
BSA % burned, mean (SD)	25.6 (19.1)	
Full-thickness burn	17	287
Inhalation injury	15.4	260
LOS, mean (SD)	11.2	15.58
Mortality	6.89	116
• Mortality Children (0-14y)	0.53	9
• Mortality Adults (15-60y)	2.85	48
• Mortality Elderly ≥ 60	3.51	59

Overall mortality of our patients was 6.89% (116 deaths in 1684 patients) with an increasing trend from 0.53% in the children's group (0-14 years), 2.85 % in the adult's group and 3.51 % in the elderly's group (Fig. 1).

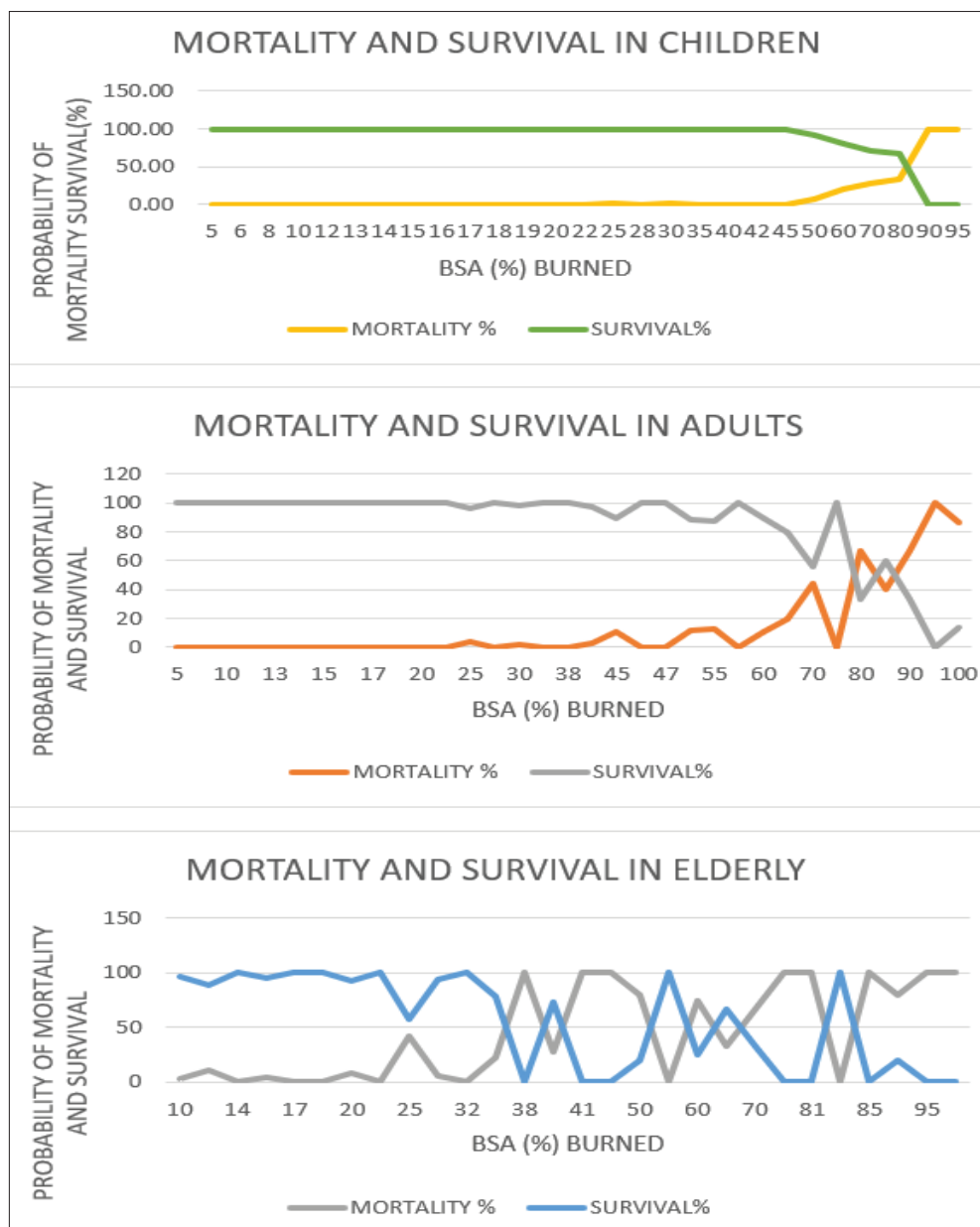


Figure 1-Presentation of Mortality and Survival in different group-ages

Deaths in the period of shock and in the first week are greater in patients with greater burn sizes BSA (80-100%). We performed a simple Linear Regression of BSA (%) as an explanatory variable on the mortality (%) as a response. The regression line for all patients was $M=0.8162 \cdot BSA (\%) - 15.3297$, the correlation was $r=0.7057$, $r^2=0.4981$ (Figure 2). We calculated LA 50 for all patients as well as for each group-age based on the Regression equations. LA 50 for all patients was 80.04%, for children was 77.7%, for adults was 87% and for elderly was 52.28%.

The mortality rate of all ICU burns as an average for 2009-2019 was 0.35 cases per 100000 population/year.

Discussion

During the period studied there is a decrease in the children patient's percentage (from 66, 89% in 1998-2008 to 50.7% in 2009- 2019) accompanied with an increase in the percentage of adults (from 27% in 1998-2008 to 36.05 % in 2009-2019) and also there is increasing percentage of burns in elderly population (from 6.2 % in 1998-2008 to 13.18% in 2009- 2019) [2].

While comparing the decade (2009-2019) with the previous one (1998-2008) there is a progressive decrease of mortality (6.89% versus 10.5%) of our burn patient population although mean BSA (%) burned increased

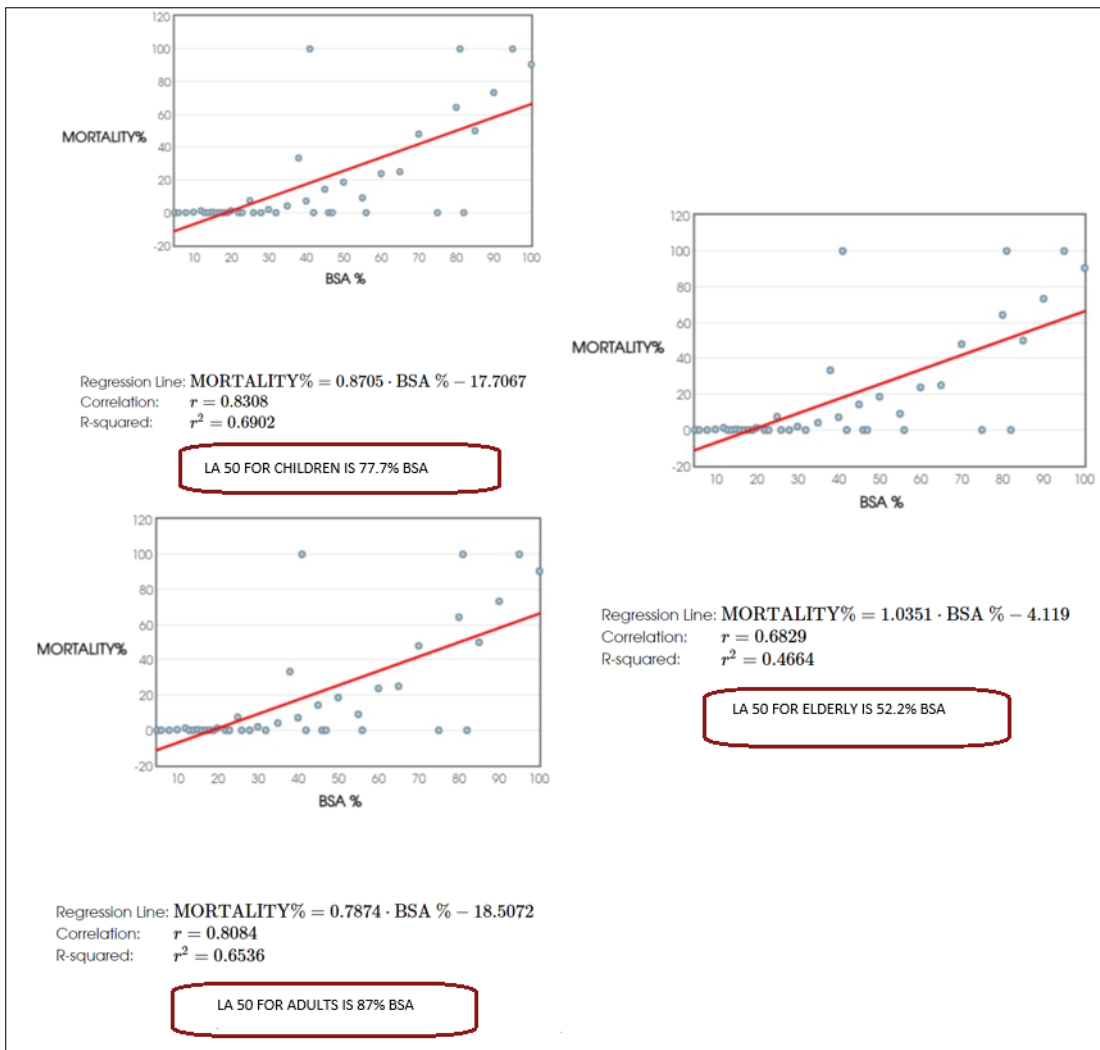


Figure 2-Presentation of LA 50 in children, adults and elderly.

to $25.6 \pm 19.1\%$ (versus $22.8 \pm 14.7\%$). There were improvements in mortality despite more patients were affected by flame burns (39.5% versus 23%), more patients had with inhalation burns (15.5% versus 10.6%) as well as there is evidence of an increase of the number of adults with burns and more than double of the number of elderly with burns with greater burn size and full thickness burns.

The mortality rate of our study is comparable with rates of other countries like in Belgium (7.1%), Turkey (6.3%), France (9%) and Hong Kong (8.7%) [4, 5, 6, 7]. Different studies show better outcomes in Sweden (3%), Netherlands (4.1%), Spain (3.4%) and Portugal (3.7%) [8, 9, 10, 11].

As our center is the only burn unit in our country, we can draw national conclusions. The death rate from fire and burns for the period 2009-2019 was 0.3 patients per 100000 population/year which lies very close to the death rate from all burns (0.35 patients per 100000 population/year). Our hypothesized explanation relies on the fact that flame was an important etiologic factor of burn deaths (66% of adults and 74% of elderly patients) and at the same time it is related with burn deaths. There were 8.2 ± 0.68 , median 10,

deaths from flame in our patient's versus 10.2 ± 0.78 , median 10, deaths from all burns as an average.

Although every burn center has its own particular limitations, it is clear that exists a minimum standard of survival after burn injury which is LA50. In the 1940s, LA50 in the United States was 40% [12]. With the development of broad-spectrum antibiotics and specialized burn units, also with standardization of a multidisciplinary approach instituted at tertiary health care centers, LA50 increased to approximately 60% in the 1970s [13]. Currently, most burn centers in the United States report LA50 over 90% [13]. Europe experienced a similar improvement in LA50 over time. Wasserman showed an overall mortality of 11.8% and LA50 of 60% in 1985 in France [14].

In 1999, Barrett et al. demonstrated an overall mortality of 3.5% and LA50 of 90% in Spain [10].

Our LA50 for all patients is improved in the last period 2009-2019 which speaks for a better work of the staff in the service of burns.

If we compare the LA50 for all patients, there is a difference of 80.4% versus 50-60% in previous decade. In

the previous study (1998-2008) LA₅₀ for children was 60% BSA less than for adults 65% BSA and for elderly 45% BSA.

In this study LA 50 for all patients was 80.04%, for children was 77.7%, for adults was 87% and for elderly was 52.28% with promising values.

Conclusions

There is a decline in severe burn admissions in the Service of Burns UHC” Mother Teresa” in Tirana of children and adults but there is an increase of admissions in elderly group. The subgroup with the highest admission frequency were children of 2-4.9 years with scalds as the main causative agent (in 87.3% of cases). Etiology of burns has changed towards an increase of flame burns especially in adults and the elderly population. Future preventive measures should focus on this group. Overall registered mortality was 6.8% and survival following severe burns has improved.

Our medical staff, despite the clinical work in the health system, should help form the awareness of the public through different mediums for the damages that can be caused by thermal agents, pointing out the risky group-ages. In the multi-disciplinary treatment of the severe burn patient a major importance has the commitment of the medical staff, which with its devotion will manage to handle even difficult situations caused by fire catastrophes

The long-term studies and the comparison of our results with the ones of other burn centers has allowed us to determine the actual level of care and as well as to build up contemporary protocols in order to improve the treatment with the objection decreasing the mortality. LA50 for all patients was 80%. for children was 77.7%, for adults was 87% and for elderly was 52.28% with promising values. Improvements in overall mortality expressed by LA 50 noticed it as an important outcome measure.

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There is no conflict of interest

Authorship Contribution

The first author has done the conception or design of the work and data collection and analysis.

The second author has done the data analysis and interpretation as well as drafting the article and critical revision of the article.

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Functional Outcome of Arthroscopic Meniscal Root Repair

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Abstract

Objectives: The aim of the study was to assess the functional outcome of the knee in patients before and after meniscal root repair.

Material and Methods: This study was a prospective study done on 52 patients with Meniscal Root tear treated by arthroscopic repair. The follow-up period was 6 weeks, 3 months, and 6 months. Functional outcome was assessed using the VAS and Lysholm Knee Score.

Results: The VAS pre-operative was 7.46, the VAS post-operative at 6 weeks was 4.23, the VAS post-operative at 3 months was 3.12 the VAS post-operative at 6 months was 1.19. As compared to preoperative scores at the end of 6 months the difference was statistically significant with a p-value < 0.001. Following surgery there was an excellent outcome in most of the cases with respect to the range of motion, overall, the improvement in the range of motion was statistically significant with a p-value < 0.001. On the evaluation of the Lysholm Knee Score, there was a significant difference between the pre-operative and post-operative scores at each follow-up. The pre-op was 68.52, the Lysholm Knee Score post-op - 6 weeks was 81.72, the Lysholm Knee Score post-op - 3 months was 85.72, the Lysholm Knee Score post-op - 6 months was 92.23. As compared to preop scores at the end of 6 months the difference was statistically significant with a p-value < 0.001.

Conclusion: In the present study we found that sports-related injuries were commoner, seen more in males and in young. Following meniscus repair, it is possible to get a good range of motion back post-operatively. A fair number of cases get back their knee function if appropriate post-operative physiotherapy rehabilitation protocol is followed.

Keywords: Meniscus Tear, Root Repair, Arthroscopy, VAS, LYSHOLM Knee Score

Introduction

One of the major weights bearing joints in the lower extremities is the knee joint. The knee menisci were thought to be little more than functionless remains of developing leg muscle until the second half of the twentieth century [1]. When presented with symptomatic tearing, this presumption led to the entire excision of the menisci. However, it was quickly found out that these structures were essential

for preventing the onset of osteoarthritis and joint health preservation. [1]. Studies to evaluate the menisci's precise structure and the role it plays in the functioning of the knee began in the 1970 and 1980 which lead to a shift in treatment protocols which focused more on meniscus preservation. [2]. However, the primary goal of "preservation" has been the status quo of patient care since that time. The hope is that modalities and treatment protocols in the future such tissue engineered replacements and targeted drug delivery, will improve quality of life and clinical outcomes in an ageing population, based on ongoing research into meniscus biomechanics and molecular pathways, including response to injury.

The goal of surgical therapy for knee injuries is to restore function by maintaining the mechanical axis and restoring ligamentous stability, allowing the knee joint to function painlessly and with a decent range of motion [3,4]. The menisci are two fibro cartilaginous structures in the

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knee that are necessary for proper knee function and joint preservation. The menisci bear between 40 and 70 percent of the stress transferred via the knee. The menisci are also essential for maintaining knee stability. The axial strain of tibia-femoral contact can be converted by intact menisci into hoop stress, which preserves the knee joint [5].

The meniscal root insertion integrity is critical for maintaining proper knee kinematics and avoiding degenerative alterations. Increased cartilage stress, meniscal extrusion, decreased contact surface, and eventually articular degeneration can result from injuries to the meniscal attachments [6]. Rapid degeneration of the knee could occur as a result of total meniscectomy. Meniscal root tears and avulsions are the functional equivalent of total meniscectomy, according to clinical and biomechanical evidence. Knee ligament sprains and tears frequently result in lateral root tears. Preexisting knee arthritis can induce medial root tears, which are more chronic in nature.

When a meniscal root tear is discovered in a knee with minimal to no arthritis, meniscal root repair is recommended. In the case of chronic root tears caused by osteoarthritis, conservative treatment is used. The anterior cruciate ligament, the most usually injured of the main knee ligaments, is the most injured of the major knee ligaments. Meniscus damage is linked to 50 percent of acute ACL tears, and it rises to 90 percent in chronic ACL deficient knees. If meniscal root tears are not treated concurrently with cruciate ligament tears, they can aggravate symptoms of instability and have a negative impact on the outcomes of anterior cruciate ligament restoration. As a result, we conducted research to assess the Functional Outcome of Arthroscopic Meniscal Root Repair

Materials and Methods

This was a prospective study done on 52 patients with Meniscal Root tear treated by arthroscopic repair during the period from June 2017 to June 2021. The follow up period was 6 weeks, 3 months and 6 months.

Inclusion Criteria

1. Diagnosed to have torn meniscal root and those who are undergoing Arthroscopic repair.
2. Patient with intra operative finding of meniscal root tear.
3. Age group :18 years – 50years

Exclusion Criteria

1. Patients not willing for arthroscopic repair.
2. Patient who had developed Osteoarthritis.
3. Patient with comorbid conditions and not fit for surgery.

Methodology

Clinical examination was repeated post operatively at the end of 6 weeks, 3 months and 6 months.

Operative Procedure

Positioning

Following anesthetic induction, the patient was positioned on the operating table with at least 110 degrees of knee flexion, preferably by dropping the affected leg at the table's end. Under the ipsilateral buttock, a rolled flannel blanket was inserted. This helped with rotational alignment. Its use also prevented external rotation of the limb. The limb was prepped and draped according to standard aseptic procedures. The use of a thigh tourniquet was commonplace.

Operative Procedure of Meniscal Root Repair

The Meniscal root tear must be identified before the meniscal root may be repaired (and preparing the meniscal root attachment site). The footprint for the root on the tibia should be decorticated to expose the bone before suturing the meniscal root. This created a better environment for the meniscal root to repair to the tibial plateau. Because of its capacity to restore a large footprint at the meniscal root's native attachment site and normal joint contact pressures, transtibial meniscal root restoration is becoming the gold standard procedure. Furthermore, constructing two transtibial tunnels to bind the meniscal root to its attachment site increases the footprint of the repair.

Two tunnels are reamed toward the torn meniscal root attachment using an offset guide on the anterior proximal tibia. Using FIRSTPASS MINI (Smith & Nephew), two simple sutures are inserted through the torn meniscal root and down each tibial tunnel cannula. While the repair is seen and explored arthroscopically, the two suture ends are knotted together with a surgical button on the anterior proximal tibia. The knee is flexed and extended while arthroscopic visualization is performed to ensure that there is no considerable tension on the root repair.

Post-operative management

The limbs were kept elevated with pillows. Intravenous antibiotics were given first five days and then shifted to oral. Quadriceps exercises and ankle mobilization was started within 48 hours of surgery. Dressing was done on 2nd, 5th and 8th post-operative day. Sutures were removed on 12th post-operative day.

Post-operative protocol:

- There will be significant stress on meniscus especially past 90°, Therefore, sutures have to be tied in 90° flexion of knee, so that flexion can be started immediate post operative.
- Patient advised non weight bearing for 6 weeks, 0 - 90° flexion for first 2 weeks. After 2-week flexion is increased as tolerated.
- Weight bearing started after 6 weeks using crutches which can be later weaned off.

Follow-up:

Duration after surgery: 6 weeks/ 3 months/ 6 months

Results

In this study, we discovered that the majority of the 52 patients in the study were between the ages of 40 and 50. The average age was 40.3+9.37 years. When we looked at the gender distribution of the 52 instances in the study, we discovered that the majority of the patients were males (36, or 69.23 percent) and 16 were females.

In the present study on evaluation of the mode of injury we found that of the 52 cases, fall from height 2 case (3.85%), and 4 cases (7.69%) were due to RTA. Remaining 46 were knee twisting. Twisting included sports in 20 cases (38.46%). Minimal twisting caused knee injury in 26 cases (50%). In the present study on evaluation of the side of surgery we found that most patients had a right sided injury (34, patients, 65.38%). In the present study on evaluation, we found that of the 52 cases in the study 46 patients had Medial meniscus root tear and 6 patients had lateral meniscus root tear. All were posterior root tears.

In the present study on evaluation of the range of motion before surgery, 53.85% had a mild restriction in the range of motion (Tab. 1).

Rom pre-operative	No. of patients	% of patients
Less than 80 Degrees	2	3.85
80-90 Degrees	26	50
91-120 Degrees	18	34.62
>120 Degrees	6	11.54

Table 1: Pre-Operative Range of Motion

In the present study on evaluation of the, range of motion following surgery, most patients had a good range of motion of 130 degrees (12 patients, 23.08%) (Tab. 2). Overall, the improvement in the range of motion was statistically significant with p value < 0.001.

Rom post-operative	No. of patients	% of patients
Less than 80 Degrees	2	3.85
80-90 Degrees	0	0
90-120 Degrees	38	73.08
>120 Degrees	12	23.08

Table 2: Post-Operative Range of Motion

In the present study on evaluation of complications following surgery, most patients had no complications. However, 2 patients (3.85 %) had knee stiffness post-surgery.

In the present study on evaluation of LYSHOLM Knee Score there was significant difference between the pre-operative and post-operative scores at each follow up. The pre-operative score was 68.52, while the LYSHOLM Knee Score post-operative at 6 weeks was 81.72, 3 months was 85.72, and 6 months was 92.23. As compared to pre-op

scores at the end of 6 months the difference was statistically significant with a p value < 0.001 (Tab. 3).

LYSHOLM Knee SCORE	Pre-operative SCORE	Post-operative SCORE		
		6 Weeks	3 Months	6 Months
Mean	68.52	81.72	85.72	92.23
SD	4.37	3.91	3.91	2.27
P-Value	<0.001			
		0.046		
			0.031	

Table 3: LYSHOLM Knee Score

In the present study on evaluation of VAS Score there was significant difference between the pre-operative and post-operative scores at each follow up. The vas pre-operative was 7.46, the VAS post operative at 6 weeks was 4.23, 3 months was 3.12. The VAS post operative at 6 months was 1.19 as compared to pre-operative scores. At the end of 6months the difference was statistically significant with p value < 0.001 (Tab. 4).

VAS SCORE	Pre-operative SCORE	Post-operative SCORE		
		6 Weeks	3 Months	6 Months
Mean	7.46	4.23	3.12	1.19
SD	0.86	0.91	0.521	0.40
P-Value	<0.001			
		0.02		
			0.015	

Table 4: VAS Score

Following surgery, there was an excellent outcome in 38 cases based on LYSHOLM Knee Score (Tab. 5).

Results	No. of patients	% of patients
Excellent	38	73.07
Good	12	23.07
Fair	0	0
Poor	2	3.85

Table 5: Outcomes Post-Operative based on LYSHOLM Knee score

Discussion

In this study we evaluated the functional meniscal root repair joint repair and here we compare our studies with other studies.

In the present study on evaluation of the age distribution we found that of the 52 cases in the study most patients belonged to the category 40-50 years. The mean age was 40.03 years+9.37years. we compared our findings with the other studies (Tab. 6).

	Study Year	Age Distribution (Mean Age)
Venkata Ritesh Akarapu [7]	2018	18-40 (27.5)
Dandy et al [8]	2004	10-78 (38.4)
Simpson et al [9]	1986	7-67 (30.7)
Tregonning et al [10]	1983	15-54 (27)
G. Ramesh et al [11]	2015	10-40 (27.05)
Present Study	2021	18-50 (40.03)

Table 6: Comparison of the Age distribution with other studies

In the present study on evaluation of the gender distribution we found that of the 52 cases in the study most patients were males (18, patients, 69.23%). Meniscal injuries are more common in males which may be reflection of male being more involved in aggressive sporting and manual activities that predispose to rotational injuries of the knee. In females, twisting of the leg at home was the common cause of meniscus injury

	Study Year	Males	Females
Venkata Ritesh Akarapu [7]	2018	16 (80%)	4 (20%)
Simpson et al [9]	1986	90%	10%
Tregonning et al [10]	1983	40	4
G. Ramesh et al [11]	2015	17 (85%)	3 (15%)
Present Study	2021	36 (69.23%)	16 (30.77%)

Table 7: Comparison of the Gender distribution with other studies

In the present study on evaluation of the side of surgery we found that of the 52 cases in the study most patients had a right sided injury (34 patients, 65.38%) (Tab. 8).

	Study Year	Right	Left
Venkata Ritesh Akarapu [7]	2018	13	11
Simpson et al [9]	1986	50%	50%
Tregonning et al [10]	1983	22	23
G. Ramesh et al [11]	2015	17	3
Present Study	2021	34 (65.28%)	18 (34.62%)

Table 8: Comparison of side of surgery distribution with other studies

In the present study on evaluation of LYSHOLM Knee Score there was significant difference between the pre-operative and post-operative scores at each follow up. The pre-op was 68.52, the LYSHOLM Knee Score post-operative score at 6 weeks was 81.72, 3 months was 85.72, 6 months was 92.23. As compared to pre-operative scores at the end of 6 months the difference was statistically significant with p value < 0.001. Functional results in series of Schimmer et al [12] 94.8% of patients had an excellent to good results and 5.2% Fair to Poor result. Functional outcome results in Ramesh [11] series excellent 70%, good 25%, Fair 5% as compared results in series of Rao [13] was excellent 80%, good 10% and Poor – 10%.

In the present study on evaluation of VAS Score, there was significant difference between the pre-operative and post-operative scores at each follow up. The VAS pre-operative was 7.46, the VAS post operative at 6 weeks was 4.23, 3 months was 3.12, 6 months was 1.19. As compared to pre-operative scores at the end of 6 months the difference was statistically significant with p value < 0.001. Following surgery there was an excellent outcome in most of the cases with respect to the range of motion overall the improvement in the range of motion the difference was statistically significant with a p value < 0.001.

Conclusion

In the present study we found that sports related twisting injuries were commoner, seen more in males and in young adults. Following meniscus root repair, it is possible to get a good range of motion back post operatively with significant improvement in LYSHOLM score & VAS score if appropriate post-operative physiotherapy is instituted at the right time.

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Success Rate and Complications Associated with the Surgical Treatment of Cervical Spondylosis Myelopathy in Albania

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Abstract

Background: Patients suffering from cervical spondylotic myelopathy (SCM) and that do not respond to conservative treatment could benefit from anterior cervical spine surgery. However, surgical intervention is associated with increased risk of complications and therefore the decision to operate should be weighed against benefits. The purpose of this study was to describe the effectiveness and the rate of complications of anterior cervical spine surgery among CSM who do not respond to conservative treatment in Albania.

Material and Methods: A total of 100 CSM patients who did not respond to conservative treatment and who showed up at our Service during 2014-2019 were subjected to anterior cervical spine surgery to resolve the CSM related signs and symptoms. The success rate as well as short-term and long-term complication of surgery were evaluated and reported.

Results: The mean age of CSM patients (59% males) in the study was 51.5 years. One surgical procedure was employed in 90% of CSM patients whereas two procedures were necessary in the remaining 10%. The overall success rate of anterior cervical spine surgery was 70% (excellent in 40% of CSM patients and good in 30% of patients) whereas in 30% of CSM patients' surgery did not bring any benefit or there were no changes compared to before the surgery. The overall rate of complications was 16%; no patients died following surgery. Specific complications were rare and varying from 1% of patients (Brown-Sequard syndrome, vocal cord paresis, wound infection) to 3% (subcutaneous hematoma).

Conclusion: Anterior cervical spine surgery is associated with a relatively high success rate and a low level of post-operative complications and it might be regarded as a safe treatment among these CSM patients who do not respond to conservative treatment.

Keywords: anterior cervical, spine surgery, complications, cervical spondylotic, myelopathy,

Introduction

Cervical spondylotic myelopathy (CSM) is the most common type of a group of degenerative conditions, described with the term Degenerative Cervical Myelopathy (DCM) [1, 2].

The prevalence of CSM is greatly increased with increasing age, and varying from 0.6% among individuals younger than 20 years and peaked to about 9% among those aged 70+ years [1]. The association with age is due to the increasing incidence of central disc herniation with increasing age [1].

The incidence of CSM appears to be steadily increasing, and this carries a significant risk of developing various disabilities. For example, Bakhsheshian and colleagues reported that the incidence and prevalence of CSM-related spinal cord injury in North America is 4.10 and 6.05 cases per 100,000 inhabitants, respectively, and CSM was the most common diagnosis (23.6 %) among 585 patients admitted to a hospital in the UK with tetra paresis or paraparesis [2]; further, they reported that in the United States, the number of CSM patients admitted by the emergency department doubled between 1993 and 2002, from 3.73 cases in 1993

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to 7.88 cases per 100 inhabitants in 2002 and the number of patients who underwent surgical reconstruction of the cervical spine increased sevenfold during this period [2]. The incidence of CSM and the subsequent number of cervical spine surgeries may continue to increase worldwide as the elderly population is growing everywhere, but especially in developed and middle-income countries.

Patients with asymptomatic or mild CSM can be treated with conservative therapy. However, in case of progressive, moderate or severe cervical spondylotic myelopathy or in patients who do not respond to conservative therapies surgical decompression should be applied.

Various surgical techniques are at disposal, depending on the nature and severity of the damage, localization of the problem, and the state of signs and symptoms the patient experiences. Among these, anterior cervical spine surgery techniques are frequently applied. Anterior cervical spine surgery includes a range of surgical techniques, such as anterior cervical foraminotomy, anterior cervical discectomy with fusion or arthroplasty, and cervical corpectomy [3-6]. Anterior interventions resolve conditions involving the disc space and the vertebral body, playing a key role in correcting or maintaining the sagittal position of the spine. Before undertaking anterior surgical procedures, it is necessary to assess the functioning of the vocal cords of patients who have undergone previous neck surgery. Whereas patients with significant swallowing disorder or patients who have undergone extensive neck irradiation may not be suitable for anterior surgical procedures [3, 7].

Posterior cervical interventions include posterior cervical foraminotomy, laminectomy, laminoplasty, and fusion [8-10]. These procedures are generally reserved for mild lateral disc herniation, foraminal stenosis, and myelopathy due to multilevel congenital stenosis, which cannot be safely or adequately treated with an anterior approach [8-10].

Although anterior and posterior approaches to treating cervical spondylotic myelopathy have been reported to be comparable in terms of efficacy and safety, an increasing number of studies support the anterior approach as associated with better neurological improvement, better positioning, increased cost-benefit and greater patient satisfaction [11, 12].

Despite the obvious benefits, spine surgery could be accompanied by various surgical complications. Whereas the international literature has reported on spine surgery complications, such information is lacking in Albania. In this context, the aim of this study was to describe the complications of anterior spine surgery among a group of patients diagnosed with CSM and not responding to conservative treatment in Albania.

Material and Methods:

This study represents a series of patients (cases) diagnosed with cervical spondylotic myelopathy (CSM) and treated surgically at the Neurology Service at the University Hospital Center "Mother Teresa", in Tirana, Albania, during the period 2014-2019.

Study population

The study population included all patients diagnosed with cervical spondylotic myelopathy and treated surgically for this health condition during 2014-2019. This study included only CSM patients that did not respond to conservative therapy through pharmacological drugs or other manipulative/rehabilitation procedures.

In total, during this period, 100 patients presented to our service with the diagnosis of cervical spondylotic myelopathy, the treatment of which required surgical intervention.

These patients also represent the final population of our study.

The surgical intervention

All CSM patients in this study were subjected to anterior cervical spine surgery. The patients who participated in the study were treated surgically, aggressively, with the aim of relieving them of symptoms and preventing their further neurological deterioration.

Patients were evaluated at different periods after the surgery to record their health status and the effectiveness of the intervention, including surgery complications. More specifically:

- 45 patients or 45% of participants were evaluated 1-3 years after surgery;
- 45 patients or 45% of participants were evaluated 3-6 years after surgery; AND
- 10 patients or 10% of participants were evaluated more than 6 years after surgery.

Part of this post-operative assessment was the assessment of mortality and morbidity rates. Persistent neurological complications were assessed including: Brown-Sequard syndrome, cervical pain, motor deficits, and radicular pain. Complications of operative techniques such as vocal cord paresis, subcutaneous hematoma, persistent dysfunction, graft extrusion, and operative exploration were also assessed.

This study was approved by the Bio-Medical Ethics Committee of the Faculty of Medicine, Tirana.

Statistical analysis

Absolute numbers and corresponding percentages were used to describe categorical variables; for describing continuous or discrete numerical variables, the arithmetic mean (magnitude of central tendency) and standard deviation (magnitude of dispersion) was used. The frequency and type of complications after cervical spine surgery has been reported. The data analysis was performed through the Statistical Package for Social Sciences software, version 26.

Results

This study included 100 patients diagnosed with cervical spondylotic myelopathy and treated with anterior surgery to alleviate their symptoms and prevent their neurological deterioration.

Among the patients who participated in this study 59 of them or 59% were male and the remaining 41 patients or

41% of all patients were female.

The mean age of CSM patients (59% males) was 51.5 ± 11.6 years with 87% of patients being 40-60 years old at the time of presentation to our service.

Table 1 presents information regarding cervical spine surgery among CSM patients included in our study. One surgical procedure has been employed in 90% of patients whereas two procedures were necessary in the remaining 10%. On the other hand, in 60% of cases only one cervical level has been explored, two levels have been explored in 30% of cases and three levels were explored in 10% of CSM patients.

Cervical spine surgery	Cases		Level	
	Absolute number	Percentage (%)	Absolute number	Percentage (%)
Number of surgical procedures				
One	90	90.0	123	80.0
Two	10	10.0	43	20.0
Number of explored levels				
One	60	60.0	60	20.0
Two	30	30.0	90	70.0
Three	10	10.0	30	10.0
Four	0	0.0	0	0.0

Table 1. Data related to surgical interventions among patients with cervical spondylotic myelopathy

Table 2 shows information on the success rate or effectiveness of anterior cervical spine surgery to resolve SCM among participants. More than two thirds (70%) of the patients who underwent the surgery had improved, while the remaining 30% did not have any improvement after the surgery.

The result of the surgical intervention to resolve SCM	Cases	
	Absolute number	Percentage (%)
Excellent	40	40.0
Good	30	30.0
Bad/no change	30	30.0

Table 2. The result of anterior cervical spine surgery among patients with cervical spondylotic myelopathy

Table 3 shows the information regarding cervical spine surgery complications. No patient has lost his/her life as a result of surgical intervention to address cervical spondylotic myelopathy. However, 16 patients or 16% of all patients in the study experienced at least one complication.

A permanent neurological complication has been Brown Sequard syndrome. On the other hand, 8 patients had transient radicular pain, sensory disturbances, muscle deficits, and cervical pain after surgery. Also, 4 patients

had subcutaneous hematomas without having to be treated with surgery. One case had an operative wound infection. No case of graft extrusion was noticed. Meanwhile, two patients experienced dysphagia (Table 3).

Complications	Cases	
	Absolute number	Percentage (%)
Mortality	0	0.0
Morbidity (at least one complication)	16	16.0
Permanent neurological complications		
Brown - Sequard Syndrome	1	1.0
Cervical pain	2	2.0
Sensor deficit	2	2.0
Motor deficit	2	2.0
Radicular pain	2	2.0
Complications of operating techniques		
Vocal cord paresis	1	1.0
Subcutaneous hematoma	3	3.0
Persistent dysphagia	2	2.0
Wound infections	1	1.0
Graft extrusion	0	0.0
Reoperation	0	0.0

Table 3. Complications of surgical intervention in patients with cervical spondylotic myelopathy

Discussion

The current study has reported novel information about the effectiveness of anterior cervical spine surgery and related complications among patients with CSM in Albania. To our knowledge, this is the first scientific report documenting these processes and outcomes in Albania. Our findings suggest that anterior cervical spine surgery is effective in resolving CSM in the majority of patients and the related surgical complications are rather rare and in line with international reports.

There is already ample scientific evidence that surgical decompression of the cervical spinal cord is an effective alternative to treating cervical spondylotic myelopathy that, at the very least, can stop the progression of symptoms and also promote functional recovery.

There is still a strong debate over the optimal surgical approach to the most effective treatment of cervical spondylotic myelopathy and to the timing of conservative treatment before turning to the surgical option. However, a randomized clinical trial suggested that perhaps conservative treatment could be continued for up to three years after the diagnosis of cervical spondylotic myelopathy [13]; afterwards, surgery is needed to address the neurological signs and symptoms and to prevent neurological

deterioration. Other studies have reported the superiority of surgical treatment to resolve the signs and symptoms related to CSM compared to conservative treatment [14, 15].

Regarding the level of success of anterior cervical surgery to resolve compression in CSM in our study we reported that 40% of patients had excellent results, 30% had good results and 30% have no improvement or benefit from these procedures; this means that the success rate of anterior surgery to resolve the CSM in Albania is 70%. This finding is comparable to reports in the international literature. For example, a retrospective study among 69 CSM patients reported that 81.2% of them had excellent and good outcome after anterior surgery [16]. Another study among 120 CSM patients who underwent anterior surgery reported a success rate (excellent and good) of surgery at 79% [17]. Success rates of about 80% of anterior surgery for the treatment of CSM have been reported by other studies in the international arena [18]. Several other studies have reported a success rate of surgery for treating CSM signs and symptoms comparable to the level reported in our study, about 70%; this includes the study by Gao and his colleagues where a success rate of about 74% was reported [19] and the study conducted by Sarkar and his colleagues who reported a surgery success rate of about 72% [20]. Meanwhile, there are also studies that report a success rate of surgery lower than the success rate reported in our study: for example, a study among 248 CSM patients who underwent surgery reported a success rate of surgical procedures in low level of about 59% [21]. It is clear that the level of success of anterior surgery to resolve the signs and symptoms of CSM in Albania is comparable to the success levels of these procedures in the international arena.

In our study the prevalence of complications after anterior cervical surgery was 16%. This result is completely consistent with the literature reports, which suggest that the level of complications after anterior surgical interventions for the correction of cervical spondylotic myelopathy varies from about 2% to about 31% [22, 23]. Complications of anterior cervical surgery for the correction of cervical spondylotic myelopathy include a range of medical conditions such as neurological and vascular injury, esophageal injury, respiratory distress, implant-related complications, displacement of the graft from the right position, cerebrospinal fluid leakage, operative wound infection, etc. [23, 24].

In a study in the US and Canada, the prevalence of postoperative complications after anterior cervical surgical techniques was 11% [23], a finding similar to the 16% prevalence of complications among our CSM patients treated with anterior operative procedure. In the study in the US and Canada the surgical approach was associated with a mortality rate of 0.3%, or one case died while in hospital after surgery due to cardiopulmonary arrest [23], whereas in our study none loss of life during and after surgery in MSC patients.

In our study operative wound infection was encountered in 1% of patients with CSM treated with surgery whereas

in the study in the US and Canada this complication was evidenced in 0.6% of patients treated with anterior cervical surgery [23]. The incidence of post-operative infection was reported at 1.2% also by a systematic review of the literature that included 240 different articles [25]. It is a well-known fact that anterior cervical surgery is associated with a lower incidence of post-operative infections compared to posterior surgical procedures [26].

The incidence of persistent dysphagia in our study was 2% after anterior surgery, and this finding is almost identical to the incidence of this complication identified among CSM patients treated with anterior surgery in the US and Canada, where a level of 2.3 was reported [23]. In the international literature, the levels of dysphagia after surgical treatment with MSC anterior, posterior, or combined anterior-posterior techniques range from 0% to 24% [23]. A recently published (2020) systematic review of the literature on complications of anterior cervical surgery reported an overall dysphagia rate of 5.3% [25].

Postoperative cervical pain was reported in approximately 1% of CSM patients in the study in the US and Canada [23], similar to the finding of our study (2%).

Subcutaneous hematoma was reported in 3% of patients in our study whereas the overall hematoma level was reported 1% from a systematic literature review that included 240 different articles [25].

Likewise, about 0.3% of CSM patients treated with surgery need reoperation [23], whereas in our study no CSM patient needed reoperation.

Radiculopathy was encountered in 1.7%-8.5% of CSM patients treated with surgery, based on the international literature [23, 27-29], a finding similar to that reported in our study (2%).

In our study 1 patient out of 100 CSM patients who underwent anterior cervical surgery resulted in permanent Brown-Sequard syndrome even after surgery. The international literature has also described cases of occurrence or development of this syndrome after surgical decompression [30], but these are rare cases.

In our study the presence of permanent motor deficits was evident in 2% of all CSM patients who underwent anterior cervical surgery; this constitutes a low level of this condition. Anterior surgery is reported to bring good benefits in reducing motor deficits in these patients, especially those who present with a significant level of preoperative physical weakness as reported in a study of 1001 patients who underwent anterior cervical fusion discectomy between 2010-2013 and were followed for two years after the intervention; among 54 patients with pronounced physical weakness before surgery, about 87% of them experienced a good recovery of motor functions even two years after the intervention [31].

Overall, in our study we noticed a fairly low incidence of permanent neurological complications and a low level of post-operative complications, compared to other studies in the international arena [25].

Conclusion

Anterior cervical spine surgery is effective in resolving CSM signs and symptoms in the majority of Albanian CSM patients that do not respond to conservative treatment. Also, anterior cervical spine surgery is associated with a low level of post-operative complications thus it might be regarded as a safe treatment among these patients.

Ethics approval and consent to participate

Not applicable.

Consent for publication

Written informed consent was obtained from the patient for the publication of this case report and any accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal.

Availability of data and materials

Not applicable.

Competing interests

The authors declare that they have no competing interests.

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Authors' contributions

AXH conceived and drafted the manuscript. NH designed and revised the work. AXH participated in the sequence alignment and performed statistical analysis. AXH participated in the design of the study and performed the laboratory analysis. AXH participated in its coordination and helped to draft the manuscript. All authors read and approved the final manuscript.

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Some Consideration about Port Site Hernia after Laparoscopic Surgery.

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Abstract

Introduction: Port site hernias continue to be a major problem in laparoscopic surgery. The causes of this type of hernia are numerous. The main ones are operative wound infection, obesity, male gender, diabetes, BPH, etc. However, in addition to these factors it seems that in the etiology of post laparoscopic port - site hernias are at least two other factors that have an impact on these complications.

Aim of the article is to assess the role of different factors in the occurrence of port site incisional hernias according to our experience.

Material and Methods: the 187 patients who were operated on at the General Surgery Department of the Clinical Hospital of Tetovo between January, 2017 and June, 2019 on whom the surgical intervention was performed through laparoscopic techniques were included in this study. The reason for the surgical interventions has been various surgical pathologies of the abdomen such as cholecystolithiasis, acute appendicitis, cysts of the liver, ovaries and kidneys, etc. Postoperative complications in these patients, especially port site hernia will be in the focus of our study.

Results: Out of the total of 187 patients included in this study the occurrence of incisional hernia was recorded in six of them. In five patients the hernia was localized at the site of insertion of the supra-umbilical trocar, while in the other, the trocar was inserted below the xiphoid process. From our records it happened that in all these patients, with postoperative hernia, the insertion of the cannula was done with the cutting trocar. At the same time in all six patients with post laparoscopic hernia the surgical intervention performed was cholecystectomy or appendectomy. Thus, the removal of the gallbladder and appendix, without the use of an Endo-bag, was performed at the site of the hernia presentation. In all these patients the entrance porta infection in which the hernia has occurred, was registered in the early post operative period.

Conclusion: Of the many factors that increase the risk of incisional hernias, at the site of cannula insertion during laparoscopic interventions, it seems that the type of trocar and the place from which the extruded organ is removed, if it is done without the use of an Endo-bag, are very important.

Keywords: Port site hernias, Endo-bag, laparoscopic surgery, incisional hernias

Introduction:

It is now known that the first laparoscopic cholecystectomy (LC) performed by Prof. Dr. Med Erich Mühe from

Böblingen, Germany, September 12, 1985, [1] the procedure has become quite popular in every surgical clinic, which has significantly changed the surgical management of surgical abdominal pathologies as urgent and planned.

The first literature data on a port-site incisional hernia (PIH) in the literature were written by Fear in 1968 after a laparoscopic gynecological operation [2].

While the first publication of a PIH after LC was launched by Maio et al in 1991. [3]

This complication, although seemingly rare, and long known, its presence is becoming more important with the increase in the number of patients with this complication.

Studies show that the incidence of PIH varies between 1% and 6%. [4]

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Several closure methods have been tested and some have been found to cause less morbidity.

Due to the variable degree of PIH and its drastic complications reported in these studies, it is important for surgeons to individually audit their results to prevent or reduce these complications. This article evaluates the classical method of closure and discusses the factors associated with incisional hernia at the gate.

The incidence of PSH which is related to all laparoscopic procedures is described to be between 0.14% and 22%. [5]

Its main complaint is pain, but it can be followed by serious complications, including intestinal obstruction, suffocation, and perforation. [6]

In fact, the incidence and spectrum of laparoscopic complications is greater than previously perceived [7], which was subsequently accompanied by continuous improvement of laparoscopic techniques, instruments and training, to reduce these avoidable complications, and especially problems like the imprisoned hernia. [8]

With the extension of laparoscopic access, complications are also associated with the surgeon's experience. The incidence of complications after laparoscopic surgery [9] is as follows: incisional hernia 0.5%, bleeding from the abdominal wall vessels 0.2%, intestinal injuries 0.06% and wound infections 0.06%. The incidence of PIH was reported to be as low as 0.08 in another large series. [10]

Minimally invasive surgery is gaining more and more space, especially in general surgery, not only because of the much lower rate of invasiveness, but also because of the lower incidence of postoperative complications. Through minimally invasive techniques today are performed the most complicated interventions whether in the biliary tract, pancreas, stomach, colon or even in the liver.

Numerous data from many studies indicate much better results of laparoscopic interventions compared to conventional surgery.

As with conventional surgery, laparoscopic postoperative complications can be early and late. Of the late postoperative complications, one of the most common are incisional hernias at the site of trocar insertion.

Aim of the article: The main causes of hernias at the site of trocar insertion, as one of the most common complications in laparoscopic surgery will be the focus of this study.

Material and methods:

The study includes 187 patients who were operated on in the General Surgery Ward at the Clinical Hospital of Tetovo, during the period January 2017 - January 2019. Patients included in this study were regularly monitored by surgeons for two years after surgery. The reasons for surgical interventions have been different, but in most of them laparoscopic cholecystectomy was performed, while in some others appendectomy, adherent colysis, renal

pericystectomy, etc. Incisional hernia at the site of insertion of any of the trochanters has been the most common postoperative complication. The causes of incisional hernias in the late postoperative period, will be the subject of this study.

Results:

Most of the 187 patients included in this study are female respectively 128 of them or about 68.4%, while only 59 males (31.6%). As for the age of the patients included in the study, it varies from 28 to 72 years, with most patients being between 40 and 65 years old.

The reasons for the surgical interventions were different, but most of them were operated due to cholecystolithiasis, respectively 158 of them or 82.4%. Other causes of surgical interventions have been appendectomy, intestinal adhesions, hepatic and renal cysts.

In this study we focused on late postoperative complications respectively on the reasons for the appearance of incisional hernias after laparoscopic interventions.

We have considered some of the factors which generally pose a risk for the development of incisional hernias in all operated patients regardless of the pathology and the surgical technique used to treat the disease.

One of the most common reasons for the appearance of hernias at the site of surgery is infection of the operative wound. Of the 187 patients included in this study, operative wound infection was recorded in 18 operated patients, marking an incidence of 9.6 %. In 18 of the patients with operative wound infection in five of them the infection was very severe and as a result in three cases came to the development of incisional hernia (16.6 %). Thus, based on our data, it results that in half of the patients of this study, the main cause of incisional hernia was the infection of the operative wound.

Another risk factor for the appearance of incisional hernias is obesity. Of the 187 patients in this study, 104 of them (55.6%) were overweight, respectively with a BMI over 27. While out of six patients with incisional hernias, three of them have a BMI over 30. In one of the patients (male) with incisional hernia, the cause of the hernia was severe infection of the operative wound, while his BMI was 25.

Smoking and diabetes are considered as other risk factors for the development of incisional hernias. Of the six patients with port site incisional hernia, two were diabetic and three other smokers, with one patient being both a diabetic and a smoker. The only male patient with incisional hernia, in whom the hernia appeared as a result of a severe infection of the operative wound, was also diabetic, and until recently also a smoker.

None of the patients included in the study suffered from malnutrition or malabsorption, and had no other chronic diseases.

An interesting fact that results from our observation regarding the place of appearance of incisional hernias is

that in all patients the hernia appeared in the port site from which the organ was extracted from abdominal cavity, respectively in four cases at the umbilical port and in the other two patients in the subxiphoid one.

Another data that seems to have an impact on the appearance of incisional hernias in patients after laparoscopic interventions is the diameter of the trocar. In all our patients' incisional hernias are observed at the site of insertion of trocars with a diameter of 10-12 mm, in none of the patients the appearance of incisional hernia at the site of insertion of the trocar with a diameter of 5 mm was noticed.

Based on our experience we cannot conclude with certainty that the duration of the intervention is related to the occurrence of incisional hernias, however in two of the patients with incisional hernias the surgical intervention lasted much longer than the time normally provided, due to complications and difficulties during the intervention. Longer duration of surgery than normally predicted, was also recorded in twelve other patients, but without any postoperative complications.

Regarding the way of placing the first trocar, in 167 patients (89.3%) it was a sharp trocar, while in the other 21 patients the access was done through the open technique according to Hasson. In all patients with hernia the first trocar we placed was sharp. Based on our experience, it seems that first access in the abdominal cavity through sharp trocars poses a greater risk in terms of the development of incisional hernias after laparoscopic interventions.

In all patients with port site incisional of hernia, wound closure was done through monofilament sutures placed at a distance of no more than 5 mm from each other.

Discussion:

Despite the many advantages of minimally invasive surgery over conventional surgery, incisional hernias continue to be a concern even in laparoscopic surgery, although with a significantly lower incidence than in conventional surgery.

In this study we tried to give an overview of the factors which most provoke the appearance of incisional hernias after laparoscopic interventions.

In our practice the incidence of incisional hernias after laparoscopic interventions results to be around 3.2%. Various studies refer to an incidence of incisional hernias from 0.5 to more than 10% [11, 12, 13, 14, 15].

The most common causes of incisional hernias referred by many studies but also resulting from our experience, are several factors such as surgical wound infection, obesity, diabetes, smoking and some other chronic diseases.

With a frequency of about 1.6%, operative wound infection turns out to be the most common cause of incisional hernias in our study.

Operative wound infection as the most common cause of incisional hernias is also referred in many other studies where the incidence ranges approximately from 1 - 3 % [16, 17].

Another fact that indicates a high risk for the development of incisional hernias is obesity. So out of six of our patients with incisional hernia, five of them were overweight, respectively three of them with BMI over 30. Two of these patients were also diabetic. Obesity and diabetes, as a cause of incisional hernias is referred to in many other studies [18, 19, 20].

In four of the six patients with incisional hernia, the localization of the hernia was the supra-umbilical port, while in the other two patients the site of the hernia was under the xiphoid process. In both of these patients the main cause of hernia was severe postoperative infection. Umbilical porta as the most common site of port site incisional hernia is mentioned by most other authors [21, 22].

Conclusion:

Of the many factors that increase the risk of incisional hernias, at the site of cannula insertion during laparoscopic interventions, it seems that the type of trocar and the place from which the extruded organ is removed, if it is done without the use of an Endo-bag, are very important.

COI Statement: This paper has not been submitted in parallel. It has not been presented fully or partially at a meeting or podium or congress. It has not been published nor submitted for consideration beforehand.

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Characteristics, Effect of Histological Grade and Localization on the Prognosis of Colorectal Cancer. A retrospective Study.

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Abstract

Background: Colorectal cancer is the third most deadly cancer and the fourth most frequent in the world according to GLOBOCAN 2018. The number of new cases is growing up, which may also be related to lifestyle. Many studies have shown a difference in the number of males and females, correlation of localization, stage, and grade with prognosis.

Material and Methods: In our study were included operated cases with colorectal cancer in University Hospital Center “Mother Theresa” during the period from January 1, 2016 to December 31, 2017.

In our study, the total number of patients enrolled is 334. In the end was evaluated the correlation between histological grade, stage, and localization with prognosis.

Results: From the study resulted that males were affected more than females by colorectal cancer.

The average age of diagnosis of colorectal cancer is 63.9 (± 12.4) years. Moderately differentiated adenocarcinoma, histological grade II and pathological stage pT3N0Mx after TNM are predominant.

The commonest localization is the rectum. Disease-free survival is better in stages I and IIa than in other stages, least favorable in poorly differentiated adenocarcinoma.

Conclusion: In Albania, patients diagnosed with CRC showed a low survival rate specific to cancer.

The type of histology, the stage of the cancer, and the level of CEA at diagnosis and the type of treatment a patient received significantly determine the mortality rate.

Therefore, cancer screening programs can help to detect the disease at an early stage and initiate timely available treatments in order to extend the life expectancy of CRC patients.

Keywords: colorectal cancer, histological grade, disease-free survival.

Introduction:

Worldwide, there were approximately 24.5 million cases and 9.6 million deaths in 2017 from Cancer, which continues to be the second leading cause of morbidity and mortality [1].

Colorectal cancer (CRC) ranks third in incidence and second leading cause of cancer deaths in both sexes worldwide, with nearly 2 million new cases and more than one million new deaths by 2020 [2], which accounts for 10% and 9.4% of all cancer cases and deaths respectively.

Previously, cancer was considered a disease of high-income countries, however, now evidence shows that they are also becoming a major public health issue in low- and middle-income countries (LMIC).

Global studies have shown that lifestyle changes, urbanization, cultural changes (physical inactivity and unhealthy dietary habits) and increased life expectancy at LMIC may be possible reasons for the increase in cancer cases [3, 4, 5].

Improving individual income and economic growth in LMICs has shifted the dietary pattern towards an increased

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intake of fat, sugar and packaged foods of animal origin [6].

From 2007 to 2017, the largest increase (52%) of cancer incidence was observed in countries with the Medium Socio-Economic Development Index (SDI) [1].

In our study were included operated cases with colorectal cancer in University Hospital Center “Mother Theresa” during the period from January 1, 2016 to December 31, 2017. The total number of patients included in the study for both years is 334. The year 2016 has a total number of 153 cases, whereas the year 2017 has a total number of 181 cases. Of these cases, 158 of them are females, accounting for 47.3% of cases and 176 are males, accounting for 52.7% of cases, (Fig. 1) with a significant difference between them ($p < 0.01$). (Tab. 1)

Variables	No. of cases	% of cases	P
Gender			
Females	158	47.3	0.3
Males	176	52.7	
Age, M (SD)	63.9 (12.4)	[21-93]	
Age groups, years			<0.01
≤30	7	2.1	
31-40	6	1.8	
41-50	31	9.3	
51-60	75	22.5	
61-70	105	31.4	
>70	110	32.9	
Year			
2016	153	45.8	
2017	181	54.2	

Table 1 - Epidemiologic data of patients

Incidence of colorectal cancer in our study in according of the age-groups and gendes were as follow: In the age group < 30 years are 7 (2.1%) patients; In the age group 31-40 years are 6 (1.8%) patients; In the age group 41-50 years are 31 (9.3%) patients; In the age group 51-60 years are 75 (22.5%) patients; In the age group 61-70 years are 105 (31.4%) patients; In the age group >70 years are 110 (32.9%) patients, with a significant difference from other age groups, ($p < 0.01$) (Fig. 2)

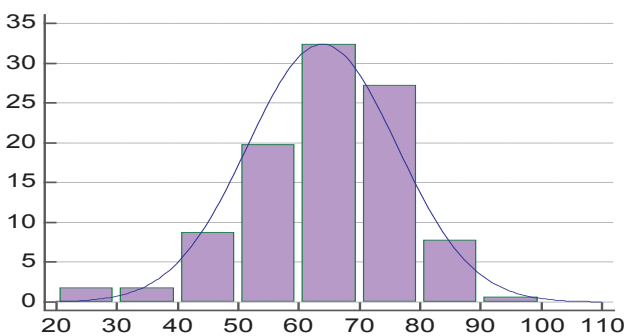


Figure 1 Distribution of Age of patients in histogram

In our study, the predominant age of patients diagnosed with colorectal cancer is age group 61-70 and >70 years with a significant difference from other age groups.

The average age of patients in our study is 63.9(12.4 %) years, ranging from 21 to 93 years.

In our study, it is noticed an increased incidence after the sixth decade of life (22.5%), with a peak in the seventh (31.4%) and eighth (32.9%) decades.

In Albania, as in most other countries, the incidence starts growing during the fifth decade of life. So, we can say that the risk of developing colorectal cancer increases with age.

This is related to long-term exposure to risk factors, as well as to an almost 10-year period of transformation of a precancerous lesion into cancer. Over 90% of patients with colorectal cancer are diagnosed over the age of 50 years, with an average age of about 64 years.

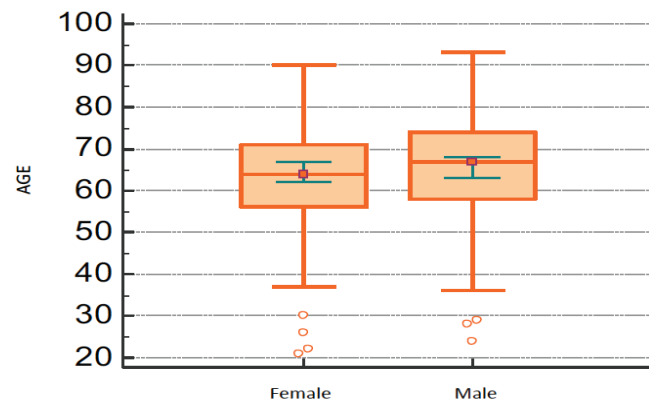


Figure 3. Comparison of average age according to gender

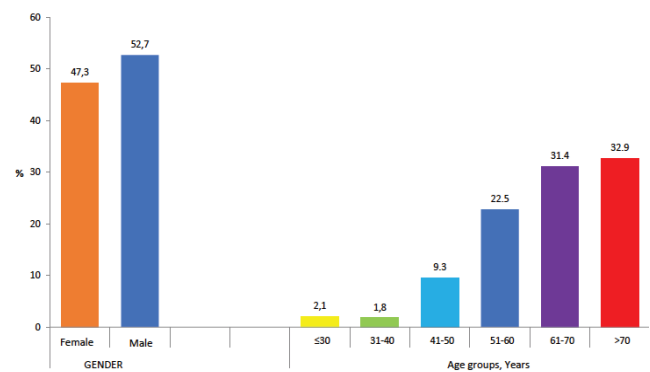


Figure 2 Distribution of data in according to gender and age group

In our study, the average age of females ($M=62.9 \pm 12.4$) is younger compared with the average age of males ($M=64.7 \pm 12.2$), but without a significant difference between them ($t=1.3, p=0.2$).

The data of our study do not support the data of the studies above, because the average age of females/males does not have a significant difference between them. The above-mentioned studies have a larger number of cases included in the study, compared with ours, and this could be the reason why the results do not match.

Years	Gender				Total	
	Female		Male			
	No. of cases	% of cases	No. of cases	% of cases	No. of cases	% of cases
2016	78	51.0	75	49.0	153	45.8
2017	80	44.2	101	55.8	181	54.2
Total	158	100	176	100	334	100

Table 2. Distribution of cases according to gender and years of study

In the year 2016, in our study were diagnosed 153 patients with colorectal cancer. 78 (51%) of them were females, whereas 75 (49%) were males. (Tab 2)

In the year 2017 were diagnosed 181 patients with colorectal cancer. 80 (44.2%) of them were females and 101(55.8%) were males. (Tab 2)

During the year 2016, it is noticed a slightly increased number of females diagnosed with colorectal cancer than males. In the year 2017, it is noticed a larger number of males compared with females diagnosed with colorectal cancer.

Anyway, there was not found a significant difference according to gender between the two years of study ($p=0.2$). (Tab 3)

Age Group	Year		P
	2016	2017	
≤30	2 (1.3)	5 (2.8)	0.2
31-40	2 (1.3)	4 (2.2)	
41-50	17 (11.1)	15 (8.3)	
51-60	34 (22.2)	42 (23.2)	
61-70	55 (35.9)	49 (27.1)	
>70	43 (28.1)	66 (36.5)	

Table 3. Distribution of cases according to age group and years of study

What is striking in this distribution is the fact that during the year 2016, as well as during the year 2017, the age groups with the highest incidence are the age groups 61-70 years and >70 years. However, there was not found a significant difference comparing the age groups between the two years ($p=0.2$) (Tab 3)

This shows again that colorectal cancer, despite the changes in incidence values undergone in recent years, remains an old age disease with a peak over 60 years.

There was not found a significant difference comparing the age groups between the two years ($p=0.2$).

In our study, it is noticed this kind of distribution of cases according to histological diagnosis: with the least number of cases is poorly differentiated adenocarcinoma with mucinous foci 2 (0.6%), moderately differentiated adenocarcinoma with mucinous foci 11(3.3%), mucinous adenocarcinoma of the colon 37(11%), well-differentiated adenocarcinoma 38(11.4%), poorly differentiated adenocarcinoma 39(11.7%) and moderately differentiated adenocarcinoma with a number of cases clearly higher than other diagnoses 207 (62%) of all histological diagnoses.(Tab 4)

The predominant diagnosis: moderately differentiated adenocarcinoma in 62% of patients, with a significant difference from other diagnoses ($p<0.01$).

Diagnosis	No. of cases	% of cases
Poorly differentiated adenocarcinoma	39	11.7%
Poorly differentiated adenocarcinoma with mucinous foci	2	0.6%
Well-differentiated adenocarcinoma	38	11.4%
Moderately differentiated adenocarcinoma	207	62.0%
Moderately differentiated adenocarcinoma with mucinous foci	11	3.3%
Mucinous adenocarcinoma of the colon	37	11.0%
Total	334	100.0

Table 4. Distribution of cases according to histological diagnosis

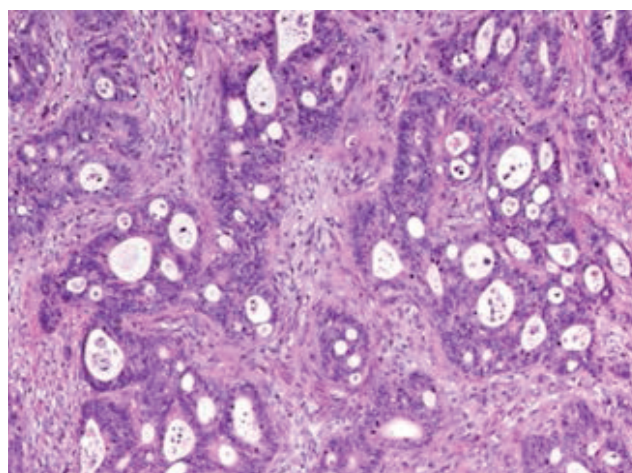


Figure 4. Moderately differentiated adenocarcinoma. Glandular component 50-95% of the tumor. Glands lose their regularity and it is noticed a loss of nucleus polarity. (H&E stain, original magnification x100)

The table 5 shows the correlation between diagnosis and gender.

Our study includes 2 (1.3%) of cases with poorly differentiated adenocarcinoma with mucinous foci (females); 11(3.3%) of cases with moderately differentiated adenocarcinoma with mucinous foci [3 (1.9%) females, 8(4.5%) males]; 36 (10.8%) of cases with mucinous adenocarcinoma of the colon [17 (11.4%) females, 19 (10.8%) males]; 38 (11.4%) of cases with well-differentiated adenocarcinoma [15 (9.5%) females, 23(13.1%) males]; 39 (11.7%) of cases with well differentiated adenocarcinoma [21 (13.3%) females, 18 (10.2%) males], and 207 (62%) of cases with moderately differentiated adenocarcinoma [99 (62.7%) females, 108 (61.4%) males]. (Tab 5)

There was not found a significant difference regarding the distribution of cases according to gender ($p=0.3$) during the evaluation of statistical data.

Moreover, even in the literature was not found any correlation between histopathological diagnosis and gender.

Diagnosis	Gender				Total	
	Female		Male		No. of cases	% of cases
	No. of cases	% of cases	No. of cases	% of cases		
Poorly differentiated adenocarcinoma	21	13.3	18	10.2	39	11.7
Poorly differentiated adenocarcinoma with mucinous foci	2	1.3	0	0	2	0.6
Well-differentiated adenocarcinoma	15	9.5	23	13.1	38	11.4
Moderately differentiated adenocarcinoma	99	62.7	108	61.4	207	62.0
Moderately differentiated adenocarcinoma with mucinous foci	3	1.9	8	4.5	11	3.3
Mucinous adenocarcinoma of the colon	17	11.4	19	10.8	36	10.8
Total	158	47.3	176	52.7	334	100

Table 5. Distribution of cases according to histological diagnosis and gender

Grade	No. of cases	% of cases
Grade 1	41	12.3
Grade 2	220	65.9
Grade 3	73	21.9
Total	334	100.0

Table 6. Distribution of cases according to histological grade

In our study we have recorded 12.3 % of cases are of grade 1, most of them 65.9% are of grade 2 and 21.9% are of grade 3, with a significant change between them ($p < 0.01$) (Tab 6)

The table and the graph above describe the grouping of patients according to histological grade. In our study there are; Grade 1 - well-differentiated adenocarcinoma 41 (12.3%) cases; Grade 2 - 220 (65.9%) cases; Grade 3 - 73 (21.9%) cases.

Some other studies describe Grade 1 and 2 as low grade, whereas Grade 3 as high grade.

The histological grade is related to histological diagnosis.

In our study, the largest number of patients have the diagnosis of moderately differentiated adenocarcinoma (G2) and this group belongs to histological Grade 2. (Tab 6)

The table 7 show the distribution of cases according to histological grade and gender.

Grade 1 has a number of 41 (12.3%) of cases, with a female/male ratio of 17/24; Grade 2 has a number of 220 (65.9%) of cases, with a female/male ratio of 102/118; Grade 3 has a number of 73 (21.6%) of cases, with a female/male ratio of 39/34.

There was not found a significant difference between histological grade and gender ($p = 0.4$) during the study of statistical data. (Tab 7)

Moreover, even in the literature was not found any correlation between histological grade and gender.

Grade	Female		Male		Total	
	No. of cases	% of cases	No. of cases	% of cases	No. of cases	% of cases
Grade 1	17	41.5	24	58.5	41	12.3
Grade 2	102	46.4	118	53.6	220	65.9
Grade 3	39	52.8	34	47.2	73	21.6
Total	158		176		334	100

Table 7. Distribution of cases according to histological grade and gender

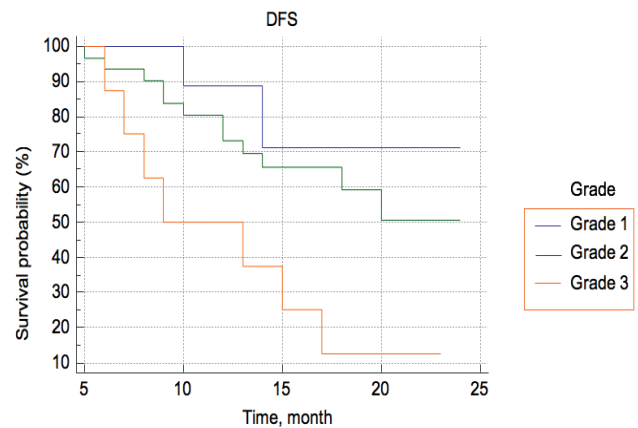


Figure 5. Progression-free survival according to histological grade

Progression-free survival is studied in survival analysis with Kaplan-Meier curves for the period 2016-2018 and results to be higher in cases with histological grade 1 and grade 2, with a significant difference to grade 3 ($p = 0.01$). This is supported by other studies, too. (Fig 5)

Localization	No. of cases	% of cases
Colon	2	0.6
Colon dexter	92	27.5
Colon sinister without rectum	100	29.9
Rectum	140	41.9
Total	334	100.0

Table 8. Distribution of cases according to anatomic localization

Localization in the rectum predominates in 41.9% of cases, with a significant difference to other regions ($p < 0.01$). The unit “colon” indicates that the anatomic localization of the tumor was not specified by the surgeon. Anyway, the value of only 2 unspecified cases, does not impact our study.

In our study, 92 (27.5%) of cases with colorectal cancer are localized in colon dexter, 100 (29.9%) of cases are localized in colon sinister (not rectum); and 140 (41.9%) of cases are localized in rectum. (Tab 8)

The predominant location of colorectal cancer is the rectum, with a significant difference from other regions. In this study, around 50% of colorectal cancer is localized in the rectum, whereas the remaining part is localized in different regions of the colon. We can say that based on our study and the studies mentioned above, the most frequent localization of colorectal cancer is the left colon and specifically the rectum. (Tab 9)

Localization	No. of cases	Average	SD (Standard deviation)
(1) Colon Dexter	92	64.76	11.91
(2) Colon Sinister without rectum	100	63.27	12.53
(3) Colon	2	70.50	10.60
(4) Rectum	140	63.57	12.52

Table 9. Comparison of average age according to tumor localization

The table and graph above show the distribution of cases in our study according to the average age and tumor localization. It is noticed that the average age is approximate for all three tumor locations. Localization in colon dexter has an average age of 64.76. Localization in colon sinister has an average age of 63.27. Localization in the rectum has an average age of 63.57. Only the two cases of unspecified location have an older average age of 70.50, but this does not affect the results of our study. (Tab 9)

It was not found a significant difference in the average age of patients according to localization.

It was not found a significant difference in the localization of disease according to gender ($p=0.5$). The table above shows the distribution of cases in our study according to localization and gender, 44 (47.8%) females and 48(52.2%) males have the localization of the tumor in colon dexter; 45 (45%) females and 55(55%) males have the localization of the tumor in colon sinister, and 69(49.3%) females and 71(50.7%) males have the localization of the tumor in the rectum.

Males are more affected in comparison with females 156/176 in all three anatomical regions, but without a significant difference between them ($p=0.5$).

Progression-free survival according to tumor localization. In the analysis of survival with Kaplan-Meier curves, it was not found a significant change in progression-

free survival according to tumor localization ($p=0.3$). (Fig. 6)

So, based on the data of our graph there is no difference in progression-free survival between the right-side cancer and the left side cancer.

The staging of disease is made according to the Tumor, Node, Metastasis (TNM) system, founded and standardized by the American Joint Committee on Cancer (AJCC). In our study, staging is done according to AJCC 8th edition .[8]

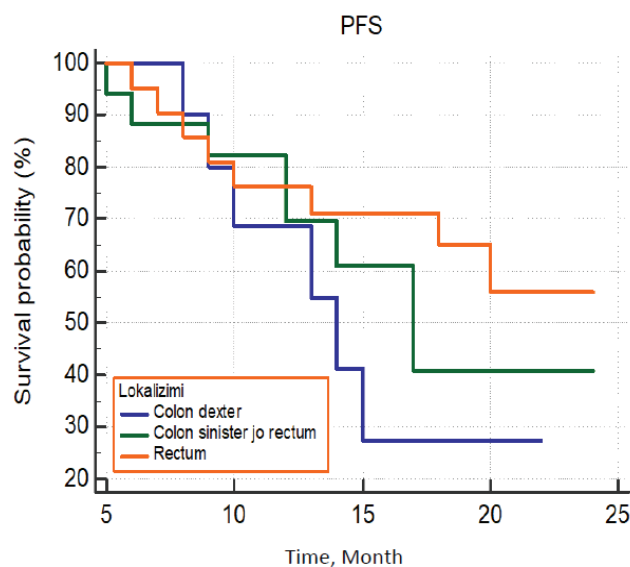


Figure 6. Progression-free survival according to tumor localization

The table 11 shows the distribution of cases involved in the study according to the stage of the disease, as follow; Stage I includes 35(10.5%), Stage IIA includes 147 (44%); Stage IIIA includes 5(1.5%); Stage IVA includes 2(0.6%); Stage IIB includes 2 (0.6%); Stage IIIB includes 137 (41%); Stage IIC includes 2 (0.6%); Stage IIIC includes 4 (1.2%) of the total cases.

In our study predominate patients in stage IIA (44% of cases) and stage IIIB (41%) with a significant difference from other stages.

Patients in stage IIA (44%) and stage IIIB (41%) predominate, with a significant difference from other stages ($p<0.01$).

Localization	Female		Male		Total	
	No. of cases	% of cases	No. of cases	% of cases	No. of cases	% of cases
Colon	0	0	2	1.1	2	0.6
Colon dexter	44	47.8	48	52.2	92	27.5
Colon sinister without rectum	45	45.0	55	55.0	100	29.9
Rectum	69	49.3	71	50.7	140	41.9
Total	158	100	176	100	334	100

Table 10. Distribution of cases according to tumor localization and gender

Stage	No. of cases	% of cases
I	35	10.5
II A	147	44.0
III A	5	1.5
IV A	2	0.6
II B	2	0.6
III B	137	41.0
II C	2	0.6
III C	4	1.2
Total	334	100.0

Table 11. Distribution of cases according to TNM

The table 12 shows the distribution of cases according to TNM stage and gender.

The distribution of cases in our study is as follows: Stage I, female/male ratio 12/23 with female predomination; Stage IIA, female/male ratio 71/76 with a mild predomination of males; Stage IIIA, female/male ratio 1/4 with male predomination.; Stage IVA, female/male ratio 1/1; Stage IIB, female/male ratio 1/1; Stage IIIB, female/male ratio 69/68; Stage IIC, female/male ratio 1/1; Stage IIIC, female/male ratio 2/2.

There was not found a significant difference in the relation between TNM stage and gender ($p=0.7$) from the analysis of statistical data in our study.

The table 13 shows the distribution of cases according to TNM stage and histological and is evaluated the correlation between them.

Based on the data in the table, it is noticed that histological Grade 2 predominates in stages I and II, whereas Grade 3 predominates in stage IIIB.

It was found a significant difference in the distribution of patients according to histological grade and stage ($p<0.02$) from the analysis of statistical data.

Grade 3 predominates in stage IIIB (47.4%) compared with the other two grades.

The data of our study indicate that stage IIIB, which is an advanced stage of disease with involvement of regional lymph nodes from carcinomatous metastasis, has a significant correlation with histological grade 3 which is poorly differentiated adenocarcinoma, supporting the results of the study above.

There was not found a significant difference in the distribution of patients according to localization and TNM stage ($p=0.4$).

The table 14 show the distribution of patients in the study according to tumor localization and disease stage and is evaluated the correlation between them. What stands out from the distribution of the data is that the most frequent localization for all TNM stages is the rectum, but without a significant difference from other localizations.

Stage	Females		Males		Total	
	No. of cases	% of cases	No. of cases	% of cases	No. of cases	% of cases
I	12	34.3	23	65.7	35	10.5
II A	71	48.3	76	51.7	147	44.0
III A	1	20.0	4	80.0	5	1.5
IV A	1	50.0	1	50.0	2	0.6
II B	1	50.0	1	50.0	2	0.6
III B	69	50.4	68	49.6	137	41.0
II C	1	50.0	1	50.0	2	0.6
III C	2	50.0	2	50.0	4	1.2
Total	158	47.3	176	52.7	334	100

Table 12 Distribution of cases according to TNM stage and gender

Stage	Grade 1		Grade 2		Grade 3		P
	No. of cases	% of cases	No. of cases	% of cases	No. of cases	% of cases	
I	7	17.9	26	11.9	2	2.6	<0.01
II A	16	41.0	100	45.7	31	40.8	
III A	0	0	5	2.3	0	0	
IV A	1	2.6	0	0	1	1.3	
II B	0	0	1	0.5	1	1.3	
III B	15	38.5	86	39.3	36	47.4	
II C	0	0	1	0.5	1	1.3	
III C	0	0	0	0	4	5.3	

Table 13. Distribution of cases according to TNM stage and histological grad

Stage	Colon		Colon dexter		Colon sinister without rectum		Rectum		P
	No. of cases	% of cases	No. of cases	% of cases	No. of cases	% of cases	No. of cases	% of cases	
I	0	0	6	6.5	8	8.0	21	15.0	0.4
II A	2	100	41	44.6	50	50.0	54	38.6	
III A	0	0	2	2.2	1	1.0	2	1.4	
IV A	0	0	0	0	2	2.0	0	0	
II B	0	0	1	1.1	1	1.0	0	0	
III B	0	0	39	42.4	37	37.0	61	43.6	
II C	0	0	0	0	1	1.0	1	0.7	
III C	0	0	3	3.3	0	0	1	0.7	

Table 14. Distribution of cases according to tumor localization and TNM stage

In the survival analysis of our study with the Kaplan-Meier curves it is observed that the progression-free survival is higher in cases with stages I and IIA with a significant difference from other stages ($p < 0.01$). In the TNM classification, the greatest number of cases belongs to stage pT3N0Mx or stage IIA with 114 cases or 34.1% of the total number with a significant difference from other stages ($p < 0.0001$). (Fig. 7)

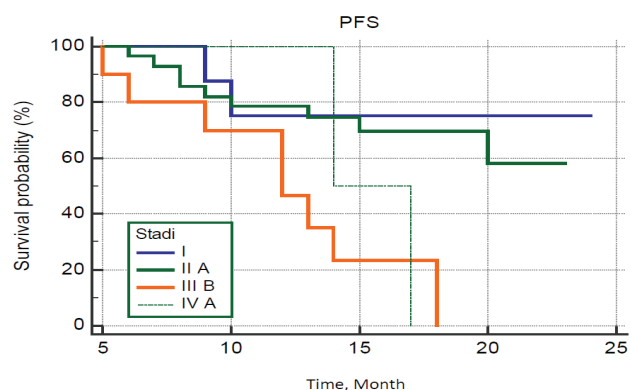


Figure 7. Progression-free survival according to TNM stage

Discussions

The incidence of colorectal cancer in Albania is lower than in neighboring countries and similar to that in Greece and may be related to the Mediterranean diet.[9]

In our study were included operated cases with colorectal cancer in University Hospital Center “Mother Theresa” during the period from January 1, 2016 to December 31, 2017. The total number of patients included in the study for both years is 334. The year 2016 has a total number of 153 cases, whereas the year 2017 has a total number of 181 cases. Of these cases, 158 of them are females, accounting for 47.3% of cases and 176 are males, accounting for 52.7% of cases, (Fig. 1) with a significant difference between them ($p < 0.01$). (Tab. 1)

Suzana Manxhuka-Kerliu et al. in their study found as Colorectal cancer in general was more frequent in men than in women 60,4% vs. 39,59%.[10]

Albania has a lower incidence of colorectal cancer than neighboring countries with a rate of 9/100000 for males and

7.9/100000 for females and a mortality rate of 4.8/100000 and 4/100000, respectively. Anyway, these figures are not very accurate because the hospital registry data are incomplete and screening programs are not performed. [7]

Bray F et al. in their study[11] in 2018, shown in about 576,000 and 521,000 men and women, respectively, are projected to be diagnosed with colon cancer. This incidence constitutes a 1.51% cumulative risk of colon cancer among men age 0–74 years, and a 1.12% risk among women. About 430,000 men and 274,000 women are expected to be diagnosed with cancer of the rectum. Their cumulative, lifetime risks are 1.2% and 65%, respectively [11]

By comparison of our data, with those of a study conducted by Ema Altobelliet al. [12] on performing screening programs in countries outside the EU, it results that Albania has a low CRC incidence rate, 9.0 among men and 7.9 among women, and an equally low mortality rate, respectively 4.8 and 4.0 but the hospital-based disease registries provide non-excellent data quality. [12]

Ferlay et al. in their[13] study have this data as fellow, CRC is more incident among men than women and 3–4 times more common in developed than in developing nations. Age-standardised (world) incidence rates per 100,000 of CRC in both sexes is 19.7, in males is 23.6, and in females is 16.3. [13]

In our study, the predominant age of patients diagnosed with colorectal cancer is age group 61-70 and >70 years with a significant difference from other age groups.

The average age of patients in our study is 63.9 years (12.4 %), ranging from 21 to 93 years.

In our study, it is noticed an increased incidence after the sixth decade of life (22.5%), with a peak in the seventh (31.4%) and eighth (32.9%) decades. In Albania, as in most other countries, the incidence starts growing during the fifth decade of life. So, we can say that the risk of developing colorectal cancer increases with age.

But Widdison et al, [14] and Teng et al. [15] in their study separately discover that Colorectal cancer was previously thought to solely affect the elderly, however recent studies published in the US, Canada and Europe have revealed a dramatic change in the pattern of the raised incidence rate among young adults. [14, 15]

In according the Howladeret al. [15]The risk of CRC

increases with age; the median age at diagnosis for colon cancer is 68 in men and 72 in women; for rectal cancer it is 63 years of age in both men and women.[16] As a result of rising CRC incidence rates in younger age groups coincident with declining rates in older age groups, the proportion of cases diagnosed in individuals younger than age 50 increased from 6% in 1990 to 11% in 2013.[16] Most of these cases (72%) occur in people who are in their 40s. [17]

According to the *Zahir Ahmed et al.* [18] the usual trend of males having a higher incidence than females for developing colorectal cancer changes during the sixth decade of life and indicates an increased incidence in females after 60 years.

What supports this fact is that during this period females experience menopause and the decrease of female hormones is a risk factor for colorectal cancer. In addition, during this age, females are more prone to weight gain and a sedentary lifestyle.

In our study, the average age of females ($M=62.9 \pm 12.4$) is younger compared with the average age of males ($M = 64.7 \pm 12.2$).

Virostko et al. [19] analyzed and try to determine if specific populations have the greatest rise in rates of CRC in younger adults. Similar trends in the proportion of cases diagnosed before age 50 were seen in men and women. [19]

Also, the incidence and mortality of colorectal cancer in populations over 65 years old are higher in women than those in men implying that colorectal cancer is a major health threat among older women. [20]

According to a study conducted by Tokyo University in Japan[20], it was found that in patients younger than 70 years, the female/male ratio was low, but increased with age.

It was also found that the chances of developing proximal colorectal cancer increased with age, whereas that for rectal cancer decreased. Even here, some studies have suggested a correlation between reduced endogenous secretion of female hormones and the occurrence of proximal colorectal cancer in older women. Other studies have shown an increased expression of estrogen receptors in the right colon epithelium compared with that of the left colon, and as a consequence of this, the reduced level of estrogen in menopause stimulates the development of right colon cancer. [21]

The data of our study do not support the data of the studies above, because the average age of females/males does not have a significant difference between them. The above-mentioned studies have a larger number of cases included in the study, compared with ours, and this could be the reason why the results do not match. [21]

In our study, it is noticed this kind of distribution of cases according to histological diagnosis: in most of the cases was moderately differentiated adenocarcinoma with a number of cases clearly higher than other diagnoses 207 (62%) of all histological diagnoses, (Tab 4) with a significant difference from other diagnoses ($p<0.01$).

The results of two studies conducted by *Sherri L. Stewart et al.*[22] on the distribution of pathological diagnosis of colorectal cancer in USA and a study conducted by *Suzana Manxhuka Kerliuet et al.*[10] in the year 2019, from the University of Pristina support the result of our study regarding the degree of spreading of moderately differentiated adenocarcinoma. So, based on the results of these studies, we can say that moderately differentiated adenocarcinoma constitutes the largest number of cases of adenocarcinoma, both in developed countries as well as in less developed ones.

Our study showed that the most common localization of colorectal cancer is the left localization, especially rectal cancer.

Meanwhile, the data in Albania show that the distribution of colorectal cancer on the right side as well as on the left side is similar for both genders, different from the study of *Sung-Eun Kim et al.*[23] which shows that cancer in women is more prone to be in the right side. One of the reasons for this result is the lower number of cases in the study compared with other studies *Kevin J. Moore et al.*[24] which could be insufficient to conclude.

There was not found a significant difference in the relation between TNM stage and gender ($p=0.7$) from the analysis of statistical data in our study.

Cheung WY et all [25] considers gender a modest prognostic factor in patients with early stages of cancer, especially in older ones, and conventional therapy for localization of cancer indicates a better prognosis in females than males.

The table 14 show the distribution of patients in the study according to tumor localization and disease stage and is evaluated the correlation between them. What stands out from the distribution of the data is that the most frequent localization for all TNM stages is the rectum, but without a significant difference from other localizations.

Our study does not support the results of two studies made by *Cassia B. Wang et al.* [25] in the years 2018 and 2019 which show that right colon cancer has a worse prognosis.

In our study, rectal adenocarcinoma has a greater frequency in all TNM stages. Compared with the two studies above, the sample examined in our study is very small and this could be one of the reasons why the results do not match. [26]

In the survival analysis of our study with the Kaplan-Meier curves it is observed that the progression-free survival is higher in cases with stages I and IIA with a significant difference from other stages ($p<0.01$). In the TNM classification, the greatest number of cases belongs to stage pT3N0Mx or stage IIA with 114 cases or 34.1% of the total number with a significant difference from other stages ($p<0.0001$).

The data of our study comply with many other studies as; *Yanal Alnimer et al.* [27] *Mouna Trabelsi et al.* [28]

The dimensions of the primary tumor have prognostic significance[29]

Anyway, TNM staging does not always indicate a positive correlation between prognosis and survival. Frequently, cases that are in the same TNM stage have a different progress of disease with different prognosis and survival from each other. This shows that in addition to the characteristics of the tumor, the internal characteristics of the patient's body also intervene in the prognosis of the disease and the survival from the disease.[30]

In our study, no significant difference was observed between the patient's age and tumor localization. One of the reasons is the fact that in our country, routine colonoscopy examinations are not performed, and this leads to delayed diagnosis in both proximal and distal cancers. One reason may be the small number of cases we have included in the study.

Conclusions

Men are affected more than women by colorectal cancer. The predominant age of patients affected by colorectal cancer is 61-70 years and over 70 years. The average age is 63.9 (\pm 12.4) years. Disease-free survival is longer in stage I and stage IIa of the disease.

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Breast Cancer Disease Burden in Albania

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Abstract

Introduction: There are data on an increase in cancer cases in Albania in recent decades, this growing trend of cancer in the Albanian population is due to the rapid increase of habits or unhealthy behaviours such as; smoking, excessive alcohol consumption, unhealthy diet, high levels of obesity, and physical inactivity. However, Albanian men and women show one of the lowest values (in terms of age) in the region of Southeast Europe. In Albania still, we do not have official data regarding the number of breast cancer diagnosed patients either their characteristics, or pathological profile.

Our purpose is to conduct retrospective study of number of Breast Cancer patients treated and diagnosed in Albania during 2018.

Material and Methods: We have recorded and recorded all breast cancer data from the registry of the Oncology Service at University Hospital Center “Mother Teresa” and private clinics in Tirana and from the registries of the district hospitals, during 2018.

Results: Total number of breast cancer patients treated and diagnosed in 2018, from them 506 patients were diagnosed and treated with breast cancer of all stages in our hospital. Since the registry of cancer is still not entirely functioning the data represents only our hospital not.

Conclusions: Breast cancer remains a major public health concern worldwide. Trends in the incidence, mortality, and regulated life years of the disabled are varied across regions and countries, suggesting the allocation of appropriate health care resources for breast cancer, which should have the highest level of evaluation.

Keywords: breast cancer, Oncology Service, tumors, pathological profile.

Abbreviations

HER2 - Human Epidermal growth factor receptor 2;
IHC – Immunohistochemistry; SISH - Silver DNA in Situ Hybridization; BC - Breast cancer; Sc – Scoring; FISH - fluorescence in situ hybridization; AR - The androgen receptor; ER - The estrogen receptors; G - Histological grade; HR - The hormone receptors; PR - The progesteron receptors; N- Lymph node involvement; T - Tumour stage

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Introduction:

Cancer is one of the leading causes of death worldwide.[1] In 2008 there were 8 million deaths due to malignant diseases and this figure could reach up to 11 million by 2030. [2] Breast cancer is the most common cancer in women [3], and various factors contribute to its occurrence. [4]

Its incidence, mortality, and survival rate vary between different parts of the world, due to many factors such as population structure, lifestyle, genetic factors, and environment. [5]

Classifying women based on breast cancer risk factors can be effective in improving risk-free methods and designing targeted breast cancer screening programs. [6, 7]

Breast cancer is the most common cancer in women both in the developed and less developed world. It is estimated that worldwide over 508 000 women died in 2011 due to breast cancer (Global Health Estimates, WHO 2013).[8]

Although breast cancer is thought to be a disease of the developed world, almost 50% of breast cancer cases

and 58% of deaths occur in less developed countries (GLOBOCAN 2008). [9]

In the last two decades, the incidence of breast cancer is increasing. As is already known its incidence increases with aging. It more commonly occurs in women over 50 years of age. This is the most common malignant neoplasm and the second most often in the lung cancer cause of cancer-associated mortality (16%) in women. [8]

Female sex, older age, family history, genetic mutations, reproductive history and density of breast cancer are non-modifiable breast cancer risk factors. [5]

There is evidence of an increase in the total burden of disease from cancer in Albania in the past few decades including here Breast Cancer too. It has been suggested that the increasing trend in the burden of cancer in the Albanian population is besides non-modifiable risk cancer due to the rapidly increasing rates of unhealthy behaviors including tobacco smoking, harmful alcohol consumption (excessive intake, as well as the deleterious patterns including bingeing), unhealthy dietary habits, high levels of obesity, as well as physical inactivity. [10]

Also, with the improvement of health care more and more women are coming to hospitals even patient older than 80 which not always reach the health system before.

In developing countries, the infrastructure and resources for screening mammography are often unavailable. Breast cancer is usually diagnosed at late stages, and, due to insufficient resources, women with breast cancer may receive inadequate treatment or palliative care.

Development of low- and middle-income country models of services, such as the IHC laboratory presented in this paper, is critical for the infrastructure in resource-limited settings to address the growing cancer burden.

Despite this significant global disease burden, there has been a decline in mortality from breast cancer over the last decades. This is happening to a number of complex factors including public education and important therapeutic advances in treatment based on a better understanding of tumor biology [9].

Breast cancer a group of heterogeneous tumor types with varied morphology, biology and response to therapies [11].

In recent years, profiling of breast carcinomas using immunohistochemistry (IHC) and other advanced biomarker assays has assumed an increasingly important role in breast cancer diagnosis and treatment. IHC analysis for various biomarkers can be used as a tool to aid in the diagnosis of breast cancer and can also provide important prognostic and predictive information related to tumor biology and disease subtypes. [12]

In Albania still, we do not have official data regarding the number of breast cancer diagnosed patients either their characteristics, or pathological profile. [11]

Our purpose is to conduct retrospective study of number of Breast Cancer patients treated and diagnosed in Albania during 2018.

Methodology: Analyze and record 2018 breast cancer data from the registry of the Oncology Service at University Hospital Center “Mother Teresa” and private clinics in Tirana and from the registries of the district hospitals.

During this year still, our work has faced many challenges from the lack of immunohistochemistry panel to delayed CT scans and bone scans and also medicinal restrictions. In our project we have collected data from our clinical charts.

We also are aware that are still missing data from other oncology unit across country from private practice or abroad. Still, in our paper we tried to present our data as they are.

Results:

Total number of breast cancer patients treated and diagnosed in 2018

During 2018, we have recorded 506 patients were diagnosed and treated with breast cancer of all stages in our hospital. Since the registry of cancer is still not entirely functioning the data represents only our hospital not including patients in the private practice. We have this distribution of data in according the age; a) 25-29 years old with 4 (0.8%); 30-35 years old with 20 (3.95%); 36-40 years old with 33 (6.5%); 41-45 years old with 47 (9.3%); 46-50 years old with 68 (13.4%); 51-55 years old with 77 (15.2%); 56-60 years old with 57 (11.3%); 61-65 years old with 69 (13.6%); 66-70 years old with 57 (11.4%); 71-75 years old with 39 (7.7%); > 75 years old with 36 (7.1%) of the patients in our study. (Tab. 1), As shown in Table 1, the most affected age group was 51-55 years old with 77 (15.2%); followed by the age group 61-65 years old with 69 (13.6%); and with the age group 46-50 years old with 68 (13.4%) of the patients.

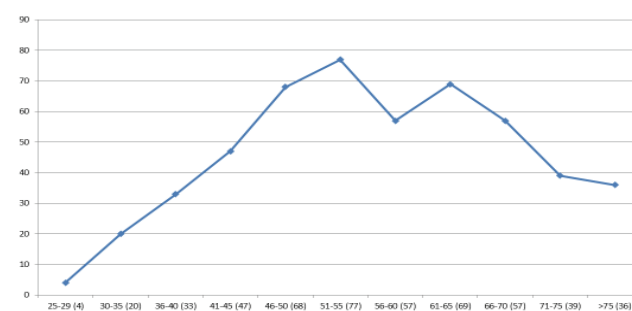


Table 1 Age distribution in breast cancer patients.

In our study we have separated the patients into two groups the first group with 124 (24.5%) of patients that have not performed IHC analyse, and the second group that have done IHC with 382 (75.5%) of patients, from 506 patients in total.

So, the first group of the patients have received their treatment based only in their stage of disease not based on prognostic or predictive factors. (Tab. 2)

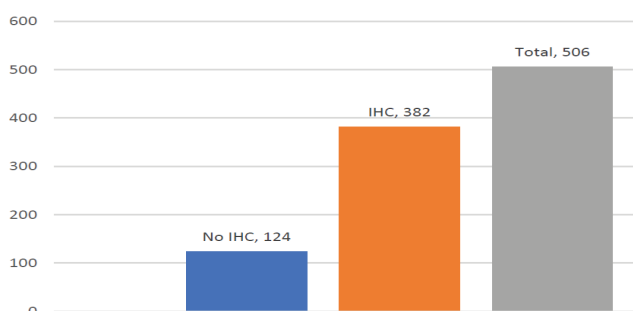


Table 2 Distribution of immunohistochemistry in breast cancer patients.

We have evaluated tumour characteristics such as number of HER2 patients, HR positive, triple negative patients and also the stage distributions and their immunohistochemical features.

Total number of HER2+ patients treated and diagnosed during 2018.

During this year 70 (18.3%) patients has resulted HER 2 positive breast cancer from 382 patients tested for HER2. (Tab. 3)

Total number of HER2 Score 2+ patients and confirmation of HER2 Score + via SISH were 30(42.8%) patients, but only 5 (33.3%) of them have perform FISH or SISH test, and only 3(10%) of them have received anti Her2 treatment.

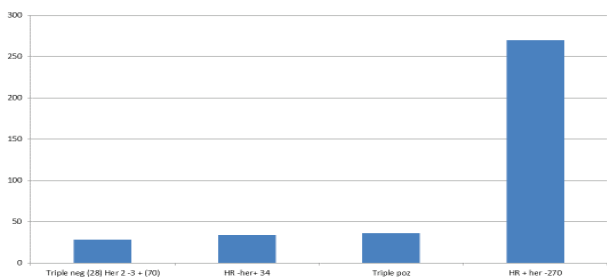


Table 3 - Distribution according to IHC profile in breast cancer patients.

Total number of triple negative patients treated and diagnosed during 2018

There were detected 28 (7.3%) patients with triple negative profile. The cut off for ER and PGR was 10%. Still, our protocol allows hormonal treatment in hormone receptor more than 1%. (Tab. 3)

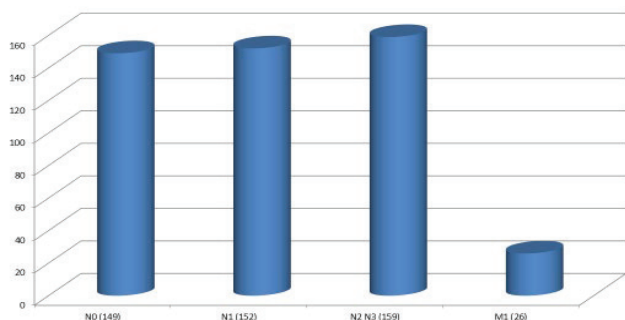


Table 4-Distribution according to stage and axillary involvement

I our study there were this data in according the nodus stage in axillary area; with N0 with 149 (29.44%); with N1 with 152 (30.03%); with N2 & N3 with 149 (31.42%); and 26 (5.1%) of the patients in stage IV (M1) of the disease. (Tab. 4)

I our study we had these distributions of data in connection with metastatic status of our patients we have this analysis revealed 172 (34%) patients with Her Score 3+; 172 (34%) patients with Hr + Her 2 -; 15(3%) of patients with Triple negative, and unknown 136 (27%) of the patients. (Tab. 5)

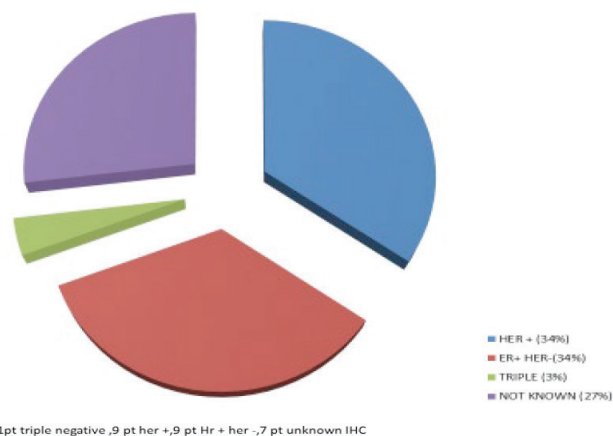


Table 5 - Distribution according IHC profiling in metastatic patients

These data are clearly inverted from 10-15 years ago when stage IV was seen in nearly ¼ of patients.

There are in total 301(59.5%) patient's node positive respectively 152 (30.03%) patients with N1 disease and 159 (31.42%) patients with N2, N3 disease.

Still the number of neoadjuvant treatments remain low, presenting a real challenge for the next years.

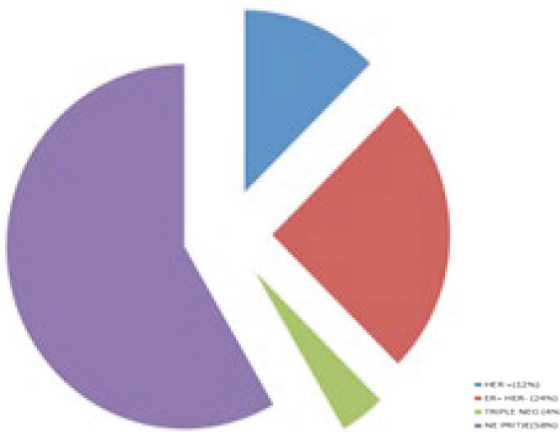
The benefit of neoadjuvant treatment in clinically node positive patient is well known. Still remain the need for performing the immunohistochemistry testing before multidisciplinary team consultation.

Total number of patients HER2 + with BC at high risk of recurrence (N+ or HR-) -2018, in our study 34(48.57%) from 70 (13.83%) patients were with hormonal receptor negative

Total number of patients nodes 0/1-3/3+ were 149 (29.45%) with node negative, and with 152 (30.03%) of patients with N1, and 159 (38.53%) of patients with N2, N3.

In total number of patients HR+ Her negative, 270 (53.4%) of patients are hormone receptor positive and Her 2 negatives, and the number of HR - are 34(6.7%) of patients with HR – Her 2 positive, and 28 (5.5%) of patients with triple negative. (Tab. 6)

From the subgroup analysis 24 (4.7%) of patients were T4d (inflammatory breast carcinoma) 3 (0.6%) of them Her 2 positive ,1 (0.2%) of patients with triple negative ,6 (1.2%) of patients with HR + Her -, and 14 (2.77%) of patients without IHC. (Tab. 6)



Still even in T4d inflammatory breast cancer in more than 50% of cases IHC remain unknown in the first cycles of chemo.

Table 6 - IHC profiling in 24 patients with clinically inflammatory disease cT4d (neoadjuvant treatment)

Discussion

Breast cancer is the most common cancer in women, and various factors contribute to its occurrence. Breast cancer is leading cancer in women accounting for 25% of all cases worldwide and leading cause of death due to carcinoma in women. It is more common in developed countries. [11, 12]

In our study the most affected age group was 51-55 years old with 77 (15.2%); followed by the age group 61-65 years old with 69 (13.6%); and with the age group 46-50 years old with 68 (13.4%) of the patients.

As reported by *Shaik et al.*, [13] women within the age group 30-50 are 3.704 more likely to have breast cancer, as found in our case (age group 35-50 years). In close comparison with our findings, age factor and the point of change at diagnosis has been reported at 50 years by *Abdollabi et al.*, [14]. However, no study has been made with age at menarche in mind, although this is a high-risk factor in case of breast cancer.

According to the literature, we have a correlation between the molecular types of the disease and clinical practice, it is mainly based on the semi-quantitative assessment of the expression of estrogen receptor (ER), progesterone receptor (PR), HER2 visualized by IHC.

According to currently accepted standards, the reproducibility of IHC tests is non-optimal, the compatibility between methods and laboratories is below the expectations for good clinical practice [15, 16].

In our study we have separated the patients into two groups the first group with 124 (24.5%) of patients that have not performed IHC analyse, and the second group that have done IHC with 382 (75.5%) of patients, from 506 patients in total. We have evaluated tumour characteristics such as number of HER2 patients, HR positive, triple negative patients and also the stage distributions and their immunohistochemical features.

The latest study identifies a strong association between different molecular subtypes and lymph node status, with

82.3% positive lymph node involvement in HER2-positive cases. Although, there have been numerous studies that failed to detect such a link [17, 18], there were other studies that identified a high degree of association between lymph node metastases with HER2-positive tumors and a lower frequency with basal tumors [19, 20]. This contradiction may be due to the fact that there are studies showing that the tumor subtype may be internal and therefore only freely related to the status of the lymph nodes.

In our study there were this data in according the nodus stage in axillary area; with N0 with 149 (29.44%); with N1 with 152 (30.03%); with N2 & N3 with 149 (31.42%); and 26 (5.1%) of the patients in stage IV (M1) of the disease

In a study of 434 patients with luminal tumors A (77%) and 117 patients with triple negative tumors (76.9%), only 41.2% of HER2-positive tumors ($p = 0.026$) exhibited an in-situ component.[20]

In another study, 45 cases of luminal tumors ($n = 124$) showed an in-situ component [21].

In our study we had these distributions of data in connection with metastatic status of our patients we have this analysis revealed 172 (34%) patients with Her Score 3+; 172 (34%) patients with Hr + Her 2 -; 15(3%) of patients with Triple negative, and unknown 136 (27%) of the patients.

However, the therapeutic choice, and several favourable subsets of CUPs, warrants further histopathological characterization, which is often performed with immunohistochemistry (IHC) and, more recently, using molecular analyses [22, 23].

In our study from the subgroup analysis 24 (4.7%) of patients were T4d (inflammatory breast carcinoma) 3 (0.6%) of them Her 2 positive ,1 (0.2%) of patients with triple negative ,6 (1.2%) of patients with HR + Her -, and 14 (2.77%) of patients without IHC. (Tab. 6)

Regarding the adjuvant treatment modifications for the HER2 variation, several publications recommend adding anti-HER2 treatment in cases of HER2 gain. On the other hand, in the cases of loss of HER2, the suggestion would be to continue with anti-HER2 agents considering the concept of tumour heterogeneity, but more evidence is required in this respect [24].

Conclusion

In the low-income countries, the burden of breast cancer is still challenging the health system. a big percentage of patients are still diagnosed in late stages. The knowing of prognostic and predictive markers is mandatory to our patients.

Declarations:

Competing interests

The authors declare that they have no competing interests.

Ethical Considerations:

Informed written consent from the patient included in this study was taken.

Consent for publication:

All authors read and approved the final manuscript.

Availability of data and material:

The data that support the findings of this study are available on request from the corresponding author.

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Characteristics of Patients who Visited the Emergency Department due to self-poisoning Suicide Attempt: A Retrospective Study.

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Abstract

Background: The aim of this study is to evaluate the sociodemographic characteristics, clinical conditions, and results of patients who were admitted to the emergency department (ED) due to suicide attempts by self-poisoning intentionally.

Material and Methods: This retrospective study was conducted between January 1 and December 31, 2017, in the ED of Istanbul Lutfi Kırdar City Hospital, University of Health Sciences. Patients of only attempted suicide through taking overdose drugs with the intent of self-poisoning and over 12 ages were included in the study, which included 391 cases. Patients who attempted suicide in any different ways than self-poisoning were excluded.

Results: Our study is consisted 69.8% (n=273) of female and 30.2% (n=18) of male patients. The mean age of the total cases was 31.01±12.064, which the youngest case being 14 years old and the oldest being 73 years old. The marital status of the cases is as follows: 140 (35.8%) married, 205 (52.4%) unmarried, 42 (10.7%) divorced, and 4 (1%) widow/widower. Istanbul is covering a major population of patients (93.1%) as a living place. The study has resulted in 58.3% ED discharge, 27.1% hospital leaving, and 10.5% Psychiatry unit admission.

Conclusions: Suicidal behavior is a very comprehensive topic when considering its etiology and risk factors, there are many variables as well. Since it is one of the serious public health issues and causes of death, the risk factors must be identified and preventions to be taken should be determined. In addition, when elderly people attempt suicide, more medical care should be taken during ED, since they are more focused to die and fall into the category of severe cases.

Keywords: Suicide, sociodemographic characteristics, self-poisoning, psychotropic drugs.

Introduction

An action that a person willingly takes to end his own life, but does not result in death, is called a “suicide attempt”. The situation where this action causes death is called “suicide”. Suicide and suicide attempt are serious causes of mortality and morbidity, especially in psychiatric cases [1].

There is more than one definition of suicide, and in another source, it is defined as “a person’s choice between

life and death through all moral values and religious knowledge, and to choosing self-harm” [2].

According to data from the World Health Organization (WHO), nearly 800,000 people has been dying each year due to suicide. It is the second leading cause of death among 15-29-year-olds worldwide. In the guide “Prevention of Suicide” published by the World Health Organization (WHO) in 2014, it has been stated suicide rate was 1.4% of total deaths in 2012, and reported suicide was the 15th most important death. As a severe public health issue, suicide, besides its social and medical harms, can cause not only attempters’ own life but also serious problems for their surroundings and families [1].

The major impact of suicide on the family and society is undeniable as well as for the attempters. While an individual suicide affects an average of six people from the immediate environment, an act of suicide that occurs in a social area

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such as a school or workplace has an impact on hundreds of people [3].

According to the data of the Turkey Statistical Institute (TUIK), 50378 people committed suicide in the 2002-2018 period. In this 17-year, an average of 20963 people has been committed suicide per year, 246 people per month, and 8 people per day. When the cases have been examined for the causes of the suicide as follows: 50318 domestic problems, 40481 financial difficulties, 10887 illness, 1004 commercial failure, 2412 love-related issues, 3896 other reasons, and 210256 unknown reasons. Throughout 2018, while the population of people who committed suicide due to commercial failures has decreased, there was no significant decrease in the population of cases of financial difficulties.

According to the latest data for 2018 published by TUIK, the rough suicide rate, which represents the number of suicides per hundred thousand population, has been stated as 3.88. Thus, four out of every hundred thousand people have committed suicide in 2018 [4]. According to WHO data, India has the highest number of suicides with a number of 215 thousand. Other countries with high suicide rates are China with 136 thousand, Russia with 45 thousand, and Japan with 23 thousand [1].

The report highlights that the male suicide rate is higher than females worldwide, 13.5 out of every 100 thousand men and 7.7 out of every 100 thousand women have been committing suicide. In Turkey, while the suicide rate for men is 11.3 per 100 thousand people, it is 3.2 for women [3].

Suicide is an important health issue and a social problem worldwide and in our country. Therefore, the cases should be followed up after the first medical intervention in the EDs they were admitted. During this follow-up period, ED physicians should obtain psychiatric advice in addition to medical treatment. After the medical treatment is completed, a decision should be made by the psychiatry consultant on outpatient or hospitalization, for the follow-up period. In the follow-up period, deepening the anamnesis and determining their sociodemographic characteristics will help the psychiatric examination.

Psychiatric follow-up is important in terms of preventive medicine when considering preventing future attempts. The aim of our study is to investigate the sociodemographic characteristics of the suicide attempter's who admitted to the ED by taking drugs intentionally, the factors causing the attempt, and the measures to be taken to prevent the re-suicidal ideation.

Material and methods

The study includes 391 total patients who were admitted to the ED of Istanbul Kartal Dr. Lütfi Kırdar City Hospital, between January 01 and December 31, 2017, which attempted suicide by self-poisoning. Ethical approval has been realized from the Hospital Research Evaluation Committee for the study. Patients over 12 years of age were included in the study, and those who attempted suicide by a

mechanism other than self-poisoning were not included in the study.

The study has been conducted as retrospective and non-randomized. Data were recorded by scanning in the automation system. The data of 391 patients included in the study were recorded in a computer-generated Microsoft Excel form. In this study, the percentages and number of observations of the relevant variables are presented. Kolmogorov-Smirnov Test and Shapiro-Wilk Test were applied to test the normality of the continuous variable.

In cases where normality could not be achieved, Mann-Whitney Tests were applied, which are independent with two-group and non-parametric, to investigate the relationship between categorical variables and continuous variables. The non-parametric Kruskal-Wallis test has been applied to compare the mean of three independent groups. To investigate the relationships between two categorical variables Chi-square independence test and Fisher's Exact Tests (and its special case that is performed in 2x2 cross tables) were applied.

Results

The medical history of the cases has been examined, and it was found that organic pathology in 5.6% (n=22) and psychiatric history in 27.1% (n=106) (Table 1).

		No. of cases	% of cases
Organic pathology	No	369	94,4
	Yes	22	5,6
Psychiatric history	No	285	72,9
	Yes	106	27,1

Table 1- The medical history of the cases

After examination, It resulted that 58.3% of the cases were discharged from the ED, 27.1% were discharged against medical advice, and 10.5% were admitted to the psychiatry service (Table 2).

		No. of cases	% of cases
ED discharge	No	163	41,7
	Yes	228	58,3
Psychiatric unit admission	No	350	89,5
	Yes	41	10,5
ICU admission	No	368	94,1
	Yes	23	5,9
Discharge against medical advice	No	285	72,9
	Yes	106	27,1
Deceased	No	390	99,7
	Yes	1	0,3

Table 2- The clinical results of the cases

The drug classes that had been taken intentionally by attempters as follows: 32% (n=125) Psychotropic, 12% (n=47) Antimicrobial, 0.5% (n=80) NSAID, 19.7% (n=77) Paracetamol. We evaluated the paracetamol drug class separately from the NSAID drug class since antidote treatment can be applied early in the ED and is easily accessible (Table 3).

		No. of cases	% of cases
Psychotropics	No	266	68,0
	Yes	125	32,0
Antimicrobial	No	344	88,0
	Yes	47	12,0
NSAID	No	311	79,5
	Yes	80	20,5
Pesticide	No	391	100,0
	Yes	0	0,0
Paracetamole	No	314	80,3
	Yes	77	19,7
Multi Drugs	No	188	48,1
	Yes	203	51,9

Table 3- The drug classes taken for the suicide attempting

It has been determined that most of the cases' suicide attempts have occurred during the day (n=211; 54%). The time intervals were found to be 00:00-8:30 (n=100; 25.6%) and 20:01-00:00 (n=80; 20.5%), respectively (Table 4).

Time intervals of suicide attempts	No. of cases	% of cases
Between 00:00 and 08:30	100	25,6
Between 08:31 and 20:00	211	54,0
Between 20:01 and 23:59	80	20,5
Total	391	100,0

Table 4- The time intervals of the suicide attempts

When the re-suicidal ideation status of the cases has been examined, it was found that 71.4% (n=279) of the cases had not had re-suicidal ideation, and 28.6% (n=112) had re-suicidal ideation (Table 5).

Re-suicidal ideations	No. of cases	% of cases
No	279	71,4
Yes	112	28,6
Total	391	100,0

Table 5- Re-suicidal ideations

Anger (n=146; 37.3%) has been determined as the primary reason for attempting suicide. This was followed by secondary gain (n=131; 33.5%) and death (n=114; 29.2%) (Table 6).

		No. of cases	% of cases
ANGER	No	245	62,7
	Yes	146	37,3
DEATH	No	277	70,8
	Yes	114	29,2
SEKONDARYGAIN	No	260	66,5
	Yes	131	33,5

Table 6- The Main reasons of the patients to attempting suicide

Discussion

As we have emphasized earlier, suicide is one of the most important public health issues, and a leading cause of death worldwide. Since it has been determined that almost all the cases who attempted suicide are initially admitted to the ED, it is very significant to examine cautiously during the ED treatment. The cases are admitted to the EDs by themselves or their relatives after a suicide attempt or after increased suicidal ideation, in general. It is noticed that most attempters have self-poisoned themselves, intentionally. In this state, the patient's anamnesis should be examined in detail, the information received by the cases should be accepted and these cases should be seen as clinically high suspicion [5].

In our study, the reason why we analyze especially the suicide that is happened by self-poisonings is that this is the most common form type of suicide. The sociodemographic characteristics of the patients, as well as their suicidal intentions, the drug class they took, their clinical course in the ED follow-ups, re-suicidal ideation, and their medical history, were investigated. As in other studies, when considering sociodemographic characteristics, the suicide rate was found to be high, especially among young females, and it is important in terms of suicide risk in society.

It has been found that the majority of the cases included in the study were female. According to the data of our study, we found the female-male ratio to be 2.31. *Dilbaz et al* in their study, found the female/male ratio to be 2.17. The female/male ratio in the literature is between 1.7 and 4.0, in general. As in multiple studies, the female/male ratio is met with the literature. We found the mean age to be $31.01 \pm 12,064$. When the marital status of the cases was examined, the rate of singles was found to be higher than that of married ones.

According to WHO, the suicide rate was found to be higher in divorced people. Our study data are not meet with the WHO data, nonetheless, meet with the prior studies conducted in Turkey [6-10]. The high rate of suicide attempts by women proves society's perspective on women, moreover, it can be stated that women cannot explain their problems and choose to attempt suicide as a way to explain. The higher suicide rate in single people is due to the negative effect of loneliness, as mentioned in the studies, and the lack of family support is effective on this.

When analyzing the history of the patients, we grouped them as psychiatric history and organic pathology. When the cases of re-suicidal ideation were examined, it was found that most of the cases did not have re-suicidal ideation. The relationship between suicidal ideation and age is examined, and it was found that younger people have fewer re-suicidal ideation. It has been conducted that the relationship between re-suicidal ideation and medical history is significant to identify. We observed that those with a history of organic or psychiatric pathology had more re-suicidal ideation. In the study of *Bozkurt et al.*, the idea of re-suicidal ideation was found to be significant in those with a history of psychiatric illness. Depressive disorders and psychotic disorders were observed most frequently in the histories of these patients [11]. We have conducted that these patients' suicide attempts are caused by their psychiatric illness and they could not notice reality clearly.

In the study conducted by *Sayil et al.*, it was reported that women's attempts rate is high between 17:00-23:59. This was thought to be related to the mechanism of asking for help since the family members are at home mostly at this time [12]. *Kekec et al.* emphasized that men attempted suicide more frequently between 00:00-07:59, and this has been related to men's serious death intentions [9]. In the series of 1281 cases published by *Güloğlu et al.*, it was reported that most of the suicide attempts occurred between 18:00-24:00 [13]. In our study, we did not find a significant difference between suicide time and age groups, just as we did not find any significant difference between suicide time and gender.

We found that the drug classes in order of their usage are as follows: psychotropic, NSAID, paracetamol, and antimicrobial, respectively. We evaluated the paracetamol class separately from the NSAID class. Since this drug class is accessible easily, and early antidote treatment can be started during ED time, we examined it in detail. In the study conducted by *Toklucu et al.*, NSAIDs and psychotropic drugs took the first place. Data compatible with the literature were obtained in terms of drug classes taken during self-poisoning [14].

We analyzed the clinical outcomes of patients taking paracetamol and found that they were mostly discharged from the ED, which can be attributed to the early initiation of antidote therapy. It was found that the patients who self-poisoned themselves due to anger had taken more psychotropic or multiple drugs, while the suicide attempters due to death had taken multiple drugs and psychotropic drugs. We realized the easy access of the patients to the psychotropic drugs and that some of these patients had taken these drugs for treatment purposes. The reason for this can be the frequent use of paracetamol and NSAIDs and the fact that they can be obtained without a prescription, and are prescribed frequently.

It has been compared that the age groups with the main purpose of attempts and found that the elderly people had focused on death priority. It has been determined that the

younger age group is classified on secondary gain. In a study conducted in Turkey, it was determined that although the willingness to die was high, the rate of re-suicidal ideation and suicide attempt was low. The low suicide rate has been attributed to family ties, religious values, and cultural factors [15]. In another study, it was stated that elderly people's attempts increased from 1990 up to 2017 [16]. In another study, the most important risk factors for suicide attempts in elderly people have been determined as male, gender, physical discomfort that causes pain and loss of function, loneliness, a previous suicide attempt, alcohol and drug, and depression [17].

The data of our study is meet with the literature, and it can be concluded that the elderly population focuses to die more in suicide attempts. This may be due to the fact that chronic diseases are common in the elderly group and may cause them to pose a risk for depression. We can conclude that elderly people may aim for death due to the loss of their relatives, being alone, hopelessness, and lack of expectations in their life.

Since this study is conducted retrospectively, the data were obtained by scanning the hospital automation system. A limitation of this study is that the accuracy and reliability of the data depend on the organizers. The comprehensiveness of the aetiology and risk factors of suicide attempts can be shown as another limitation of this study.

Conclusion

Since elderly people are more determined to die and will be categorized as critically ill patients, it has been realized that is significant to examine carefully elderly people's attempts in EDs when compared to other suicide attempt groups.

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Transarterial Chemoembolization in Hepatocellular Carcinoma, Albanian Experience.

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Abstract

Liver cancer is the sixth most common cancer worldwide in terms of the number of cases (626,000 or 5.7% of new cancer cases) but due to the very poor prognosis, the number of deaths is nearly similar (598,000). The survival rate is 3% to 5% in cancer registries for the United States and developing countries. The modality of treatment in hepatocellular carcinoma (HCC) patients depends on the stage of the disease. The Barcelona Clinic Liver Cancer Classification (BCLC) is the favorite staging system. There are many patients who initially present with the intermediate-stage disease, and in this setting transarterial chemoembolization (TACE) is the treatment of choice.

The purpose of this article is to highlight and discuss the role of chemoembolization in the treatment of hepatocellular carcinoma, including the results of recent large studies, and the concept of combined therapies, illustrating our case.

The differences in individual factors that are not captured by the BCLC framework, such as the tumor growth pattern, degree of hypervascularity, and vascular supply, complicate the further evaluation of these patients. Because of these differences, not all patients benefit equally from TACE. Several tools have been devised to aid the decision-making process which have shown promising initial results but have failed external evaluation and have not been translated to the clinical aspects. Criteria for treatment decisions in daily clinical practice are needed in all stages of the disease.

Conclusion: TACE is a safe method for prolonging patients' survival with unresectable HCC. The correct treatment of HCC is concentrated in cancer centers, and cooperation between multiple specialists is necessary.

Keywords: hepatocellular carcinoma, chemoembolization, transcatheter therapy, TACE.

Introduction

Cancer ranks as a leading cause of death and an important barrier to increasing life expectancy in every country of the world. [1]

According to estimates from the World Health Organization (WHO) in 2019, cancer is the first or second

leading cause of death before the age of 70 years in 112 of 183 countries and ranks third or fourth in a further 23 countries. [2]

Worldwide, there were 10.9 million new cases, 6.7 million deaths, and 24.6 million people alive with cancer (within three years of diagnosis). [3]

The most frequently diagnosed cancers are lung (1.35 million), breast (1.15 million), and colorectal (1 million); while the most common causes of cancer death are lung cancer (1.18 million deaths), stomach cancer (700,000 deaths), and liver cancer (598,000 deaths). [3]

Liver cancer is the sixth most common cancer worldwide in terms of the number of cases (626,000 or 5.7% of new cancer cases) but due to the very poor prognosis, the number of deaths is almost similar (598,000). The survival rate is 3% to 5% in cancer registries for the United States and developing countries. [4]

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82% of cases (and deaths) are in developing countries (55% in China alone). The overall sex ratio (male: female) is about 2.4, much greater in high-risk areas and less in low-risk areas. [4]

Primary liver cancer in terms of frequency is listed seventh in the world, and in terms of mortality, it ranks second. [1].

The regions with the highest incidence in the world are Asia and Africa [5] while Mongolia has the highest incidence at 93.7 per 100,000, but China has the highest number of new cases, due to an elevated rate (18.3 per 100,000) and the largest population in the world (1.4 billion people) [1].

Worldwide, hepatocellular carcinoma (HCC) is the main type of liver cancer, accounting for approximately 75% of the total [5].

In the interval between 1978 and 2012, the incidence of HCC decreased in many Asian countries and Italy but increased in other countries such as India, America, Oceania, and most European countries [6].

The prognosis of HCC is poor in all regions of the world [7], therefore the overall outcome, incidence, and mortality rates are approximately the same. According to literature data in 2018, the estimated global incidence rate of liver cancer per 100,000 person-years was 9.3 while the corresponding mortality rate reached 8.5 [1].

A number of risk factors for HCC can be mentioned as follows: Hepatitis B Virus (HBV), Hepatitis C Virus (HCV), Alcohol use, Non-Alcoholic Fatty Liver Disease (NAFLD), Aflatoxins (mycotoxins produced by fungi *Aspergillus* species), tobacco use, dietary factors, and genetic susceptibility. [8]

All this group of risk factors is related to the development of HCC, we can mention that the prevalence of cirrhosis in people with HCC is approximately 80% worldwide.[9]

HBV infection is unique in that it can lead to the development of HCC even in the absence of cirrhosis, and the annual incidence of HCC in HBV carriers was 0.5% to literature data.[10]

The synergy between alcohol intake and HCV/HBV infection has also been observed. The risk of liver cancer is increased approximately 2-4 times among people who drink more than 60 to 80 g of alcohol per day.[11] Suspicion of HCC should be raised in patients with previously compensated cirrhosis in whom decompensation develops, as this is often associated with tumor extension to the hepatic or portal vein or tumor-induced arteriovenous shunting.[12] Extrahepatic spread is present at the time of diagnosis in up to 15% of cases. The most common sites of spread, in order, are the lungs, intra-abdominal lymph nodes, bones, and adrenal glands.[13] In Albania, HCC mortality was comparable with other European countries with a low prevalence of hepatitis B virus. [14]

This paradox of low mortality rate in a hyperendemic country may be most plausibly explained by the employment of a Mediterranean diet—namely, low consumption of total energy, meat, and milk products, but the high consumption

of fruit, vegetables, and carbohydrates. [14]

Previous studies have shown that closer adherence to the Mediterranean diet appears to be protective against HCC [15, 16].

As a matter of fact, our findings from Albania also point to the potential benefits of adhering to a Mediterranean dietary pattern among individuals infected with the hepatitis B virus. [15, 16].

Albania remains a high hepatitis B virus endemic country, despite the evident reduction of HBsAg in the general non-vaccinated population from 18% to 9.5% after the implementation of the hepatitis B vaccination program [14].

Also, chronic hepatitis B virus infection is recognized as the most common risk factor for hepatocellular carcinoma (HCC) which is the second cause of death from malignancy in the world [17].

HBV infection and heavy alcohol consumption significantly influenced the increased incidence of HCC in Albania.[18]

Surveillance is essential because high-risk patients who are screened for HCC receive a diagnosis at an earlier stage compared to those who are not screened. Patients who are diagnosed early have more treatment options and a better prognosis. In a series of studies, it was found that after a two-year follow-up, the mortality rate of HCC decreased by 37%. [19]

Modalities for timely diagnosis of HCC include both serological markers and radiographic tests. The most commonly used imaging tests for the diagnosis of HCC include ultrasonography (US), multiphase computed tomography (CT), and contrast-enhanced magnetic resonance imaging (MRI).[20] On CT and MRI, typical HCC lesions show increased arterialization as well as the decreased presence of contrast agents compared to the surrounding liver during portal vein and/or equilibrium phase imaging.[21] Imaging data to detect HCC demonstrated superior sensitivity with CT and MRI compared to the US, especially for small lesions. (Overall sensitivities of US, CT, and MRI were 46%, 65%, and 72%, respectively.) [22]

Treatment tactics for HCC include surgical resection or liver transplantation if diagnosed at an early stage; however, since most HCC patients present with advanced disease and underlying liver dysfunction, only 15% are amenable to curative treatments, [23] and they generally have a poor prognosis with a median survival time of less than 1 year. [24]

Several other treatment modalities exist, including radiofrequency ablation (RFA), microwave ablation, percutaneous ethanol injection (PEI), transarterial chemoembolization (TACE), radioembolization, cryoablation, radiation therapy, stereotactic radiotherapy, systemic chemotherapy and molecularly targeted therapies (e.g., sorafenib) [Bayer/Onyx]). [25] The BCLC staging classification provides stratification of Treatment tactics for HCC including surgical resection or liver transplantation if diagnosed at an early stage; however, since most HCC

patients present with advanced disease and underlying liver dysfunction, only 15% are amenable to curative treatments, [23] and they generally have a poor prognosis with a median survival time of less than 1 year. [24]

Several other treatment modalities exist, including radiofrequency ablation (RFA), microwave ablation, percutaneous ethanol injection (PEI), transarterial chemoembolization (TACE), radioembolization, cryoablation, radiation therapy, stereotactic radiotherapy, systemic chemotherapy and molecularly targeted therapies (e.g., sorafenib) [Bayer/Onyx]. [25] The BCLC staging classification provides stratification of patients to set their prognosis and guide treatment strategies through a well-defined schedule.[25]

The problem is that, unlike most solid cancers, the incidence and mortality rate for HCC is expected to increase mainly in some regions in the next two decades as a consequence of hepatitis C virus infection. [26, 27]

Despite the implementation of detection, treatment, and surveillance programs for at-risk populations, the majority of patients with HCC are diagnosed late, and even when curative treatments cannot be applied, in a high percentage of cases the disease recurs even after attempts at curative or preventive therapy.[27]

The HCC treatment protocol is based on a series of techniques described in the table below:

In addition to liver transplantation, other treatments for HCC are classified into curative treatments such as; resection, percutaneous ablation, and palliative, all other treatments must match the higher rate of HCC recurrence. [28].

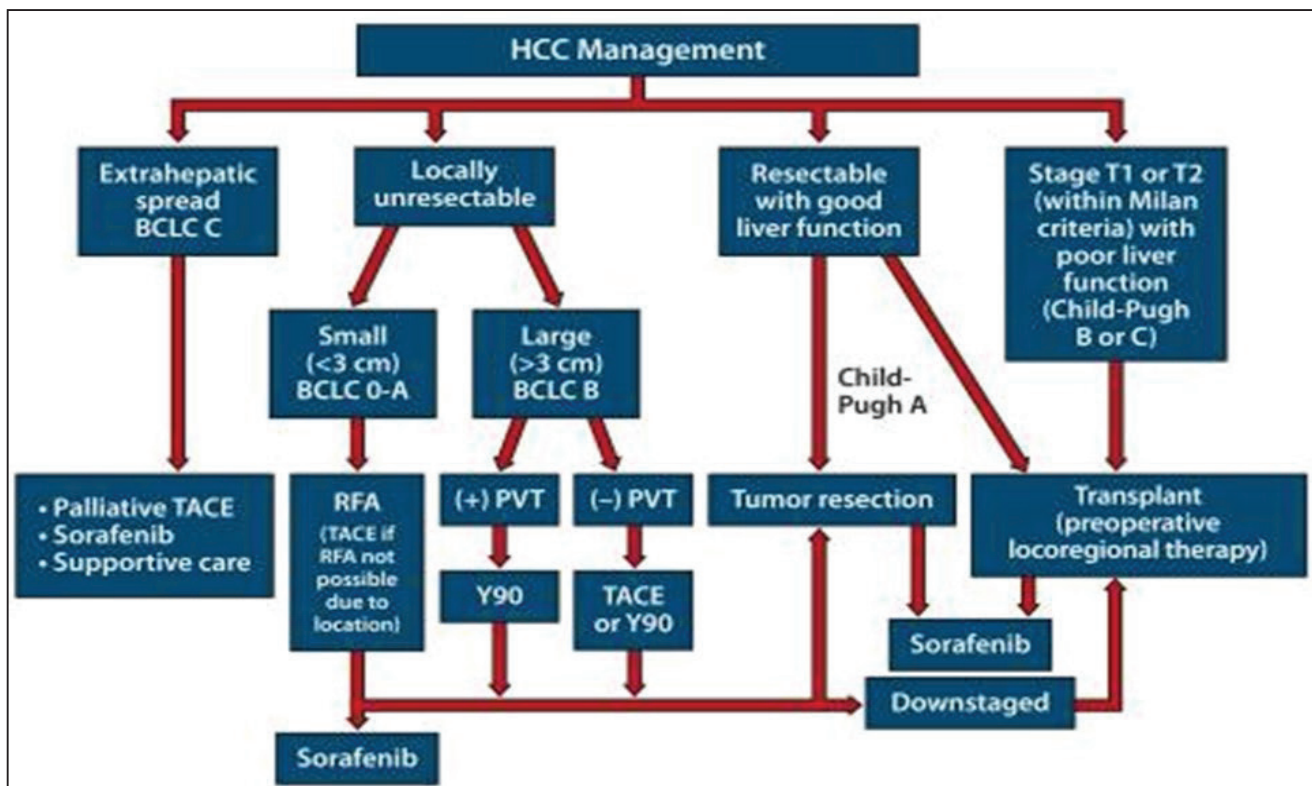
Percutaneous local ablation, namely radiofrequency ablation (RFA) and ethanol injection (EI) are the standard of care for BCLC O-A not suitable for surgery. [29]

Trans-arterial chemoembolization (TACE) is recommended for asymptomatic stage B multinodular tumors (according to BCLC classification) without the involvement of vascular structures or extrahepatic extension.

Drug-eluting beads have similar efficacy to gel-foam-lipiodol with probably fewer adverse events. Both should be discouraged in decompensated liver disease and in case of macroscopic vascular invasion or extrahepatic spread [30].

Transcatheter arterial chemoembolization (TACE) is now the current standard of care for patients with large or multinodular HCC and relatively preserved liver function, in the absence of cancer-related symptoms, and no evidence of vascular invasion and/or spread, extrahepatic (so they are classified as intermediate stage according to the Barcelona Clinic Liver Cancer staging system (BCLC).[30, 31]

Now known, the administration of an anticancer-in-oil emulsion followed by embolic agents has been the most popular TACE technique, the insertion of a drug-eluting



BCLC 0-A, Barcelona Clinic Liver Cancer stage 0 to early stage; BCLC B, Barcelona Clinic Liver Cancer immediate stage; BCLC C, Barcelona Clinic Liver Cancer advanced stage; HCC, hepatocellular carcinoma; PVT, portal vein thrombosis; RFA, radiofrequency ablation; TACE, transarterial chemoembolization; Y90, yttrium-90.

Figure 1 Algorithm for the management of HCC.[20]

embolic bead. (DEB) has provided an interesting alternative to conventional protocols.[32]

Clinical studies have shown that doxorubicin-loaded DEB has a safer pharmacokinetic profile, with lower systemic drug exposure and significantly reduced liver toxicity compared to conventional TACE. [33- 35]

Procedure

The use of TACE has therapeutic effects only in the treated area; as a result, HCC in other regions of the liver, undetected at the time of the procedure, may progress or new tumors may develop.

By interrupting arterial vascularization in the tumor, TACE achieves necrosis at the site of disease but may create conditions that allow or even stimulate angiogenesis.[36]

In conventional TACE, an intra-arterial injection of a viscous emulsion, made of a chemotherapeutic drug such as doxorubicin or cisplatin mixed with iodized oil, is performed, providing embolization of the blood vessels with gelatin sponge particles or other embolic agents, which for consequently gives a strong cytotoxic effect enhanced by ischemia.[37]

There is very important computed tomography (CT) or magnetic resonance imaging (MRI) of the liver prior to the procedure of TACE to evaluate the tumor and local or peripheral spread.

Pain medication should be given according to protocols, and antibiotic prophylaxis and gastric protection are also given.

The most evaluated drug of the moment against HCC is doxorubicin, in conventional TACE, the dose of doxorubicin usually ranges from 30 to 75/m², to a maximum of 150 mg.

As a general rule, every single treatment should include a planned dose of 50 to 75 mg of doxorubicin-loaded into a vial containing 2 ml.

In DEB-TACE, the use of 100 to 300 µm beads is recommended for a standard procedure. This choice is based on the demonstration that such small particles are distributed within the tumor or close to the tumor border, and thus they are ideal for drug delivery or precise embolization.[35]

Conventional transcatheter arterial chemoembolization.

After super-selective catheterization of the hepatic arterial branch feeding the tumor. An angiographic image obtained after the procedure shows the absence of residual tumor vascularity. The injection should be very slow.

Many authors recommend an injection rate of 1 ml of contrast medium/DC Bead suspension per minute.

Care should be taken to avoid the sedimentation of the beads in the syringe by swirling the syringes or using a three-way stand to gently suspend the beads in the solution. [38] DEB injection is continued until near stasis is observed in the artery directly feeding the tumor. [38]

Experience

The patient is a 70-year-old male, without a prior history of any disease. Under random ultrasound, he was diagnosed with large liver tumor 80mm in right lobe of the liver (Fig. 2).

The MRI confirmed the same tumor 80mm diameter. All the examinations seemed in normal value. However, the general surgeon could not operate the patients. Therefore, we did biopsy under ultrasound guidance (CNB) 16 G needle, which approved hepatocellular carcinoma (HCC). (Fig. 3).

In these conditions the patient is in the group who can treated with transcatheter arterial chemo-embolization (TACE) (Fig 5, 6) based on Barcelona Clinic Liver Cancer classification (BCLC). (Fig.4)

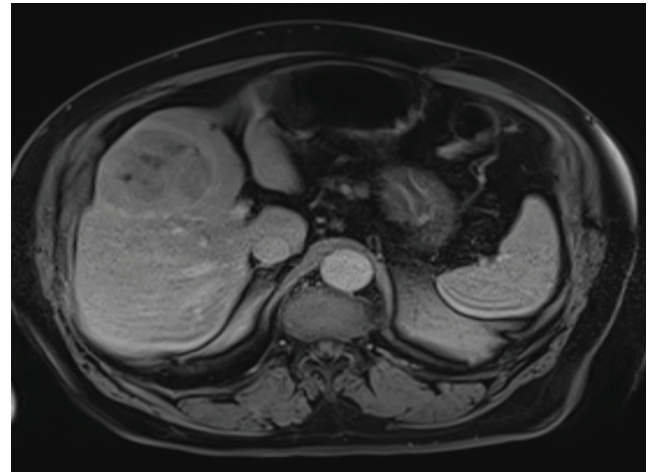


Figure 2 -MRI before Transcatheter arterial chemoembolization (TACE)

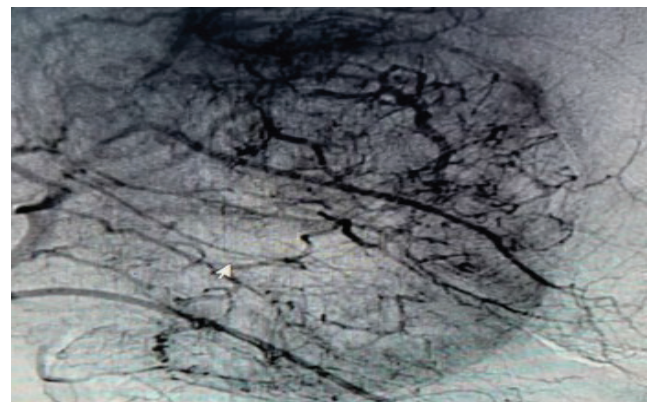
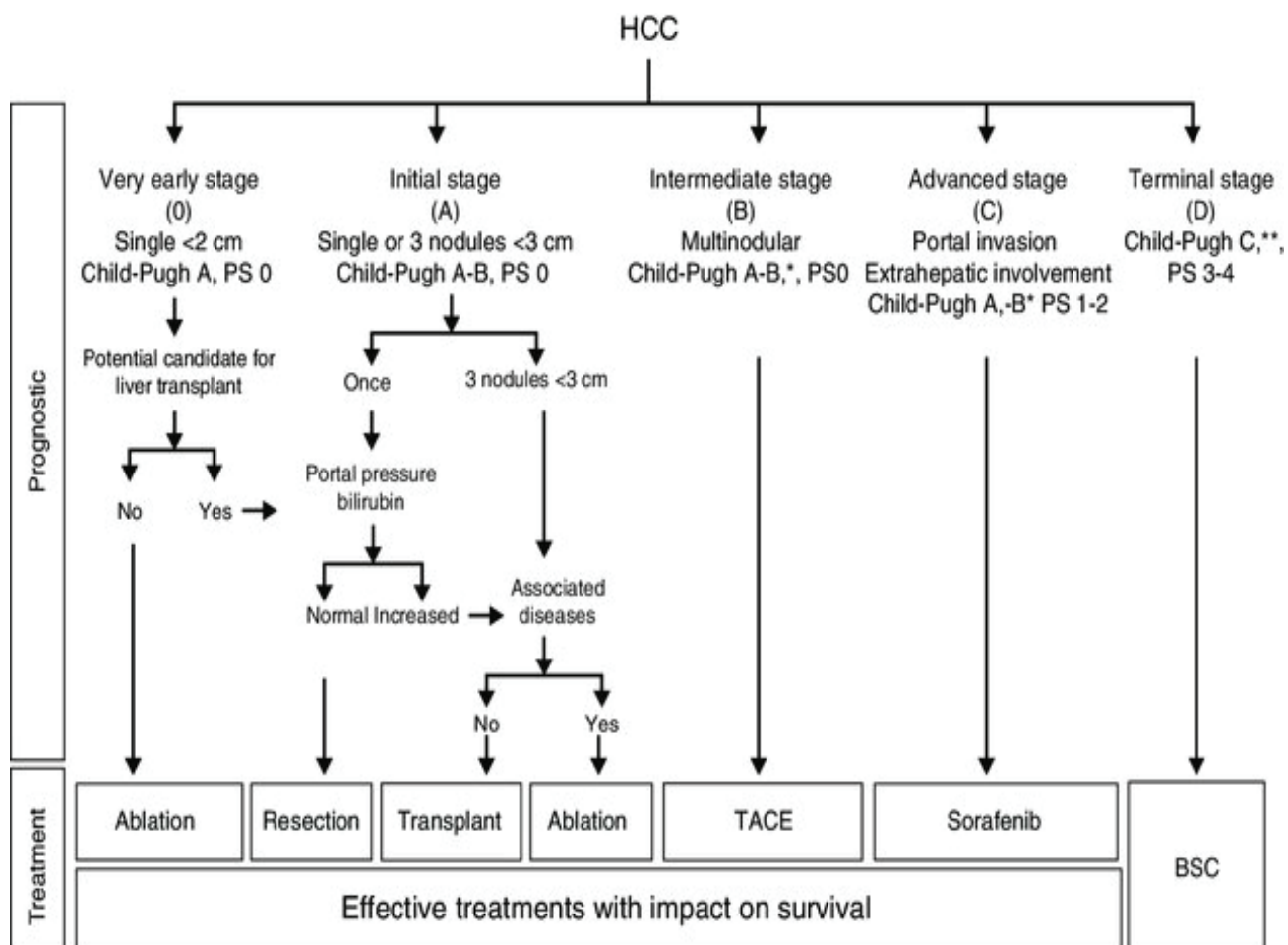


Figure 3 - Diagnostic angiography.



BSC - best supportive care; HCC - hepatocellular carcinoma; PS - performance status.

*The Child-Pugh classification does not identify all patients with severe hepatic dysfunction requiring to be considered for liver transplantation.

** Patients with end-stage cirrhosis due to severe hepatic impairment (Child-Pugh C or earlier stages with episodes predicting poor prognosis, high MELD score) should be considered for liver transplantation. In these patients, the presence of HCC can be a contraindication for liver transplantation if it exceeds the inclusion criteria. Adapted from Bruix et al. [39]

Figure 4 - Barcelona-Clinic Liver-Cancer (BCLC) Staging System.

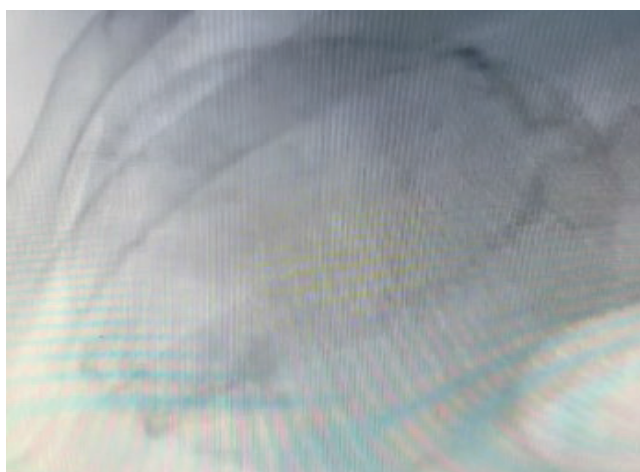


Figure 5 - Injection of (DEB-TACE) 50 mg of doxorubicin loaded into one vial containing and 100- to 300-µm beads.

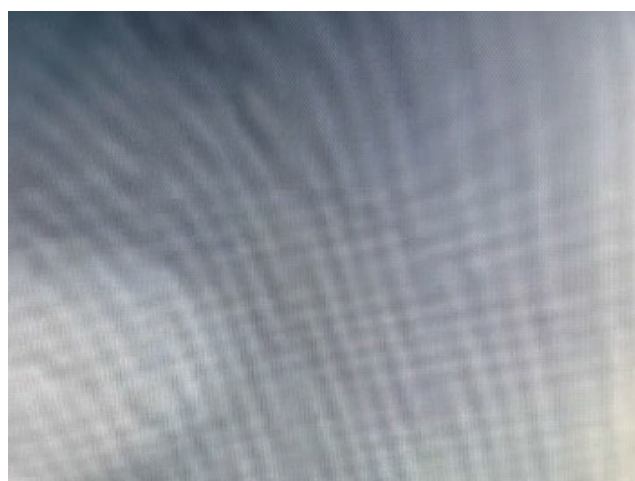


Figure 6 -After treatment we did not see vascularity of the tumor.

MRI 3 month after the procedure follow up (Fig 7). Tumor had not enhanced further, due to necrosis. There are only two small lesions in anterolateral wall (less than 10mm) and posterior less than 15mm) which may treat with MWA (microwave ablation) or surgery. We see very good response from treatment of this patient.

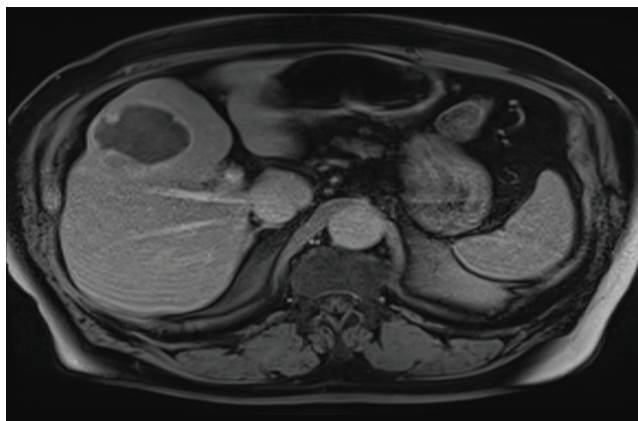


Figure 7 - MRI 3 month after the procedure follow up

The patient stayed in hospital only one night. Drug used 2 g cephazolin iv, pantoprazole iv. Next day patient went home without any complain. This modest experience in transcatheter arterial chemoembolization (TACE) treatment in a patient with hepatocellular carcinoma (HCC) inoperable is hoped to make this way of treatment more common to help this patient.

Not all patients with intermediate HCC may benefit from TACE [40].

Patients with intermediate-stage HCC present a wide range of tumor burden, tumor biology, liver function, and comorbidities.

Adequate patient selection for TACE is essential to maximize therapeutic effect. Therefore, in addition to staging systems for HCC, other selection criteria have been developed to predict treatment response after TACE to aid decision making.

Discussion.

The only treatment that has shown a survival benefit for patients with intermediate-stage HCC (BCLC stage B) is TACE.

This treatment is mainly at the level of arterial vascularization of HCC, which includes selective catheterization of the hepatic artery and supra selective of the arteries feeding the tumor, and injection of a chemotherapeutic agent along with blood flow through an embolizing substance. [41]

The TACE technique is contraindicated in patients with decompensated cirrhosis (such as after the Child-Pugh B \geq 8 classifications, which include jaundice, encephalopathy, refractory ascites), in cases with the involvement of two

lobes, when we have reduced portal vein flow (thrombosis or hepatofugal leakage), intractable arteriovenous fistulas, or biliary stenting, and creatinine clearance <30 ml/min. [41]

In these cases, there is a high risk of disease decompensation, and although an objective tumor response may be achieved, the survival benefit is limited. [41]

The survival benefit of TACE is based on some randomized controlled trials [42, 43] and subsequent meta-analysis of pooled data,[44] which show that TACE is better than placebo in patients with HCC intermediate, obtaining a median survival with the treatment of approximately 20 months. [44]

Conclusion:

TACE is a safe method for prolonging patients' survival with unresectable HCC. The correct treatment of HCC is concentrated in cancer centers, and cooperation between multiple specialists is necessary.

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Surgical Treatment of Painful Nerve Injury after Knee Arthroscopy.

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Abstract

Background; Pain at the surgical site is an important concern, especially in locations of main joints which may resolve important limitations of movement.

Materials and Methods; We present the case of painful dysesthesia after knee surgery for traumatic meniscal rupture in a young lady. She presented with painful dysesthesia, limitation of knee flexion, and severe pain in light touch and pressure on the mid-patellar area of the left knee.

Tinel's sign at the site of surgical scar, dysesthetic area (abnormal sensation) corresponded with the medial reticular nerve at surgical exploration under a microscope.

Results; Microsurgical exploration of the three nerves of medial subcutaneous nerves revealed the branch stack in the scar. The distal end was internalized subfascial inside the muscle fibers of the medial vastus of quadriceps femoris muscle according to Dellon. The other two were released from adhesions and found to be in anatomical continuity were left in place. Immediate resolution of dysesthesia was referred by the patient and the amplitude of motion was complete at one-month postoperative control. She remains pain-free 4 months from surgery and the area of dysesthesia remains anesthetic at the center.

Conclusions; Surgical identification and rerouting of the distal end of sensitive nerves is an efficient treatment after peripheral nerve injury.

Keywords; painful dysesthesia, Tinel's sign, surgical treatment

Introduction

Increase in number of surgical procedures despite minimal invasive tendency in the surgical approaches has known a constant increase in nerve injuries. This fact is reflected in thicker chapters on this subject in newly written literature.

Iatrogenic lesion of the sensitive nerves in the area of surgery is highly probable in presence of painful dysesthesia immediately after the procedure. Such painful experience alters patient's quality of life with limitations of daily activities, sleep disturbance and medico-legal issues.

Case presentation

We present the successful treatment of a post arthroscopic knee surgery in a 23 y.o. lady who sustained a car accident one year before resulting in meniscal rupture. After a year of unsuccessful conservative treatment for meniscal rupture she underwent arthroscopic surgery for partial meniscal removal with good result in relieving knee pain at stance and walking, but there were dysesthesia and burning pins and needles sensation at light touch and percussion over the surgical scar. *Figure 1*

Original article, no submission or publication in advance or in parallel

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Nerve blocks were performed with local anesthetic and cortisone with complete temporary resolution of painful dysesthesia leaving the young patient with anesthesia of the same skin area [2].

Under general anesthesia medial nerves of the subcutaneous distribution were explored and found (cranial to caudal: 1. medial retinacular nerve MRN; 2. medial cutaneous femoral nerve – branch of saphenous nerve; 3. Infrapatellar nerve – saphenous nerve). *Figure 2.*

The MRN was found severed with its stump stuck in the surgical scar. The other two nerves were in continuity after neurolysis and were left in place, MRN was cut near by the scar. *Figure 3*

Together with two smaller fascicles (that were sacrificed distally after infiltration of lidocaine) the stumps were rerouted under the fascia of vastus medialis muscle. The fascial opening was sutured with the nerve loupe not strangulated and creating a wide angle at the entry point into the fascia.

The day after surgery the patient referred no dysesthesia with the light touch and the area of anesthesia interested. The amplitude of motion was complete at one-month postoperative control. *Figure 4*

She remains pain free 10 months from surgery and the area of dysesthesia remains anesthetic at the center. *Figure 5.*

Discussion

This method is first explained by Dellon [1]. Pain at surgical site particularly over the anatomical trajectory of a sensitive nerve should make us consider the possible lesion of that nerve. More so if there is painful dysesthesia in the distal territory of that nerve with a Tinel's sign positive.

We have dealt with similar case in our series of surgical treatment for pain harboring severed sensitive nerves that were not prone to end to end suture or not worth transplanting, since they are usually part of the nerves we harvest for grafting (superficial radial nerve, superficial peroneal nerve, saphenous nerve, digital nerve).

In the present case the patient came to our attention with limited movement of knee flexion and difficulties in wearing pants or any kind of tissue that touched the dysesthetic area of the knee ending in burning pain that stopped her from walking.

We usually noticed that in such cases early diagnosis and treatment leads in fast and more complete relief from painful dysesthesia.

Prevention is the best way by avoiding to place the skin incision over nerve trajectories, which is presumably done from every surgeon of any specialty. But one should consider anatomical variants of these trajectories and we strongly advice to inspect the subcutaneous area before scalpel cut to reach the knee capsule, in this case. Before skin closure a careful inspection of the soft tissue structures

is advisable preferably with surgical loops in order to identify inadvertent involvement of sensitive subcutaneous nerves in the wound. This would allow an in-site repair with end-to-end micro suture whenever both stumps are identified. If the proximal stump is identified alone than the same described technique should be implemented to avoid the pain and more so the experience of movement limitation and chronic painful dysesthesia if left untreated.

Exploration of all three nerves of medial knee innervation and dissection under the microscope permitted to identify the severed nerve stuck in the scar along with the other nerves that needed not more than neurolysis since they were found in anatomical continuity. Only magnification permits thorough exploration of such tiny nerves. Alcohol neurolysis has been described in the literature for chronic arthrosis pain of uncut nerves of the joint, but it should not be indicated as stabilized treatment for injured nerves [3].

Conclusions

Painful dysesthesia after surgery over the skin incision should be surgically explored by nerve surgery experts in order to treat the involved sensitive nerves.

Surgical exploration is solicited as soon as the pain is unresponsive to conservative treatment before it becomes a burden for the patient.

Dellon's technique is proven to be resolute in case only the proximal stump is identified stuck in the scar.

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Figure 1- Surgical scar after arthroscopic surgery

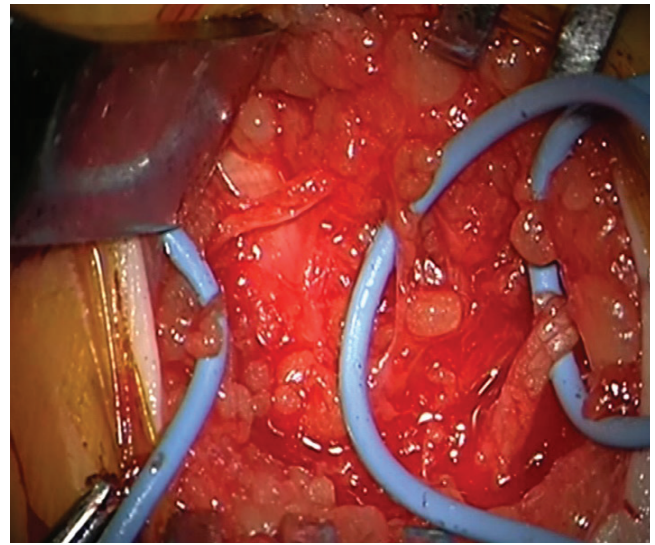


Figure 2 Exploration of regional nervous System

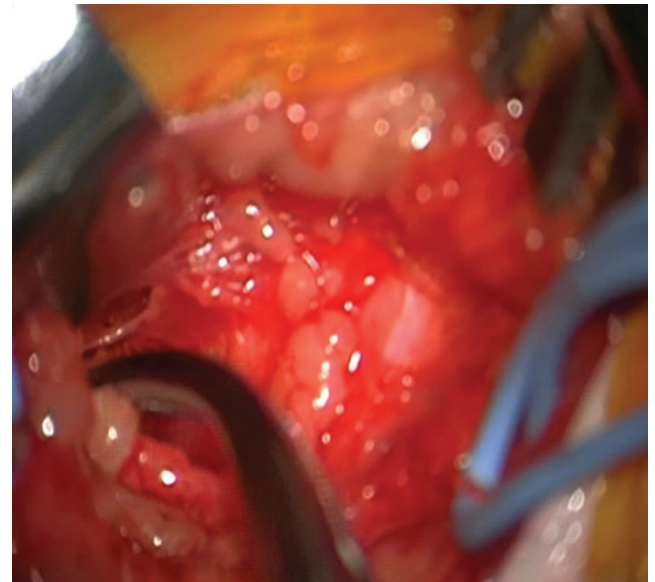
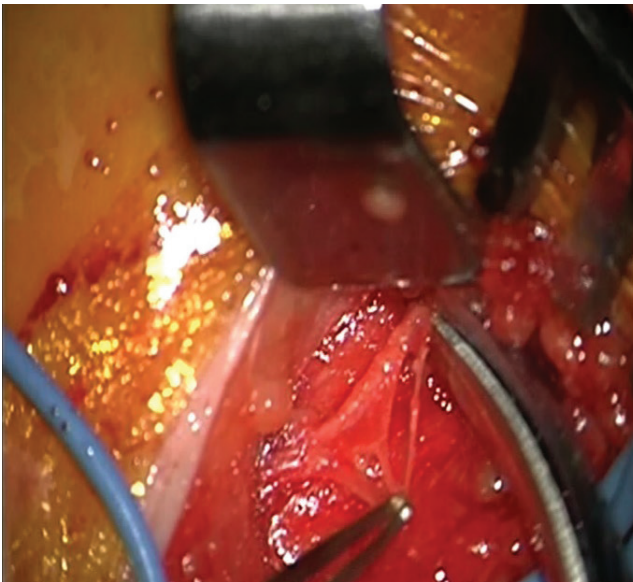


Figure 3, 4 Part of Surgical exploration

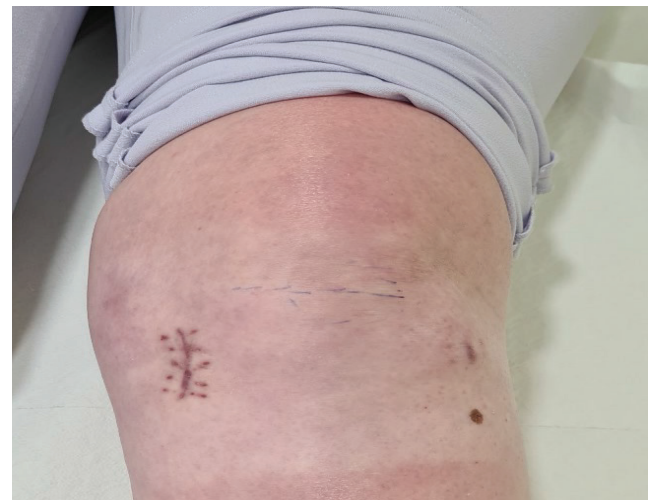


Figure 5, 6 She remains pain free 10 months from surgery

Primary Actinomycosis of the Foot in a 37-year-old female Patient: A Case Study and Review of the Literature.

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Abstract

A parasitic disease called actinomycosis occurs when bacteria spread through body tissues, causing abscesses, inflammation, and pain. It affects the skin or deeper parts of the body and can sometimes affect the blood.[1]

The symptoms of actinomycosis may mimic those of other diseases or even neoplasms. Remission and exacerbation of symptoms occurring in parallel sequence with the initiation and cessation of therapy is a phenomenon that should increase suspicion of actinomycosis in any of its manifestations. [2]

Microbiology, histopathology, and MRI revealed the presence of an unusual infectious agent, *Actinomyces* spp., which is also known as Madura foot [3] This implies a serious difficulty in getting a bactericidal concentration of the effective drug into areas of active infection and seriously questions the possibility of restoring the involved tissues [4, 8]

The diagnosis was confirmed by isolation of the organisms by anaerobic culture giving typical molar tooth colonies. Final confirmation was done by histopathological examination.

Case report; The patient's condition dates back 5 years before the operative treatment when for the first time the patient reported that she was stabbed with a foreign body in the area of the left foot. The patient was treated at home and in the beginning, did not go to the doctor. She occasionally complained of pain and swelling but the pain was not distressing, with no fever and no swelling of the foot...

Keywords: Actinomycosis, Foot, Unusual Wounds, Fistula, Amputation

Introduction:

Actinomycosis is an indolent, slowly progressive, suppurative infection caused by gram-positive branching bacteria of the genus *Actinomyces*. The organism is a member

of the oral and gastrointestinal microflora of humans. The disease actinomycosis most commonly occurs in 3 body regions: cervicofacial (55% of patients), abdominopelvic (20%), and pulmonothoracic (15%).[2]

Involvement of other parts of the body is uncommon and usually secondary to a lesion in one or the other of the above sites. Extremity disease can occur by secondary involvement through direct extension or hematogenous spread. However, primary actinomycosis of an extremity is very rare

Case report

The patient's condition dates back 5 years before the operative treatment, when for the first time the patient reported that she was stabbed with a foreign body in the area of the left foot. (Fig.1)

Original article, no submission or publication in advance or in parallel

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The patient was treated at home and in the beginning did not go to the doctor. She occasionally complained of pain and swelling but the pain was not distressing, with no fever and no swelling of the foot.

She came to our clinic for the first time 2.5 years ago after the onset of symptoms. Pain and swelling became more intense and the performance of daily activities became more difficult.

The swelling of the foot increased, the color began to become easily liquefied and a yellowish-white secretion flowed from several formed fistulas through the foot, especially the plantar side.

During this period the patient is afebrile and in good condition, but with difficulty moving due to the more obvious

swelling of the whole foot, with slight fluid discoloration and present fistulas that rarely secrete, most of them on the plantar side and some on the dorsal side.

Before being admitted to our clinic, the patient was conservatively treated several times in the Clinic for Infectious Diseases and Febrile Conditions, Plastic and Reconstructive Surgery – Skopje. During the intensive antibiotic therapy, the swelling and pain subsided, but not completely.

After the admission at our clinic, all clinical and paraclinical diagnostic procedures were performed: MRI, CT of the left foot, bone scan with TC 99.

Laboratory examinations (relatively elevated inflammatory parameters), X-ray and ultrasonography of



Fig. 1. Patient With Actinomycosis Foot Infection With Multiple Sinuses

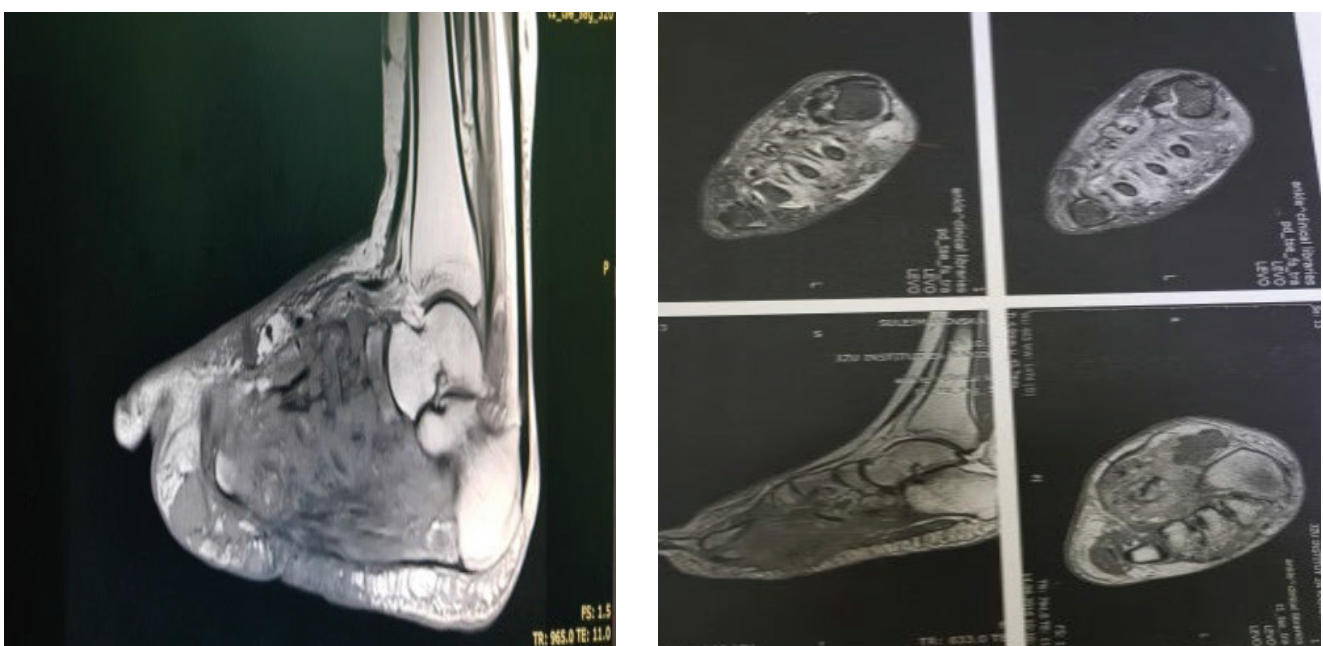


Figure 2. MRI of the left foot – DOT SIGNS

the lungs and other examinations. (Fig. 2)

During the entire period of hospitalization, the patient was treated with combination of two antibiotic (Climycin and Ceftraxone i.v), antifungal drug (Diflazon) and topical treatment with rinsing and dressings of the foot.

An open biopsy was performed in the operating room, biopsy material was taken - altered tissue, yellowish gray-whitish granulation in front of the plantar pedis, and the material was sent for pathohistological analysis at the Institute of Pathology (PTH attached of Actinomycosis)

Given that this pathology is very rare in our country and also the location of actinomycosis in the foot is very rare (3-4%), the patient was explained in detail about the course of the disease and the outcome of the disease in the future, continuous antibiotic treatment and final decision for radical surgical treatment - amputation of the foot.

The patient went on her own initiative to a private

clinic where she was also treated with systemic and local antibiotics and at one time an incision was made, drainage and evacuation of abscesses and placed on vacuum treatment on the left foot. She was treated there for almost a year without improvement of the local finding of the foot and without improving the overall health and quality of life.

The patient was re-admitted to our ins due to deteriorating health, especially the local finding of the foot with the presence of huge swelling of the left foot, fluid discoloration and lost sensitivity of the toes of the left foot. Several fistulas were present but without excessive puss drainage.

The diagnostic procedures were re-performed with MRI, CT angiography, echo of the abdomen, X-ray of the lungs and a set of laboratory tests. After completing the above diagnostic procedures and with previous PTH analyzes (actinomycosis), the patient was offered surgery –



Figure 3. The procedure of amputation and the suture of the wound



Figure 4. RTG of the left foot and leg (A) before and (B) after amputation

below the knee amputation on the left side.

The operation was performed with prior anesthesiologic preparation. The operation was performed in spinal anesthesia, under tourniquet in the middle of the tibia. Fibula was resected circa 4 cm above the tibial cut. (Fig 3)

After the operation, the wound was closed layer by layer with previous ligation and hemostasis of blood vessels and with a good flap on the skin. A pathohistological analysis of the amputated foot was ordered and it was sent to the Institute of Pathology.

During the stay, a physiatrist and physiotherapist were also consulted for further advice on movement. An appropriate Center for orthotics was consulted for the processing of an appropriate carbon dynamic prosthesis, given the young age of the patient and the daily engagements.

Postoperatively, the patient is in good general health, a local wound treatment and dressing was done and with systemic antibiotic - Vancomycin Sutures removed on the 14th postoperative day.

The patient is discharged in good general and local condition. Rehabilitation has been performed and the patient has undergone a permanent knee prosthesis, which has changed the quality of life, daily (fig.4) engagements, movement and functionality without any medication.

Discussion:

Several Actinomyces species are endogenous to the body and are part of the human microflora. The pathogenic counterpart is parasitic and is spread when there is disruption in the mucosal barrier, allowing the organism to enter soft tissues where blood supply is impaired.[5]

The World Health Organization has recently recognized mycetoma as a neglected tropical disease caused by either filamentous fungi (eumycotic) or bacteria (actinomycotic). Mycetoma can be prevented and treated, especially in its early stages, but it has a high morbidity rate and a large economic impact [6] Environmental actinomycotic organisms can induce a dense fibrotic tissue response without fistulas. The result was a painful, sclerosing, nonsuppurative infection of the bone and surrounding tissues in our patient.[7]

Unlike other Actinomyces species, A. Meyeri frequently causes pneumonia and has a tendency for hematogenous dissemination. When penicillin is administered for several months and surgical procedures are performed, when necessary, the outcome for these patients is excellent. [8]

If the diagnosis is delayed, the affected part may have to be amputated. We present a case of histologically proven mycetoma with MRI features characteristic of the recently described “dot-in-circle” sign. [8] Despite the fact that biopsy and microbiological culture provide definitive diagnoses, these are often difficult to obtain. [9]

As a result of the breakdown of nodules and formation of discharging sinuses, bacterial infections may progress to full-blown bacteremia or septicemia, leading to death. Disfiguring sequelae result as well. [10]

Among the countries where mycetoma is studied rigorously, Mexico, India, and Sudan are the most common sites. There is discovered that mycetoma has spread to the United States, Venezuela, Italy, China, and Australia as well. Mycetoma is reported far outside of the tropics. In the Americas, bacterial forms predominate, but in Africa and Asia, the picture is more varied. [11]

A better understanding of mycetoma epidemiology will enable more education, preventive measures, and treatment to be directed to at-risk areas, helping to reduce disease burdens. [12, 13]

Conclusion:

As the disease is relatively slow and painless, patients don't report it early, and therefore it is diagnosed at a late stage. The earlier the disease is reported to the primary care physician, and the sooner the disease is diagnosed, the lower the likelihood of morbidity. While working in fields, it is also important to wear appropriate footwear.

Declaration of any potential financial and non-financial conflicts of interest:

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Ethics approval and consent to participate – all the patients/their parents have signed informed consent.

Consent for photography- all the patients/their parents have signed informed consent

Consent for publication - all the patients/their parents have signed informed consent

Clinical trial registration information provided – not applicable

We confirm that the manuscript, including related data, figures and tables has not been previously published and that the manuscript is not under consideration elsewhere.

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Is acute Appendicitis as an extra Pulmonary Manifestation of Covid-19 infection?

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Abstract

Background; Coronavirus disease-19 (COVID-19) is an infectious respiratory disease. The first confirmed case of 2019-nCoV infection in Albania was reported in Tirana on 08 March 2020, when a patient and his adult son who had come from Florence, Italy tested positive. Patients with COVID-19 can be presented with a series of signs and symptoms. Acute abdomen as a presentation of COVID-19 is rare. The diagnosis of COVID-19 should be suspected and investigated in every case of acute abdomen.

Case presentation: We report a case of a 42-year-old male who presented with features of acute appendicitis. SARS-CoV-2 polymerase chain reaction test result was positive for COVID-19. Abdominal ultrasonography and his computed tomography of the chest and abdomen showed a perforated appendix and no infiltrates or abnormalities of COVID-19. The diagnosis of our case was appendicitis with COVID-19 without pneumonia. He was admitted and treated with antibiotic therapy and supportive care. He had an improvement in his health condition which made it possible to leave the hospital on the third day of hospitalization.

Conclusion: Based on our clinical case and literature data, we suggest that clinicians should suspect the diagnosis of acute appendicitis in patients with COVID 19. So, the case of acute abdomen pain must be completed with a SARS-CoV-2 test. Therefore, we recommend additional studies to reinforce the idea of linking SARS COV 2 infection with acute appendicitis.

Keywords: Abdominal pain; Appendectomy; Appendicitis; COVID-19; Case report.

Introduction:

On December 31, 2019, China reported a cluster of cases of pneumonia in people associated with the Huanan Seafood Wholesale Market in Wuhan, Hubei Province and on

January 7, 2020, Chinese health authorities confirmed that this cluster was associated with a novel coronavirus, 2019-nCoV. [1] This virus spread with dizzying speed all over the world including here and, in our country, becoming a major global emergency. The first confirmed case of 2019-nCoV infection in the Albania, was reported in Tirana on 08 March 2020, when a patient and his adult son who had come from Florence, Italy tested positive. [2] Patients with COVID-19 can be presented with a series of signs and symptoms involving organs and systems such as the pulmonary, cardiovascular, neurological or gastrointestinal. The cytokine storm could be associated with disease severity. Gastrointestinal symptoms are reported in approximately 35% of patients with COVID-19 infections [3].

COVID-19 is a possible diagnosis, even in the event of an abdominal pain syndrome suggesting acute appendicitis. [4] Involvement of the gastrointestinal tract among infected

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patients knows many mechanisms. Angiotensin-converting enzyme 2 (ACE2) is an entry point for SARS-COV-2 commonly expressed on the cell membranes of the type II pneumocytes in lungs, ileal and colonic enterocytes in the GI tract, arteries, heart, and kidney cells. It is a key mechanism for receptor-mediated cell entry and replication in SARS-COV-2. Viral infections can induce acute appendicitis in a variety of ways, including lymphoid hyperplasia, which leads to appendix blockage, and mucosal ulcerations resulting in subsequent bacterial infection. [5] Acute abdominal pain in COVID-19 patients poses a diagnostic dilemma to clinicians. Delaying management of the surgical abdomen can result in serious complications and worsen mortality. In contrast, performing unnecessary surgery in COVID-19 patients causes iatrogenic morbidity and mortality, more strain on healthcare resources, and high-risk exposure for healthcare workers involved in operative fields. [6] Therefore, it needs a greater vigilance for rapid diagnosis and intervention in individuals with GI symptoms and concomitant SARS-CoV-2 infection. [4]

Case presentation

A 50-year-old male presented to the emergency department with fever and acute abdominal pain. He had 4 days with fever 38 °C, myalgias, fatigue, anorexia and the last 24 hours with severe abdominal pain, nausea, sparse non-biliary vomiting, and diarrhea. SARS-CoV-2 polymerase chain reaction test result positive for COVID-19. He was transferred to our service for further diagnosis and follow-up. The patient had no preexisting comorbid conditions. The patient was in good general condition with vital signs within normal limits on examination. During the examination, a superficial and deep tenderness was noticed in the lower right quadrant of the abdomen. He had temperature of 38.1°C, blood pressure of 127/82 mm Hg, pulse of 109 beats per minute, respiratory rate of 17 breaths per minute, and oxygen saturation of 97% while the patient was breathing ambient air. Laboratory research included: a complete blood count, serum biochemical test (renal function, lactate dehydrogenase, creatine kinase, electrolytes, liver function) and coagulation profile. From the data we had discerned leukocytosis 11 200/mm³ (4000-11000/mm³), neutrophilia 89% (40-72%), lymphopenia 16.4% (25-45%) and monocytosis 9.8% (3-9%). Liver function tests, renal function tests, amylase/lipase test and electrolytes were normal but noticed increase of Lactate Dehydrogenase (LDH) 297 U/L (125-220) and Creatine Phosphokinase (CPK) 284 U/L (30-200). C-reactive protein (PCR) was elevated at 5.7 mg/dL (normal range: 0-0.5 mg/dL) as well as Fibrinogen 518 mg/dL (200-400) and D-dimer 0.78 ug/mL (0.2-0.5). Urine analysis was normal. Abdominal ultrasonography and abdominal CT scan showed an inflamed appendix with thickened walls, a diameter of 1.2 cm and peri-appendiceal fat stranding (Fig.1, 2). The chest CT didn't show any abnormalities of COVID-19. Thus, the diagnosis of acute appendicitis

was confirmed in a patient infected with COVID-19, but without pulmonary involvement. The patient underwent appendectomy, respecting the entire SARS protection protocol COV2, under generalized anesthesia, and a swollen appendix was observed macroscopically (about 1.5 cm) with fibrin around it (fig.3) Treatment with antibiotic therapy (Ceftriaxone 2 gr/IV/once daily, Metronidazole 500 mg/IV/

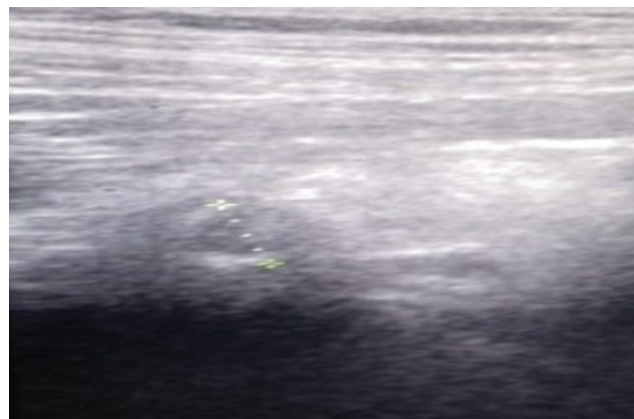


Figure 1 Ultrasound image showing appendix with a diameter of 1.2 cm, with thickened walls and peri-appendiceal fat stranding.



Figure 2 Axial CT scan image showing thickened appendix with peri-appendiceal fat stranding (yellow square).

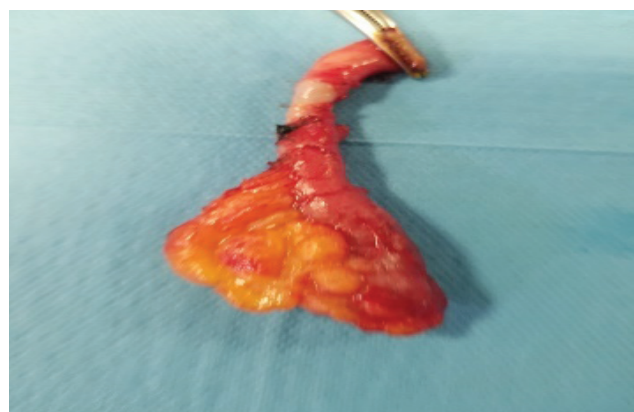


Figure.3 Macroscopic view showing swollen appendix.

three times daily), vitamin therapy (Thiamin, Pyridoxine, L-ascorbic acid), intravenous fluids and supportive therapy was started immediately. He came dynamically stable, had an improvement of health condition which made it possible to leave the hospital on the third day of hospitalization.

Discussion

In this description we present the case of a 42-year-old male who presented with features of acute appendicitis and where SARS-CoV-2 polymerase chain reaction test result positive for COVID-19. COVID-19 is a global pandemic. SARS-CoV-2 could be one of the possible causes of acute abdominal cases such as acute appendicitis. SARS-CoV-2 infection may contribute to the pathogenesis of acute appendicitis. Prichard et al support an association between SARS-CoV-2 and acute appendicitis. [7]

Patients with SARS COV 2 show a range of clinical manifestations ranging from mild to moderate to severe. Symptoms and signs are frequently non-specific, and they might conceal life-threatening diseases. (4) Our patient in their disease course presented with acute abdominal pain, non-bilious vomiting, diarrhea, fever. Nausea and vomiting as symptoms of acute abdomen are known to occur in the background of SARS-CoV-2 infection. [8] The presentation of gastrointestinal symptoms can vary according to the population, presenting as mild symptoms and prior to respiratory symptoms in some cases. [9]

Abdominal ultrasonography and his computed tomography of the chest and abdomen showed a perforated appendix and no infiltrates or abnormalities of COVID-19 although the lungs are the main organ involved in this disease. The diagnosis of our case was appendicitis with COVID-19 without pneumonia. Few cases of Covid-19 presenting with acute abdomen with features of pancreatitis and appendicitis have also been reported. [5, 10]

Laboratory research included: a complete blood count, serum biochemical test (renal function, lactate dehydrogenase, creatine kinase, electrolytes, liver function) and coagulation profile. From the data we had discerned leukocytosis $11\,200/\text{mm}^3$ ($4000\text{--}11000/\text{mm}^3$), neutrophilia 89% (40-72%), lymphopenia 16.4% (25-45%) and monocytosis 9.8% (3-9%). Liver function tests, renal function tests, amylase/lipase test and electrolytes were normal but noticed increase to LDH 297 U/L (125-220) and CPK 284 U/L (30-200). C-reactive protein was elevated at 5.7 mg/dL (normal range: 0-0.5 mg/dL) as well as Fibrinogen 518 mg/dL (200-400) and D-dimer 0.78 ug/mL (0.2-0.5). Analytically, it is common to find lymphopenia, which has been described in more than 60%. [9] Treatment with antibiotic therapy (Ceftriaxone 2 gr/IV/once daily, Metronidazole 500 mg/IV/three times daily), vitamin therapy (Thiamin, Pyridoxine, L-ascorbic acid), intravenous fluids and supportive therapy was started immediately in our patient. He came dynamically stable, had an improvement of health condition which made it possible to leave the hospital on the third day of hospitalization. The

diagnosis of COVID-19 cannot be ruled out and should be investigated in every case. Furthermore, delaying the treatment of the surgical abdomen can lead to serious complications and increased mortality. [4]

Conclusion

Based on our clinical case and literature data, we suggest that clinicians should suspect the diagnosis of acute appendicitis in patient with COVID 19. On the other hand, we can say that the cases presented in the emergency units must be completed with SARS-CoV-2 test. Therefore, we recommend additional studies to reinforce the idea of linking SARS COV 2 infection with acute appendicitis.

List of abbreviations

LDH- Lactate Dehydrogenase; CPK- Creatine Phosphokinase; PCR- C-reactive protein

Ethics approval and consent to participate

Not applicable.

Consent for publication

Written informed consent was obtained from the patient for the publication of this case report and any accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal.

Availability of data and materials

Not applicable.

Competing interests

The authors declare that they have no competing interests.

Funding

We have no sources of funding to declare in this study.

Authors' contributions

EM conceived and drafted the manuscript. AK designed and revised the work. EP participated in the sequence alignment and performed statistical analysis. ES participated in the design of the study and performed the laboratory analysis. PP participated in its coordination and helped to draft the manuscript. All authors read and approved the final manuscript.

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Acute Esophageal Necrosis. A Case Report.

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Abstract

Acute esophageal necrosis syndrome, is a rare cause of gastrointestinal bleeding. It is characterized by a particular black coloration, mostly of the distal esophagus, which ends abruptly in the gastroesophageal junction. The hemorrhagic manifestation may be hematemesis, melena or both of them. It is a life-threatening condition with significant difference between the two sexes. We report a case of a 67 years old male with schizophrenia, aspiration pneumonia and sepsis who presented with hematemesis. The endoscopic finding was a black, wide linear necrosis of the esophageal mucosa which extended from the middle esophagus to the gastroesophageal junction, compatible with acute esophageal necrosis. The esophageal lesion healed progressively at the same time with the improvement of the general health condition.

We must think of acute esophageal necrosis in critically ill male patients, in their sixth decade of life, with multiple comorbidities and gastrointestinal hemorrhage, because early recognition can help reducing the mortality of this rare syndrome.

In conclusion, we must think of acute esophageal necrosis in critically ill male patients, in their sixth decade of life, with multiple comorbidities and gastrointestinal hemorrhage. The diagnostic is made most of the time only by the characteristic endoscopic findings. Because of the gravity of this affection, the treatment must be quick and aggressive.

Keywords; esophageal necrosis, gastrointestinal bleeding, black esophagus

Introduction

Acute esophageal necrosis (AEN) syndrome, also known as “black esophagus”, necrotizing esophagitis or Gruvitis syndrome is a rare cause of gastrointestinal bleeding. The endoscopic finding is a particular black coloration mostly of the distal esophagus which ends abruptly in the gastroesophageal junction [1]. It is often found in severely ill patients. The hemorrhagic manifestation may be

hematemesis, melena or both of them. It is a life-threatening condition with a high mortality rate, approaching 32%, but the mortality specific to AEN is closer to 6% [2]. There is a significant difference between the two sexes, with a higher incidence in men. The physiopathology is still unclear and multiple events may be in cause.

We report a case with AEN in a schizophrenic patient with aspiration pneumonia and sepsis.

Case report

A 67 years old male with schizophrenia under treatment with Risperdal and Clozarem, living alone, is referred to the emergency endoscopy unit for upper endoscopy.

He has been taken to the hospital and presented to the emergency room for deterioration of the general condition, obnubilation, dyspnea and hematemesis.

At the admission he had: blood pressure 140/70 mmHg, heart rate 100 bpm, respiratory rate 25/min, oxygen saturation 89%. On the physical examination he was pale, agitated, uncooperative and the communication was difficult

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because of his mental disease. The laboratory findings were as follow: red blood cells 4.57×10^6 u/L, hemoglobin 12.8 g/dL, hematocrit 37,6%, white blood cells 24.4 K/uL, neutrophils 22.3 K/uL (91.5%), lymphocytes 0.9K/uL (3.7%), monocytes 1.1 K/uL (4.6%), eosinophils 0.0 k/uL (0%), platelets 413 K/uL, C-reactive protein 9.52 mg/dL, urea 100 mg/dL, creatinine 1.90 mg/dL.

The pulmonary CT scan showed fibrotic zones and images compatibles with aspiration pneumonia. The covid-19 rapid test was negative. HIV test was also negative.

The above findings were consistent with the diagnosis of sepsis and aspiration pneumonia.

The esophagogastroduodenoscopy (EGD), performed three hours after the admission, showed black, wide, linear necrosis of the esophageal mucosa which is extended from the middle esophagus to the gastroesophageal junction. The rest of the mucosa had active oozing (Fig. 1, 2). A deep duodenal ulcer was also found, with no signs of active hemorrhage. The patient was immediately transferred to the intensive care unit, because of the altered clinical condition and poor prognosis.

After 4 days of intravenous fluids, antibiotics, proton pump inhibitors and parenteral nutrition the patient's clinical condition improves distinctly and he underwent a second EGD, which demonstrates also an improvement of the black mucosal necrosis found in the first EGD. Most of them were covered by white exudate and there was no active bleeding (Fig. 3,4). The patient was discharged from the hospital after 16 days of hospitalization. He did not present to the follow-up endoscopy, planned one month later.

Discussion

Black esophagus is a relatively rare entity, firstly described in 1990 by Goldenberg [3]. The latest report of the cases diagnosed with necrotizing esophagitis encountered 118 patients [4]. According to different studies the incidence is 0,01-0,28% [4].

The etiology seems to be multifactorial, including ischemic events of the esophagus, the nonfunctional mucosal barrier and the chemical injury from gastric secretions. Most authors sustain the two-hit hypothesis, where there is a combination of ischemic event with increased metabolic requirement caused by the ischemia and the necrosis [5] [6].

Men are more affected with a sex ratio 1:4 and the average age of diagnostic is 67 years [7].

In 70% of the patients the clinical presentation of ANE is hematemesis [5] [8], which never appears alone. Other symptoms are: dysphagia, epigastric pain, chest pain and signs of underlying comorbidities.

Laboratory findings in our patient were compatible with infectious syndrome, sepsis and altered renal function. The CT scan didn't reveal changes in the esophagus or stomach. In patients with AEN, leukocytosis and anemia are common findings. The computed tomography may find thickened distal esophagus, hiatal hernia or gastric outlet obstruction [9].

AEN may be underdiagnosed, because of the gravity of the patients at the presentation, who are severely ill, with alternated hemodynamics, multiple pathologies and the endoscopic procedure in this patient is often difficult to perform in the first hours. It also exists subclinical forms of the disease and a relatively early healing of the mucosal lesions in case of transitory ischemia of the esophagus [7] [10]. The diagnostic is histological and the samples show necrotic mucosal and submucosal lesions, but the biopsy is not always necessary. There is high risk of perforation during the biopsy and most of the time the diagnosis is based on endoscopic examination and clinical features.

The differential diagnosis must be done with melanocytosis, pseudo-melanosis, malignant melanoma, acanthosis nigricans, coal dust deposition, exogenous dye ingestion, lye ingestion [11].

In our case, referring to the mental disease of the patient, we had to do the differential diagnosis with esophagitis from voluntary exogenous corrosive substance ingestion. This diagnosis was quickly dismissed, based on the second EGD, performed 4 days after the first one.

In the first endoscopy we found stage 1 AEN, referring to a staging system proposed by Gurvitis et al [5], while in the second endoscopy the coexistence of white exudates with black mucosa is compatible with the healing phase or stage 2 AEN.

The relatively quick improvement of the mucosal lesions in parallel with the improvement of the general condition, their topography, the end of the lesions at the gastroesophageal junction are arguments in favor of acute esophageal necrosis. The lower third esophagus is more affected, because it is less vascularized comparing to the proximal esophagus and it has poor collateral blood supply [9] [12]. It is also the most exposed to gastric reflux and gastric acid. In 36% of the cases, the entire esophagus is involved [13].

In our patient we also found a duodenal bulbar ulcer (Fig. 5), which seems to be related to AEN. Pathologies of duodenum, as ulcers and severe duodenitis, and pyloric region (deformed pyloric region) are found in 2/3 of the patients with black esophagus [14]. The pseudo-obstruction favors gastro-esophageal reflux and exposes the distal esophagus to gastric acid, biliary acid and pepsin. This process potentiates hypoperfusion and cause mucosal injuries and impairment of the mucosal healing [14].

The etiology of AEN in our patient is probably ischemic, related to the hemodynamic compromise following the sepsis and the alteration of protective barriers due to the poor nutritional status because of the mental disease. The coexistence of a poor nutritional status, with the vascular insufficiency and the hemodynamic instability can cause hypoperfusion of the esophageal tissue, mucosal buffering, diminishing of protective barriers and impairment of mucosal repairing mechanisms.

The risk of developing AEN is higher in patient with diabetes mellitus, hypertension, coronary artery disease, alcohol abuse, chronic kidney disease, chronic liver disease,

malignancy, peripheral vascular disease, chronic obstructive pulmonary disease and poor nutritional status [5] [6] [15] [13] [8] [16] [17]. These conditions are associated with severe vasculopathy and low flow which lead to hypoperfusion of the esophagus and ischemic events of the organ, especially of its distal part.

The treatment of AEN consist in treating the underlying severe comorbidities, which always accompanied this condition. The patients must be placed NPO (nil-per-os) and parenteral nutrition must be initiated if a long time NPO is planned. Correction of fluid imbalance is very important. Proton pump inhibitors are systematically used to protect the damaged esophagus. Oral sucralfate is indicated in addition to anti-acid systemic therapy, if renal failure is not present, which was not our case.

Our patient was treated with broad spectrum antibiotics for the sepsis, but the use of antibiotics, antivirals and antifungal medicaments might be precautions, because they are often accused as a cause of AEN [6]. At the discharge he was given proton pump inhibitors until next consultation and endoscopy.

AEN early complications are bleeding (85%) and esophageal perforation (<7%) [13] [18]. Endoscopic examination must be performed with caution and interrupted if necessary, in case of suspicion of esophageal perforation. The esophageal stricture (70%) and trachea-esophageal fistulas (30%) are late complications [8].

We could not evaluate the long-term evolution of AEN in our patient, because he did not present at the consultation planned after one month of the discharge from the hospital, but the endoscopic follow-up is recommended to evaluate the healing or the complications of AEN.

The mortality rate alone is approximately 6%, but it grows exponentially to 31.8-50% and has a poor prognosis, when in presence of other serious comorbidities [16] [19].

In conclusion, we must think of AEN in critically ill male patients, in their sixth decade of life, with multiple comorbidities and gastrointestinal hemorrhage. The diagnostic is made most of the time only by the characteristic endoscopic findings. Because of the gravity of this affection, the treatment must be quick and aggressive.

Figures

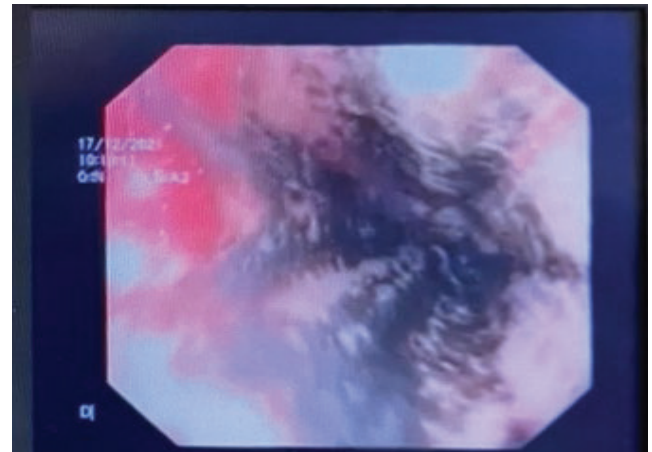


Fig. 1,2: Black linear necrosis of the esophageal mucosa from middle esophagus to the gastroesophageal junction (Day 0)

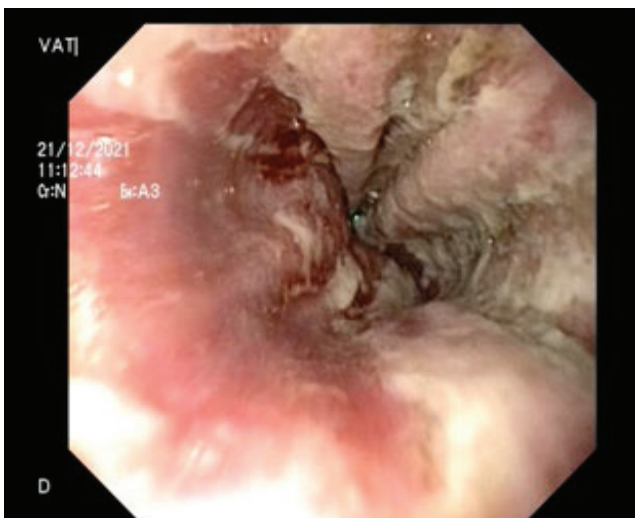


Fig. 3,4: Beginning of the mucosal healing, white exudate covering the linear necrosis (Day 4)

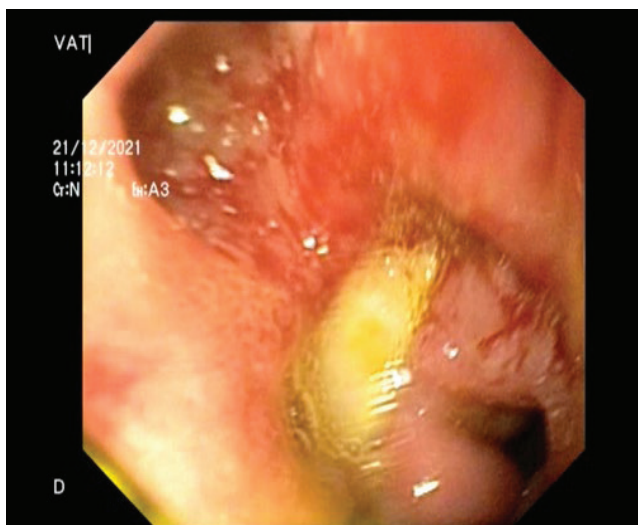


Fig. 5: Ulcer of the anterior face of the duodenal bulb

Declaration of any potential financial and non-financial conflicts of interest:

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Ethics approval and consent to participate – all the patients/their parents have signed informed consent.

Consent for publication - the patient/his parents have signed informed consent

Clinical trial registration information provided – not applicable

We confirm that the manuscript, including related data, figures and tables has not been previously published and that the manuscript is not under consideration elsewhere.

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Perioperative Management in a Patient with WPW Syndrome undergoing Plastic Surgery.

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Abstract

Perioperative management of patients with preexcitation may become quite challenging, especially if there is no time for adequate preoperative investigation and clinical optimisation, as in emergencies, or even worse, in undiagnosed cases. It is possible that the poorly controlled or unknown underlying electrophysiological abnormality will become unmasked during anaesthesia and surgery, giving rise to potentially life-threatening arrhythmias.

In the literature, pre-excitation syndromes have been mainly approached from the view of the disease (i.e., presentation, diagnosis, treatment), while anaesthetic data are scarce.

This case report aims to focus on the perioperative management of patients with WPW.

Conclusion; Managing such cases provides an opportunity to revisit important considerations on Wolff-Parkinson-White syndrome. Avoiding neuromuscular blockers may make a difference in avoiding arrhythmias when laryngeal mask airway / general anaesthesia is required in patients with Wolff-Parkinson-White syndrome. Sympathetic stimulation should be avoided as it may shorten the refractory period of AP and alleviate life-threatening arrhythmias.

Keywords; WPW, arrhythmias, bundle of Kent, anaesthesia,

Abbreviations.

LMA - Laryngeal Mask Airway; GA - General Anaesthesia; WPW - Wolff-Parkinson-White; ETT - Endotracheal Tube; SVT - Supraventricular Tachycardia; EPS - Electrophysiology Studies; APs - accessory pathways; ECG - electrocardiogram; RFCA - radiofrequency catheter ablation; BMI - Body Mass Index; PR - Pulse Rate; BP - Blood Pressure; AV - Atrioventricular; PRKAG2 - Protein Kinase AMP-Activated Non-Catalytic Subunit Gamma 2; NMBs - Neuromuscular Blockers;

Introduction

Perioperative management of patients with preexcitation may become quite challenging, especially if there is no time for adequate preoperative investigation and clinical optimisation, as in emergencies, or even worse, in undiagnosed cases. It is possible that the poorly controlled or unknown underlying electrophysiological abnormality will become unmasked during anaesthesia and surgery, giving rise to potentially lifethreatening arrhythmias.

Patients with Wolff-Parkinson-White (WPW) syndrome may require anaesthesia for EPS/ablation or for non-ablative procedures. In diagnostic/therapeutic interventions, anaesthetics should not interfere with cardiac electrophysiology, while in non-ablative surgery, drugs should ideally prevent, or at least, not facilitate the generation of arrhythmias associated with APs.

Suspicious cases should be referred for further investigation before elective surgery. A detailed cardiac history during pre-anaesthetic evaluation is the corner stone of not missing undiagnosed patients [5]. Apart from a 12-

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lead ECG, Holter monitoring may be useful, especially in intermittent WPW. Echocardiography can reveal congenital cardiac abnormalities that coexist in 7-20% of patients, such as Ebstein's anomaly, valve lesions, cardiac hypertrophy, atrial aneurysms and septal defects [3, 4, 10]. An EPS may also be needed; the benefit of postponing an elective surgery for EPS testing should be examined. The capability of rapid anterograde AP conduction increases the risk of sudden death and is an indication for radiofrequency catheter ablation (RFCA) to precede surgery [10]. Diagnosed patients should be carefully assessed preoperatively regarding their symptoms and current treatment, and should be clinically optimised. Cardiologist consultation and close cooperation are mandatory for a safe management plan.

In the literature, pre-excitation syndromes have been mainly approached from the view of the disease (i.e., presentation, diagnosis, treatment), while anaesthetic data are scarce. This case report aims to focus on the perioperative management of patients with WPW.

Case Presentation

A 38-year-old woman, with a BMI of 25.5 presented at the clinic for plastic breast surgery. In the anamnesis the patient refers as concomitant disease, hyperthyroidism, WPW syndrome and insomnia. She reports being under chronic treatment with Methimazole 5 mg x 2 tb / day, Bisoprolol 2.5 mg, 2x 1 tb / day, and Melatonin 10 mg x 1 tb / day. The patient refers a miscarriage in 2018 and in 2019 she underwent a lower segment cesarean section under spinal anaesthesia for the delivery of her first child, during which period the patient was asymptomatic and surgery was uneventful. Further cardiologist evaluation revealed WPW syndrome

At admission for plastic surgery, she was asymptomatic with good exercise tolerance the general and systemic examination revealed a pulse rate (PR) of 70 beats per minute, a blood pressure (BP) of 110/80 mm Hg. The electrocardiograph (ECG) showed normal sinus rhythm, a heart rate of 85/minute, shortened P-R interval (<0.12 seconds), a widened initial QRS complex with slurred upstroke and a normal terminal QRS deflection (Figure 1). Chest X-Ray and laboratory investigations including a haemogram, liver function tests, renal function tests, serum electrolytes and coagulation profiles were normal. 2D-Echocardiogram revealed normal valvular and ventricular functions with an ejection fraction of 68%. The patient was counseled and consented for surgery. Tab Bisoprolol 2.5 mg, and tab Methimazole 5 mg PO were continued on the night before, and the morning of surgery.

The goal during perioperative management of anesthesia was to avoid any factor that increases sympathetic activity such as pain, anxiety, fear, stress response of intubation/extubation, lighter plane of anesthesia, hypovolemia, and avoiding premedication with anticholinergic drugs.

Patient was adequately counseled and reassured. Premedication with Midazolam 5 mg and Omeprazole 40 mg IV was given before surgery.

In the operating room, the patient was attached to 12 lead ECG, with other routine monitoring. Drugs which were kept ready included adenosine, esmolol, lignocaine, procainamide, and defibrillator, to tackle any episode for re-entrant tachycardia and atrial fibrillation. IV catheter, and radial artery cannulation was secured. We gave inj. fentanyl 2 mcg/kg preoperatively and preoxygenated the patient with 100% oxygen for 3 minutes prior to induction with titrating dose of propofol; after induction, anesthetic depth was maintained by adding sevoflurane to the patient,

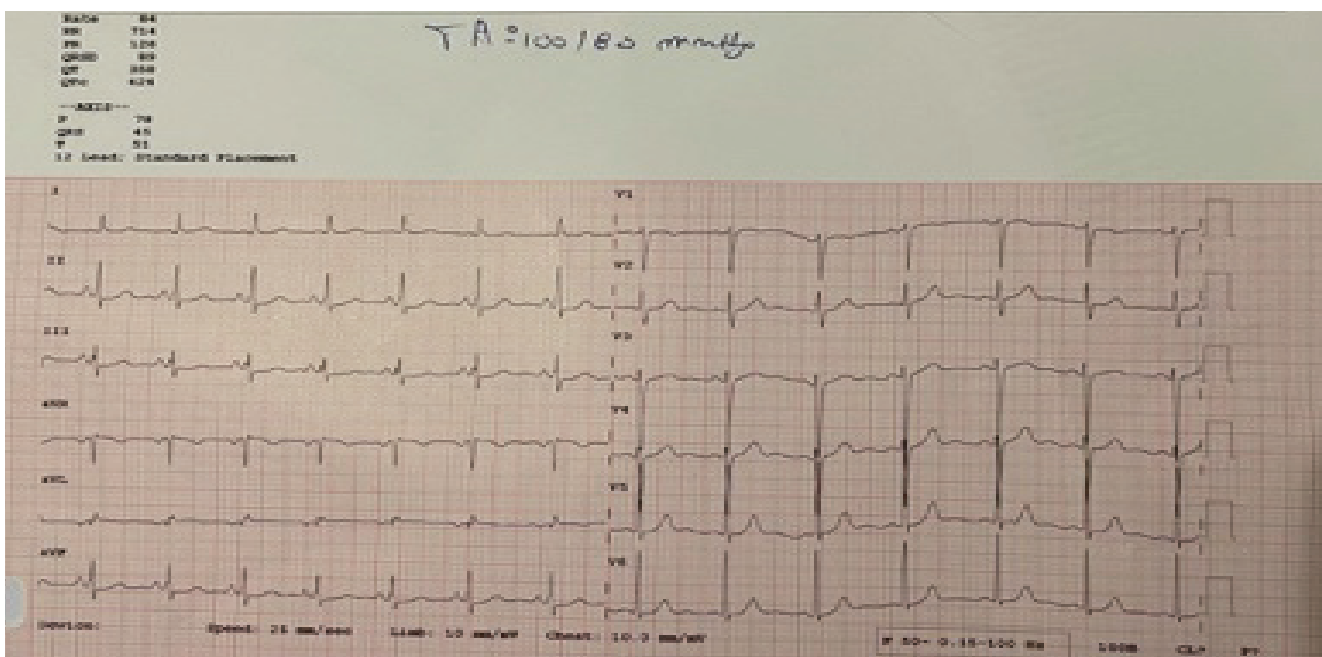


Figure 1 A normal terminal QRS deflection

prior to LMA positioning 10% lignocaine spray was used to anesthetize the airway. Post LMA positioning sympathetic response was observed with rise in a heart rate and blood pressure with ECG showing prominent “delta waves” and shortened PR interval; after stabilization of vitals, we started a background infusion of propofol at the rate of 25 mcg/kg/min and isoflurane. We observed that propofol infusion gradually reduced delta wave, with normalization of QRS complex and PR interval. The case proceeded uneventfully and after completion of surgery, first sevoflurane and then propofol was stopped. After the return of spontaneous respiration and generation of adequate tidal volume the LMA was removed successfully and sent to recovery room for monitoring of vitals.

Discussion

The main pathophysiological characteristic of the syndrome is the existence of an accessory AV pathway, named “bundle of Kent”. It represents an abnormal fibro-muscular connection which ends up directly into the ventricular myocardium and has remained after incomplete AV separation [2, 3]. It may connect the left atrium and ventricle (type A), or the right atrium and ventricle (type B), and can conduct the stimuli bidirectionally [1, 3]. The prevalence of WPW syndrome is 0.1-3.1% in general population, higher in men [3]. Most cases are sporadic, while the rarer familial form is characterised by autosomal dominant inheritance and has been linked to chromosome 7q34- q36 and mutations in the gamma-2 regulatory subunit of AMP-activated protein kinase gene (PRKAG2) [4].

The ECG pattern consists of a short PQ interval (< 120 ms), a slurred upstroke at the beginning of QRS (delta wave) and a broad QRS complex (> 120 ms). This characteristic “WPW pattern” represents an exclusively ECG feature, found 10-100 times more frequently than the actual “WPW syndrome” which refers to the combination of the ECG pattern with symptomatology [2, 5]. While many individuals with a WPW-pattern will remain asymptomatic for life, patients with WPW-syndrome usually develop arrhythmias between the ages 20-40 years [3]. The commonest symptom is palpitations, while dizziness, lightheadedness, chest pain, shortness of breath and syncopal episodes may also occur. Rarely, the first manifestation of the disorder is cardiac arrest [3].

The initial diagnosis of WPW syndrome is based on the ECG pattern combined with symptomatology. More specific examination includes Holter monitoring and exercise or pharmacological testing with procainamide [5].

In patients with WPW syndrome undergoing non-ablative surgery, antiarrhythmic treatment should be continued perioperatively. Additionally, sympathetic stimulation should be avoided, because it may shorten the AP refractory period and facilitate life-threatening arrhythmias [6]. Anaesthetics and adjuvants that increase AP refractoriness should be preferred.

Regarding volatiles, isoflurane and sevoflurane are preferred among other volatiles due to its property to prolong the AP refractory period and decrease the likelihood of tachycardias [7,8]. Although halothane could be preferred for its bronchodilator properties in selected cases [9]. Sevoflurane seems less advantageous than isoflurane, since it does not prolong the AP refractory period [11]. Nevertheless, it has been used safely for the maintenance of anaesthesia in a number of cases [12].

Among intravenous anaesthetics, propofol does not affect the AP refractory period [13]. Induction or maintenance of anaesthesia with propofol combined with fentanyl has been associated with cardiovascular stability in WPW patients [14]. Moreover, it was reported that delta waves disappeared after propofol administration and reappeared after its discontinuation [14]. Similarly, a decrease of QRS duration and return of PR interval into normal ranges were observed when propofol infusion (25 µg/kg/min) was added to sevoflurane anaesthesia [15].

Thiopental has been used in several cases, and small (50 mg) to moderate doses (4 mg/kg) did not cause conduction problems [14]. Ketamine should better be avoided due to its sympathomimetic effects. Most opioids are suitable for patients at risk for tachyarrhythmias, since they maintain haemodynamic stability with a mild reduction of HR [12]. Additionally, alfentanil/midazolam anaesthesia produces no significant effects on AP conduction and the refractory period [16].

Fentanyl at doses 30-50 µg/kg was found to exert no effect on the anterograde effective refractory period of the AP [17]. It is the most popular opioid, used in the majority of reported cases, and is described as very safe [18,20]. Conversely, the atropine-like effect of pethidine renders it less appropriate for WPW patients [5].

Regarding neuromuscular blockers (NMBs), succinylcholine may act on muscarinic or adrenergic receptors of the sinus node, with bradycardia presenting more often [12]. These effects make the drug less attractive compared to modern non-depolarising NMBs, even though it has been used uneventfully in several cases [19]. Among non- depolarising agents, pancuronium may not exert significant direct effects on APs [20], but enhances AV conduction, increases HR and triggers SVT; thus, it is suggested to be avoided [20, 21]. Vecuronium may cause HR reduction [12]; and have been used safely in WPW patients [20, 21]. We preferred to avoid NMBs.

Sedation with a benzodiazepine/opioid combination can be administered alone or as supplement to local anaesthesia for minor surgical procedures [22]. Among benzodiazepines, diazepam is cardiovascularly stable, without effects on the AP refractory period [17]. Nevertheless, its long duration of action (half life: 43 h) is a disadvantage, especially for outpatient cases. The intermediate acting lorazepam (half life: 14 h) or the short acting midazolam (half life: 2 h) have also been found to exert no significant effects on AP conduction, and represent more attractive choices [16, 18].

They can be safely used in conjunction with fentanyl [12, 18, 22].

When LMA/GA is provided, adequate doses of anesthetics and opioids should be given to suppress the sympathetic response to LMA positioning /tracheal intubation. Supraglottic airway devices should be preferred whenever possible, since their insertion causes less sympathetic stimulation, but care should be taken to avoid hypercarbia during spontaneous ventilation. Intraoperatively, deep anaesthesia and sufficient analgesia reduce the stress response to surgical noxious stimuli.

It also important to consider reduced venous return and atrial filling because due to an extensive sympathetic blockade may precipitate arrhythmias. Adequate fluid loading should be considered in order to reduce – as possible – the risk and magnitude of hypotension, subsequent sympathetic activation or need for sympathomimetic drugs [21, 22]. If hypotension occurs, a pure alpha-adrenergic agonist (i.e., phenylephrine) is the vasopressor of choice [22]. The addition of epinephrine to local anaesthetics should be avoided, as it may shorten the AP refractory period and facilitate arrhythmias.

Conclusion

We took all the precautions necessary to avoid tachycardia and arranged drugs necessary to treat any complications together with stringent monitoring which is very important for favorable outcome in these patients. Management of the case offers an opportunity to relearn the important considerations on WPW syndrome. Avoiding neuromuscular blockers can make the difference in avoiding arrhythmias when LMA/GA is required in patients with WPW syndrome.

Undergoing non-ablative surgery, antiarrhythmic treatment should be continued perioperatively. Additionally, sympathetic stimulation should be avoided, because it may shorten the AP refractory period and facilitate life-threatening arrhythmias.

Anaesthetics and adjuvants that increase AP refractoriness should be preferred.

In this case we avoided pancuronium, which has a tendency to cause increased pulse rate, blood pressure, and cardiac output via interactions with muscarinic receptors in the autonomic nervous system and by inhibiting catecholamine reuptake at sympathetic nerve terminals.

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Choledocho-Duodenal Fistula as a Complication of a Chronic Duodenal Ulcer

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Abstract

Choledocho-duodenal fistulas are rare disorders that can be of various aetiologies. Some of the most common causes of these fistulas are neoplastic processes in the extra-hepatic bile ducts, biliary stones or chronic duodenal ulcers. We will present the case of a patient with a choledocho-duodenal fistula who was treated in our clinic due to a severe episode of acute hepatitis.

We will present a case report as follow; a 52-year-old man was urgently brought to the abdominal surgery ward of the Tetovo Clinical Hospital due to severe pain in the right epigastric and subcostal region which also appears in the back region. It is accompanied by nausea, vomiting, sub-febrile fever, and weakness.

The patient reports that he has long been treated with proton pump inhibitors such as pantoprazole due to a chronic duodenal ulcer...

Conclusion; Choledocho-duodenal fistulas are very rare disorders and therefore pose a real challenge to surgeons and endoscopists in terms of their timely diagnosis. However, there are authors who prefer a conservative treatment, while some others suggest surgical intervention respectively fistulectomy, in order to prevent complications that may occur as a result of the regurgitation of duodenal contents in the bile duct.

Keywords: choledocho-duodenal, fistula, ulcer, ERCP, papillotomy

Introduction

Biliary-enteric fistula was first described by Bartholin in 1654, but so far biliary-enteric fistulas are still rarely reported, which are thought to be one or multiple pathological perforations between biliary tree and gastrointestinal tract [1, 2]. Choledochoduodenal fistula (CDF), the special type of biliaryenteric fistulas, is nearly 90% caused by cholecystolithiasis [3]. Increasing cases have been reported in the last 30 years since the progress in hepatobiliary

techniques, such as endoscopic retrograde cholangiography (ERCP), magnetic resonance cholangiopancreatography (MRCP), which have been applied to extensively reevaluate hepatobiliary diseases in the clinic, especially in Mainland China. However, the preoperative diagnosis of CDF is still difficult because of the nonspecific and/or minimal clinical symptoms [4]. Hence, CDFs are resulting in tough challenges for surgeons, especially for young surgeons.

CDF classification is important for diagnosis and treatment in the clinic, and the position of the fistula may suggest what the probable cause of CDF is.

CDFs are classified by Ikeda and Okada [5] and Gong et al. [6, 7] separately.

According to the location of the fistula, Ikeda divided CDFs into two types; Type I is located in the longitudinal fold of the papilla; type II is in the posterior wall of the duodenal bulb (Fig. 1A).

While Gong et al [6, 7] divided them into three types; the first type is type A, which is a CDF hole located more than 2 cm away from the papilla. The second play is type B, characterized by a CDF hole located less than 2 cm away from

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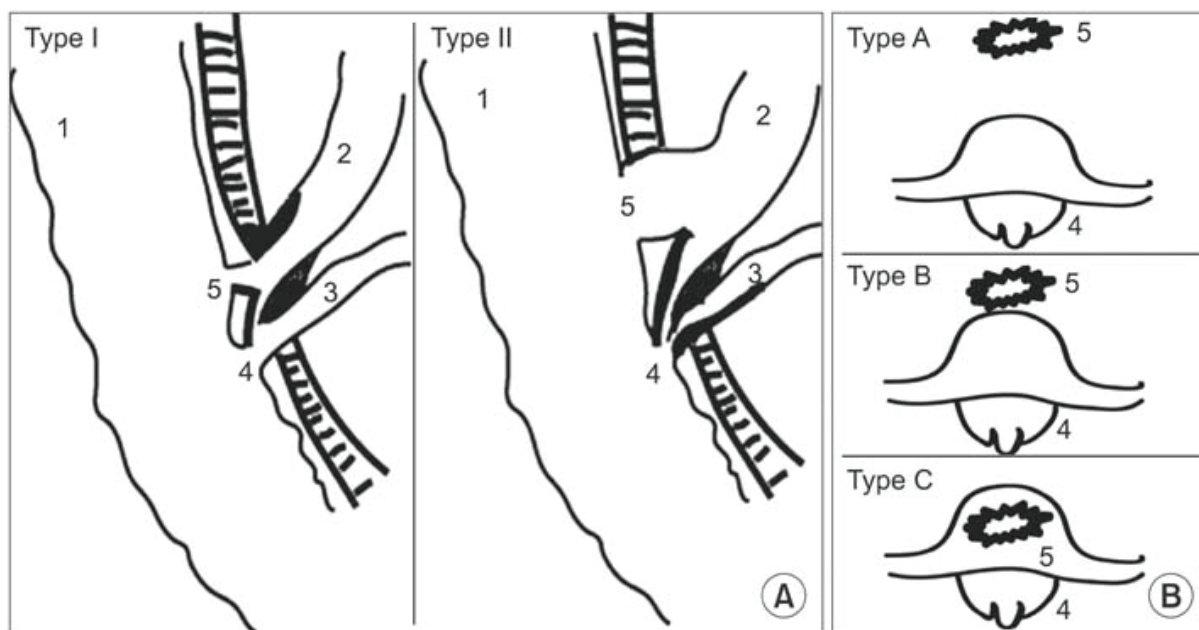
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1- duodenum; 2 - CBD; 3 - pancreatic duct; 4 - major duodenal papilla; 5 - choledochooduodenal fistula - CDF.

Figure 1. The classification of choledochooduodenal fistula (CDF).

the papilla; and the third type is type C, also called PCDF, is a CDF hole located in the papillary fold (Fig. 1B).[8]

Fistulas between the biliary tract and the gastrointestinal tract are very rare, especially those between the choledochus and the duodenum.

Although most of these fistulas are caused by the presence of stones in the biliary tract or choledocholithiasis (over 90% of them), sometimes the cause of their appearance can be chronic duodenal ulcers. [8, 9, 10]

Most of these disorders are associated with disturbances in the upper abdomen in the form of biliary colic, or in the form of chronic ulcerative pain.

The aim of our study is to show the case of a patient with acute hepatitis and severe abdominal pain as a result of a large choledocho-duodenal fistula from a chronic ulcerative process in the duodenum.

Case Report

A 52-year-old man was urgently brought to the abdominal surgery ward of the Tetovo Clinical Hospital due to severe pain in the right epigastric and subcostal region which also appears in the back region. It is accompanied by nausea, vomiting, sub-febrile fever and weakness.

The patient reports that he has long been treated with proton pump inhibitors such as pantoprazole due to a chronic duodenal ulcer. Immediately after hospitalization the patient underwent a native radiograph of the abdomen where no signs of pneumoperitoneum or any other changes were noticed. Also, an emergency abdominal ultrasonography did not show the presence of stones in the gallbladder or bile duct.

However, a thickening of the choledochal wall as well as a slight enlargement of the choledochus (8 - 9 mm) was visualized. At the same time this examination showed a steatotic liver with some small cystic formations on the right lobe.

The duodenum and stomach appeared slightly swollen. Laboratory examinations showed anemia expressed with hemoglobin valued at 11.2 g/dl and hematocrit of 32%. Moderate leukocytosis was also observed (WBC 14.1 mm³).

Biochemical analyzes detected an increase of hepatic enzymes AST (163 U/L) and ALT (194 U/L). The analysis also found alkaline phosphatase (872 U/L), simultaneously the level of bilirubin in the blood was increased to (32 μ mol/L). CRP levels were elevated (76) and D-dimers (3100), while lipase levels were within normal range. Tumor markers Ca 16-9 was also slightly increased to (53 U/ml).

A hypo-albuminemia at a level of 2.2 g / dl was also present in the patient.

After stabilization of the general condition through antibiotics (ceftriaxone and phlagyl) accompanied by analgesics of the non-steroidal anti-inflammatory drugs (NSAID) group the patient underwent an abdominal CT with contrast.

On the CT aerobilia was observed along the ductus choledochus as well as a thickening of the duodenal wall in segments D1 and D2. In addition, in the right lobe of the liver three small cysts with diameters between 3 and 7 mm were visualized.

Due to the presence of air in the bile duct an Endoscopic retrograde cholangiopancreatography (ERCP) was also performed according to standard procedures. The ERCP showed the presence of an ulcerative process in segment D1

of the duodenum as well as an inflammatory process around it. After injecting a contrast liquid into the common biliary tract, the presence of a fistula between the choledochal and the duodenum above the level of the duodenal papilla was detected.

Since the ERCP did not indicate the presence of any pathological processes in the biliary tract, either neoplastic or choledocholithiasis, no intervention was undertaken other than a papillotomy by the endoscopist. (Fig. 2)



Figure 2 Papillotomy

A few days after treatment in our ward the stabilization of the general condition of the patient began. This was manifested by a return to normal levels of hepatic enzymes and bilirubin with an increase in the level of albumin serum. For this reason, ten days after the hospital stay, he continued outpatient treatment with the suggestion to continue regular check-ups for a certain period of time in our department. Six months after treatment the patient's condition is good and there were no signs of recurrence of the disease.

Discussion

Choledocho-duodenal fistula (CDF) is a rare disorder which can be the result of various pathological processes. Most of them are a consequence of bile stones or neoplastic processes in the biliary tract [11, 12]. Other disorders that may promote the appearance of these fistulas may include duodenal ulcers,[13] neoplastic processes in the bile ducts and dilatation of the choledochus during a choledochotomy. However, sometimes there may be no obvious cause of this disorder.

Choledocho-duodenal fistulas can be complicated by the development of acute hepatitis, severe pain in the upper abdomen that may mimic biliary colic, or with the appearance of liver abscesses.[14] However, sometimes these disorders may not be associated with obvious disturbances, and may be misdiagnosed during an examination for another patient disturbance.

Most of these fistulas are located in the periampular region while those due to a duodenal ulcer are usually located above the papilla of the Vater. It is thought that the presence of these fistulas marks a greater risk both for the appearance of stones in the biliary tract, and for the development of neoplastic processes in said tract.[8]

Some studies show that both of these complications can occur due to infection of the biliary tree by the duodenal contents which easily regurgitates into the common bile duct. The passage of duodenal fluid into the choledochus can activate pancreatic enzymes which then become the cause of chronic cholangitis, neoplastic changes and the formation of bile stones.[9]

The best way to diagnose choledocho-duodenal fistulas is by an abdominal CT with contrast and ERCP.[15] Sometimes, a contrast gastro-duodenography enables the visualization of these fistulas due to a contrasting regurgitation from the duodenum to the choledochus. [16, 17]

Treatment of these fistulas remains controversial. If they are not complicated by frequent episodes of cholangitis, and show no signs of bile stone formation or the development of neoplastic processes, then conservative treatment and follow-up of the patient through ultrasonography and abdominal CT is recommended.[16]

This can sometimes be accompanied by an endoscopic sphincterotomy of duodenal papilla [18].

In cases with frequent episodes of cholangitis, formation of bile stones or the appearance of premalignant or malignant changes in the biliary epithelium a fistulectomy should be undertaken. However, there are authors who suggest surgical treatment of fistulas as soon as they are diagnosed in order to avoid the risk of complications mentioned above. [18]

Conclusion

Choledocho-duodenal fistulas are very rare disorders, and therefore pose a real challenge to surgeons and endoscopists in terms of their timely diagnosis. However, there are authors who prefer a conservative treatment, while some others suggest surgical intervention respectively fistulectomy, in order to prevent complications that may occur as a result of the regurgitation of duodenal contents in the bile duct.

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Endovascular Treatment of post traumatic Renal Artery Dissection.

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Abstract

Blunt renal artery injuries are rare, and no single trauma center has accumulated sufficient experience to draw meaningful conclusions or recommendations about optimal therapeutic strategies.[1]

The increased use of CT scans to evaluate blunt abdominal trauma identifies more acute renal artery injuries that may have gone undetected.[2]

Patients with renal injury have limited options such as open surgical repair or anticoagulation.[3] The use of endovascular stents to treat trauma is a good option treatment. [4] But not every case is successful.

The purpose of this case report is to describe the importance of accurate diagnosis and successful repair in emergency traumatic conditions by means of interventional radiology in cases of intimal damage to the renal arteries.

We will present a 38-year-old man who shows on the emergency room because of an accident with abdominal and thoracic trauma. The patient complained of pain in the right side of the abdomen...

Through Angiography, an intimal dissection localized in the upper pole of the right kidney was confirmed. We inserted an expandable balloon stent using a transfemoral approach to successfully repair the dissection.

Conclusion: Blunt renal artery injury is rare. Nonoperative management should be considered an acceptable therapeutic option. Management of blunt renal injuries includes timely evaluation to maximize the preservation of renal function. Recent management trends support the consideration of endoluminal intervention for traumatic renal artery dissections.

Keywords: trauma blunt, renal injury, endovascular stent, angiography

Introduction

Renal trauma can result in damage to the renal parenchyma or vasculature, which can cause hemorrhage or damage to the collecting system with possible leakage of urine outside the kidney.

Overall, genitourinary tract injuries are rare (10% of all traumas) with the most commonly affected organ being the kidney. [5]

Renal trauma accounts for about 1% to 5% of all trauma patients, the majority of which are due to blunt abdominal trauma (80% to 90%). [6, 7]

In 1861 *Von Recklinghausen* was the first to describe open renal injury with intimal impaction and thrombosis at autopsy on a boy who suffered a fall from a height. [8]

About 100 years later *Rohl* [9] performed the first successful revascularization in a 25-year-old male with traumatic thrombosis of a renal artery.

The incidence of blunt renal arterial injuries is rarely documented which began in 1981 with 250 patients enrolled and literature review by *Clark et al.* [10] and then continued with 196 walnut patients in the study by *Haas and Sprinak* [11, 12] in 1998.

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The incidence of renal artery injury from blunt trauma ranges between 0.05%, as reported by *Demetriades' group* in the National Trauma Data Bank [1], and 0.08% as reported by *Bruce et al.* [2].

Traditionally, patients with blunt kidney trauma undergo an intravenous urogram, but this diagnostic test has a false negative rate of 30%. [15].

Already during the last 20 years, contrast-enhanced CT has been considered the imaging modality of choice in patients with renal trauma, which has a major role in diagnosing associated injuries in patients with hemodynamic stability. However, the intravenous urogram may still have a role in the diagnosis of renal injuries with hemodynamic instability in the operating room [15].

Selective renal angiography remains the gold standard for diagnosing renal artery injury since it has the highest sensitivity and specificity. [16].

Case Report:

A 38-year-old man shows on the emergency room because of an accident with abdominal and thoracic trauma. Further, sustained blunt trauma and presented with abdominal, chest, and extremity pain. Serum chemistries analysis was within normal limits. The patient complained of pain in the right side of the abdomen. On admission, he was fully conscious, hemodynamically stable, and had no signs of respiratory distress. Physical examination revealed superficial bruises all over the body. Chest and pelvic x-rays as well as FAST were normal.

Macroscopic hematuria was not detected at the time of Foley catheter insertion, but microscopic hematuria

was evident in the urine analysis. Computed tomography (CT) scan showed only the upper pole of the right kidney was perfused from a polar ramus and the other part of the kidney does not perfuse. No perinephric hemorrhage or retroperitoneal fluid was noted. No other organ injury. After consultation between the general surgeon, vascular surgeon, urologist, and interventional radiology they decided to send to treat in angiography by an interventional radiologist.

Procedure:

After the patient was informed of the procedure and signed the consent form, he was brought to the angiography room. Initially, diagnostic angiography is conducted to evidence the dissection of the right renal artery after the polar ramus superior (Fig.1). With hydrophilic guidewire in the true lumen, a stent is passed, positioned precisely, and inflated. After the inflation, a second angiography is conducted to evidence full vascularization of the renal artery and all the renal parenchyma (Fig.3 and 4). Due to the patient's age and general condition, after the placement of the stent, anticoagulant or antiplatelet therapy was not applied. On a postoperative day, the patient's serum creatinine is normal.

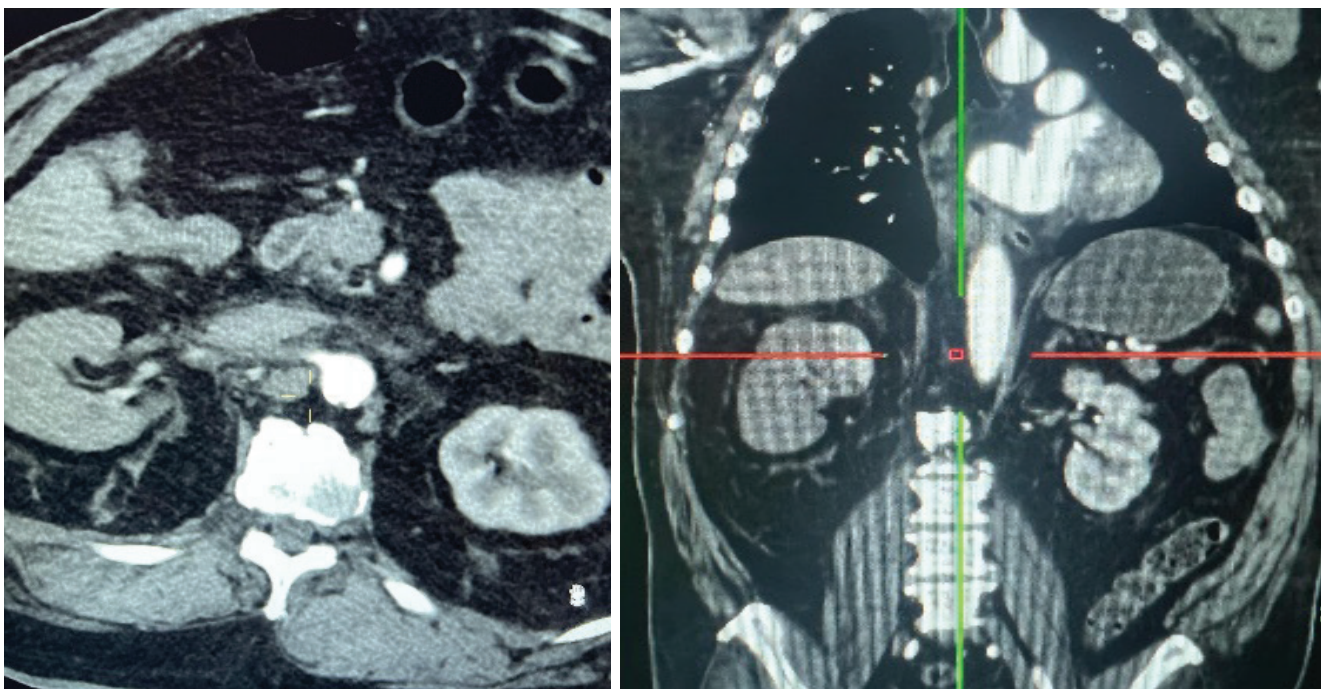


Figure 1, 2 - CT - scanner showing a perfused left kidney and perfused only upper pole of right kidney.

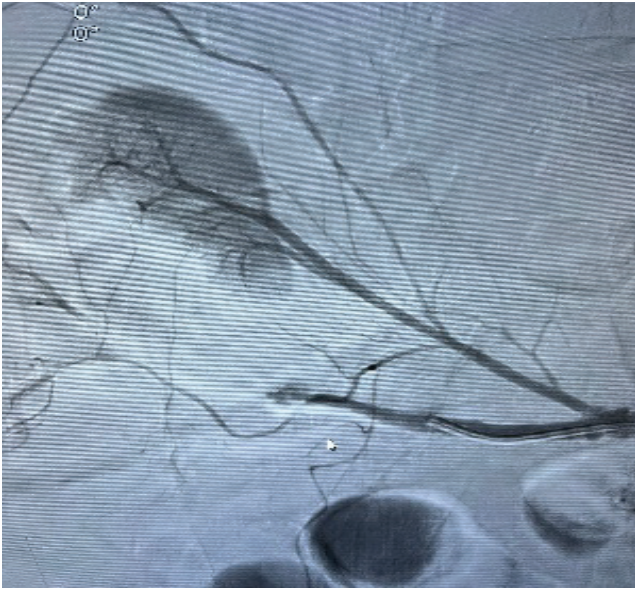


Figure 4 - Angiography of right renal artery after stent deployment showing flow.

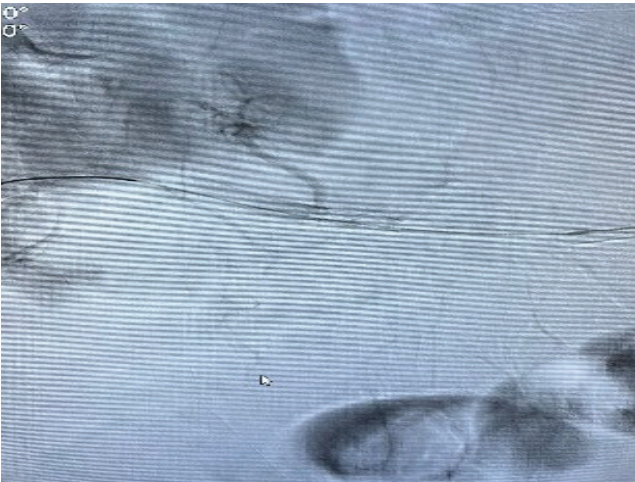


Figure 3 - Angiography of the renal arteries verifying occlusion of flow through the right renal artery.

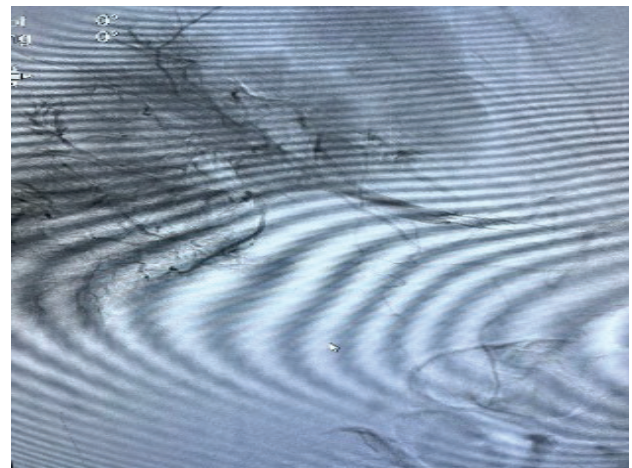
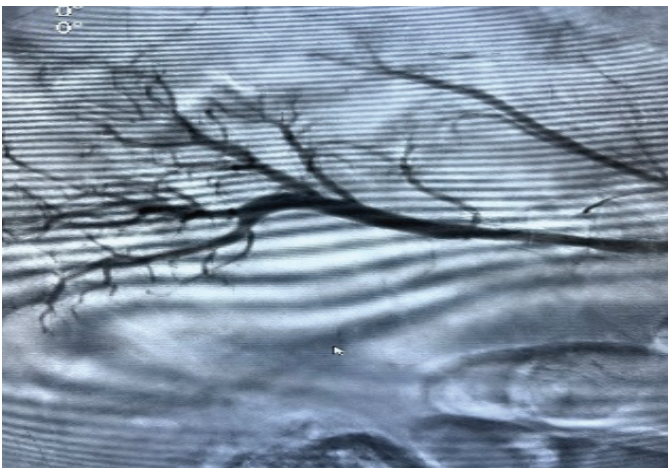


Figure 5, 6 Delayed angiographies of right renal artery after stent deployment showing normal vascular perfusion and normal parenchymal perfusion also.

Delayed angiography of the right renal artery after stent deployment showing normal vascular perfusion and normal parenchymal perfusion also.

During his hospital stay, the patient was normotensive and had a satisfactory urinary output with stable hemoglobin level and renal function tests.

Discussion

Mechanisms for blunt renal arterial injuries involve sudden acceleration-deceleration forces that cause a stretch injury to the vessel wall or direct impact with compression of the renal vessel against the vertebral column. The kidneys are fixed in place only by means of the vascular pedicle and the ureter, thus injuries usually occur at these points. [17]

Hematuria is present in the majority of cases with renal trauma; however, her presence and the amount are not related to the severity of the injury. Hematuria may be absent in up to one-third of patients who persist in renal vessel damage [17].

The CT-scanner data suggest renal artery damage can be summarized as follows: Evidence of an abnormal increase in contrast in relation to the contralateral kidney, which can be presented with an irregular hypodense linear form until the delayed expansion of the renal contour, or with reduction of the affected kidney. [18]; Lack of darkening of the pelvic-calyceal system, which refers to an ischemic area with non-excretory renal parenchyma.; “Cortical rim sign”, indicating non-enhanced renal parenchyma except for the outer peripheral portion of the cortex [17]; Direct visualization of the irregularity of the renal artery, through the filling defect, extravasation of the contrast medium until the complete closure of the blood vessels.

Many patients with renal injury go on renal loss and death.[11] In traumatic renal vasculature injury, patients usually have damage to other organs as well. [13, 14.] Surgery is successful between 0% to 25% [19]

First described by Whigham and co-authors in 1995 angiographic revascularization has emerged as a promising

additional therapeutic approach. In the last few years, growing experience and improved techniques with elective renal artery angioplasty and stenting for atherosclerotic disease and fibromuscular dysplasia have widened the application of this technique in the acute setting of trauma. [20].

The diagnosis was made in most cases using a CT scan. In three cases the diagnosis was made via angiography. In most cases, the injury caused significant renal artery flow restriction.

In a trauma center, the early angiographic approach has become the preferred treatment approach in hemodynamically stable patients with dissection of the renal artery due to blunt trauma [21].

Endovascular stenting in the setting of renal artery injury has shown promise as the result shows, this method is successful in treating this pathology.

Stent patency may be achieved without anticoagulation or antiplatelet therapy. The utilization of anticoagulation therapy in critically injured patients is currently the subject of active debate in the literature. [22, 23]

In patients with hemorrhage, the use of anticoagulation or antiplatelet therapy is counter-indicated, in patients without hemorrhaging, a dissection of renal artery with a stent is still open to discussion.

Long-term post-procedure antiplatelet prophylaxis of late stent occlusion seems to be reasonable, but no guidelines are yet available.

In our patient, no late complications occurred and no renovascular hypertension was detected.

Conclusion:

Blunt renal artery injury is rare. Nonoperative management should be considered an acceptable therapeutic option. Management of blunt renal injuries includes timely evaluation to maximize the preservation of renal function. Recent management trends support the consideration of endoluminal intervention for traumatic renal artery dissections. Already, endovascular management for renal artery injuries in blunt trauma patients appears to be safe and feasible.

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Non-surgical Treatment of Metastatic Liver Tumors with Microwave Ablation.

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Abstract

With all the measures taken, the trend of liver cancer cases has increased worldwide, as a consequence, this is accompanied by an increase in mortality by 43% (10.3 per 100,000 in 2016 (USA)) [1, 2].

Liver cancer is also associated with the lowest 5-year survival rate among all types of cancer (19%) [1].

Liver cancer (including intrahepatic bile duct cancer) was the ninth leading cause of cancer death in 2000 and rose to sixth in 2016 [3].

This shows that the identification of safe and effective treatments for liver cancer is urgent now.

Microwave ablation is a thermal ablation modality that has particular applicability in treating hepatic malignancies primary tumors or metastases. Microwaves can generate very high temperatures in short time periods, potentially leading to improved treatment efficiency in larger ablation zones.

We will show a patient male 55 years old. Post-surgery of colon cancer 6 months ago. Normal exam. There is a liver metastasis in the right lobe subcapsular 22mm. The patient was a good candidate for MWA.

Conclusions

MWA is an effective and safe alternative in patients/tumors that are not suitable for resection. Survival and recurrence outcomes after MWA are significantly improved with significantly shorter hospital stays and operative times, with little or no intraoperative blood loss and minor complications. Its use should be extended more and more in the field of treatment of these patients depending on the therapeutic indications

Keywords: microwave, ablation, liver tumors, liver metastases

Introduction:

Numerous techniques have been developed to kill tumor cells including heating, freezing, radiation, chemotherapy, shutting off the blood supply to the tumor, injection of caustic agents directly to the tumor, as well as various combinations of these.[4]

Hindu and Greek healers used heat clinically for hemostasis since ancient times. Hippocrates said that “those diseases that medicine cannot cure, the knife (surgery) cures; what the knife (surgery) cannot heal, fire heals.” [5]

While most of these were introduced in the late 20th century, at least one dates to the 19th century.

The basic technique for radiofrequency RFA ablation was described a century ago by D’Arsonval, who, in 1891, first demonstrated that when RF waves passed through tissue, they caused an increase in tissue temperature [6]. In the early 1900s, RF was used relatively little for medical purposes [7].

In 1910 Beer [6] described a new method for treating bladder neoplasms using cauterization through a cystoscopy.

However, it was not widely used for medical applications until the introduction of the Bovie knife in 1928 by Cushing and Bovie instrument which can be used

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either for cauterization or for cutting tissue by changing the radiofrequency current. [9], Heat therapy is based on the data of Coley et al. that tumor cells are more sensitive to heat than normal cells. [10]

The needle shaft does not produce heat, on the contrary, heat is produced in the tissue and this leads to coagulation and cell necrosis. Thermal ablation techniques were described in 1995 for the first time using animal lung tumor models and then in the 2000s in humans.[11]

Microwave ablation has emerged as a newer ablation modality and addition to the range of care for minimally invasive cancers.[12]

The advantages of microwave ablation over other heat-based modalities, such as radiofrequency or laser ablation, include a larger and faster volume of tissue heating than with a single application.

Unlike radiofrequency ablation, MWA does not rely on an electrical circuit allowing the simultaneous use of multiple applicators.[13]

Microwave ablation (MWA) is a form of thermal ablation used in interventional radiology to treat cancer, which uses electromagnetic waves in the microwave energy spectrum (300 MHz to 300 GHz) to produce the effect of tissue heating.

Oscillations of polar molecules produce frictional heating, ultimately generating tissue necrosis within solid tumors. It is generally used to treat and/or reduce solid tumors in patients who are non-surgical candidates. [14]

Thermal microwave ablation (MWA) is an emerging technique that shares many characteristics with RFA. Indeed, the technical features of the procedure are almost identical to those of RFA. The differences arise from the physical phenomenon used to generate heat.[15]

While RFA benefits from resistive heating generated by electrical current, MWA refers to devices that use physical waves with frequencies higher than or equal to 900 MHz. [16]

Heat is produced by the agitation of polar molecules, such as water molecules, caused by microwave pulses; ionic polarization accounts for a much smaller fraction of energy deposition.[17]

MWA is primarily based on two frequency categories: 915 and 2450 MHz, 2450 MHz being the most commonly used while 915 MHz may present deeper tissue penetration, thus potentially larger ablation areas.[18]

MWA presents several theoretical advantages over RFA: it can provide larger areas of coagulation necrosis in shorter times since MWA is less affected by the protection of adjacent tissues provided by vaporization and carbonization, and is also much less disturbed by the heat absorption effect. [19]

MWA works by producing electromagnetic waves in the microwave energy spectrum, which create heat around the needle, which heats and destroys cancer cells. Heat closes small blood vessels and lessens the risk of bleeding. The dead tumor cells are gradually replaced by scar tissue. [20]

The medical team should use ultrasound, computed tomography, or magnetic resonance imaging to help guide the needle electrode to the tumor.

Ablation uses one of three methods: Surgery; Percutaneous, in which the doctor inserts needle electrodes through the skin and into the site of the tumor; Laparoscopic, in which needle electrodes within a thin, plastic tube are threaded through a small hole in the skin. [21]

Each process takes about 10 to 30 minutes, with the additional time needed if multiple ablations are performed. The entire procedure usually takes one to three hours.

Procedure

Percutaneous image-guided thermal ablation has become an accepted treatment method for many tumors in the liver, kidney, lung, and bone [22].

In the liver, thermal ablation is considered first-line therapy for small (< 3 cm) hepatocellular carcinoma in the setting of cirrhosis and second-line therapy for the treatment of medically or surgically inoperable oligometastatic colorectal metastases [23].

Percutaneous ablation has also been used successfully to treat benign hepatic tumors, such as giant cavernous hemangiomas and hepatocellular adenomas. [24, 25]

High-powered microwave ablation systems have shown the potential to create larger ablation zones than radiofrequency ablation devices, with similar applicator size and shape [16, 17].

Percutaneous ablation of primary and secondary liver tumors has become an important treatment alternative and is likely to soon occupy a more central role in the management of all patients with hepatocellular carcinoma (HCC) and liver metastases from colorectal cancer (CRC) [26].

Microwave ablations produce heat. Polar molecules in the tissue are forced to continuously realign with the oscillating electric field, in this way increasing the temperature of the tissue. Tissues with a high percentage of water (solid organs and tumors) are most conducive to this type of heating. [27 -29]

Microwave radiates to tissue through an interstitial antenna, direct heating of a volume of tissue around the antenna destroys the tissue in that area.

MWAs are able to spread and effectively heat several types of tissue, even those with low electrical conductivity, high resistance, or low thermal conductivity. [28, 29]

Multiple microwave antennas can be powered simultaneously to take advantage of thermal synergy when placed in proximity or widely spaced to ablate several tumors simultaneously. [30-33]

Microwave ablation is the ability for antennas to be positioned and phased to exploit the overlap of the electromagnetic field energy.[32]

Microwave reflected power and shaft heating, short relatively low-power ablation cycles. MWA can use multiple probes. Systems of MWA with are able to decrease the applicator size and deliver higher power.

Reports on the safety and efficacy of hepatic microwave ablation have focused on the overall safety profile. [33, 34] In some cases, the sequela of diaphragmatic injury or thermal ablation may happen which depends on the position of the tumor.

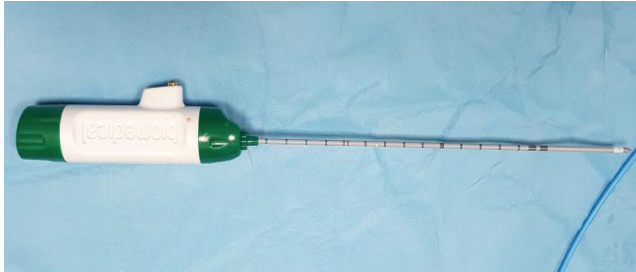


Figure 1 - The needle for percutaneous insertions

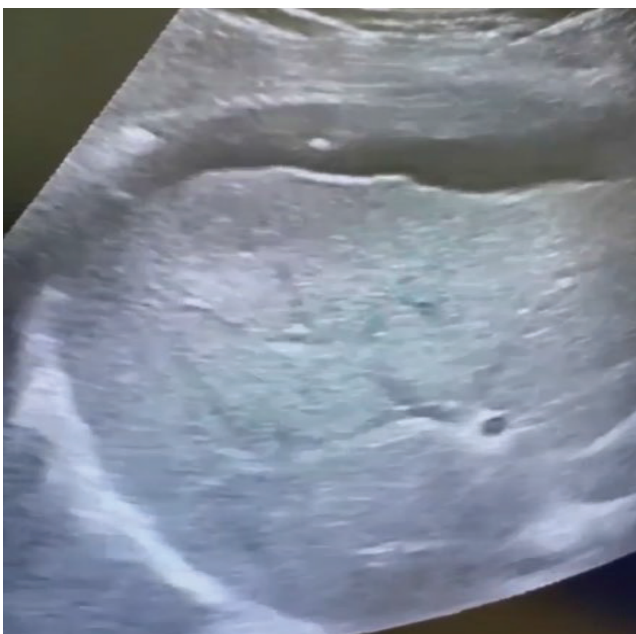


Figure 2, 3 - The needle is in sub-diaphragmic space.

Our Experience

Patient male 55 years old. Post-surgery of colon cancer 6 month ago. Normal exam.

There is e liver metastasis in right lobe subcapsular 22mm.

Patient is a good candidate for MWA. Below is tumor in ultrasound and MWA electrode.

We use the Hydro-dissection by using Sol NaCl 0,9 % -500 ml subcapsular area, to protect diaphragm. (Fig.1, 2, 3)

CT scan one month after procedure treatment, there is lesion without contrast in parenchymal contrast phase. Tumor ablated. (Fig.7).

Tumor is image post completely ablated tumor. (Fig. 7)

Patient was day hospital. Treated him with 2 g cephalosporin iv. In follow up after the tumor is only a cystic lesion. MWA is a good way of treatment in patient indicated for this treatment.

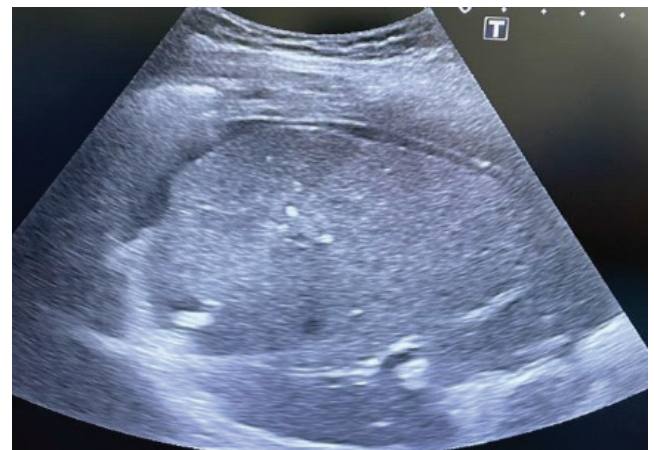


Figure 4 - Electrode is in the central of the tumor, early phase.

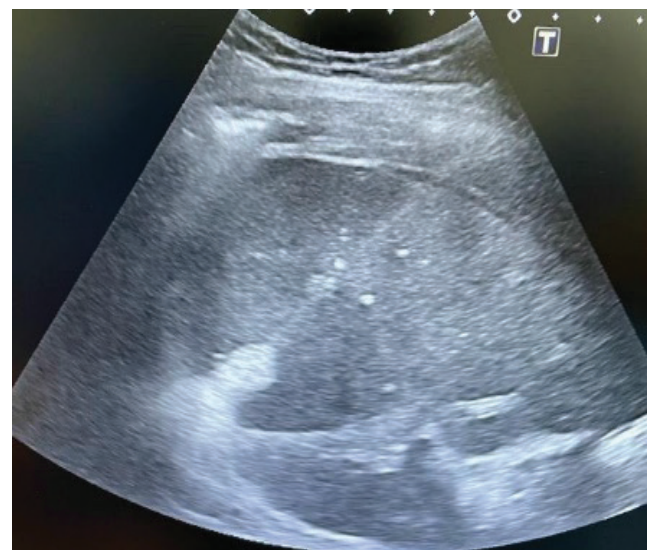


Figure 5 - Electrode is in the central of the tumor, late phase

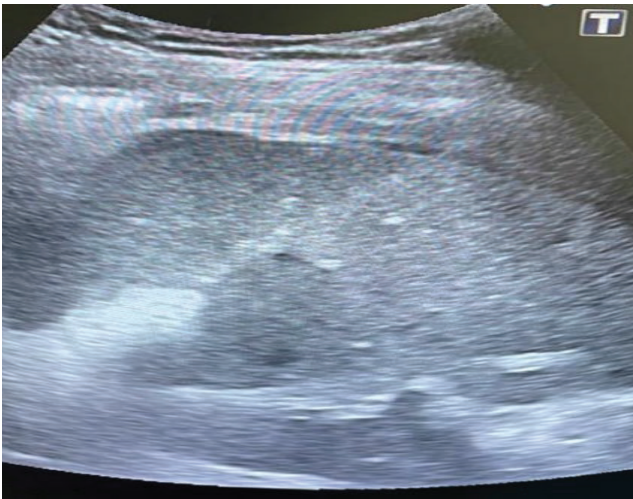


Figure 6 - The end of procedure, the tumor is ablated.

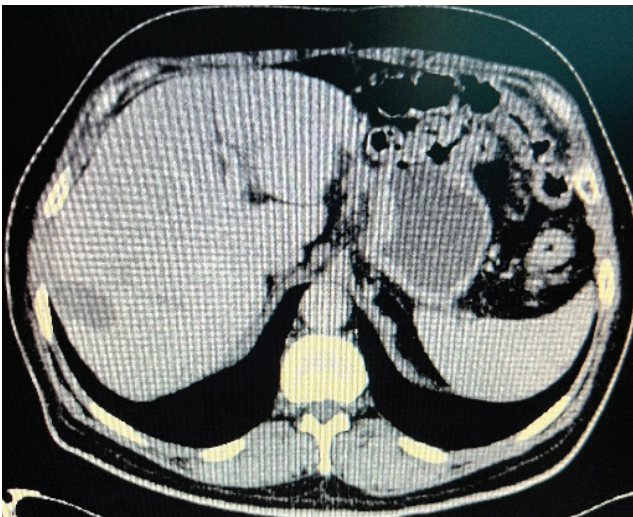


Figure 7- CT scan one month after procedure treatment, there is lesion without contrast in parenchymal contrast phase. Tumor ablated.

Discussion

Microwave ablation can be an effective treatment for primary liver cancer and for cancers that have spread to the liver in select patients whose liver tumors are unsuitable for surgical resection.[35]

In most studies, more than half of the liver tumors treated by ablation have not recurred. The success rate for completely eliminating small liver tumors is greater than 85 percent.[36]

Treatment-related serious complications are infrequent and discomfort is less than surgery.

Ablation may be used repeatedly to treat recurrent liver tumors. [35]

The percutaneous method of ablation, in which needles are inserted through the skin, is minimally invasive, produces few complications, and does not require hospital admission.[37]

Ablation is a relatively quick procedure and recovery is rapid. Chemotherapy may resume almost immediately in patients who need it.[37]

Ablation is less expensive than other treatment options.

No surgical incision is necessary—only a small nick in the skin that does not need stitches.[37]

It is important to note that MWA, like RFA, can be part of combined treatments and can cause a synergistic effect with transarterial chemoembolization (TACE). It has been shown that interruption of hepatic blood flow can increase the area of thermal ablation. [38]

Microwave ablation (MWA) are widely accepted technique to eliminate colorectal liver metastases. Although previous studies labeled thermal ablation inferior to surgical resection. Thermal ablation compared with hepatic resection in patients with at least one resectable and ablative colorectal liver metastases and no extrahepatic disease.[39]

In general, all ablative techniques show a variety of results in terms of complete ablation, complications, and treatment time, making it difficult to analyze the results and draw conclusions.

More studies and experience are needed using identical technique protocols to improve data (obtain complete pathologic ablation in all patients), standardize techniques, and obtain the best ablative technique in each field. [40].

In addition, comparative studies are necessary to then compare the ablative techniques with each other to decide which one is more promising and cost-effectiveness analysis is required.

Lack of complete histopathological ablation may be due to several factors, lack of immobilization or lack of adequate anesthesia resulting in patient movement and inefficient treatment or a wrong choice in imaging direction. [41].

Immobilization is required to minimize movement caused by discomfort due to patient position, breathing, treatment-induced pain, or other body movements. Patient movement can also be reduced by increasing the level of anesthesia given to the patient. However, simple local anesthesia may not be effective enough to use the technique optimally. [42].

CT is able to provide good spatial resolution, but it also cannot visualize flow within vessels or temperature changes in real-time. [42].

Conclusions

MWA is an effective and safe alternative in patients/tumors that are not suitable for resection. Survival and recurrence outcomes after MWA are significantly improved with significantly shorter hospital stays and operative times, with little or no intraoperative blood loss and minor complications. Its use should be extended more and more in the field of treatment of these patients depending on the therapeutic indications.

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Pleural Lipoma. A case Report.

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Abstract

Lipomas are benign tumors from adipose tissue mostly found within the subcutaneous areas of the body such as the upper back, neck, and shoulder, and rarely encountered in the thoracic cavity.

Thoracic lipomas are usually located in the bronchial, pulmonary, or mediastinal areas. The finding of a lipoma in the parietal pleura intrathoracic has been sporadically reported in the literature [1].

Most patients remain asymptomatic and the lipomas are incidentally found in a chest radiograph or a computed tomography (CT) examination.

We present a case of pleural lipomas treated with surgery and the one-year follow-up revealed no changes.

Conclusion: The majority of patients with pleural lipoma are asymptomatic, and their lesions are incidentally detected on radiograms. Important considerations of identifying alarm features in a suspected liposarcoma and when to consider invasive biopsy and/or surgical intervention.

Keywords: lipoma, pleural, surgery, tumor,

Introduction:

Lipomas are benign mesenchymal tumor derived from mature adipose tissue mostly found within the subcutaneous areas of the body such as upper back, neck, shoulder, and rarely encountered in the thoracic cavity. Lipomas constitute around the half of soft tissue tumors. Approximately 80% of fat containing benign tumors, the rest 20% are intramuscular lipomas, angioliipomas, myo-lipomas, spindle lipomas, and pleomorphic lipomas.[1]

Thoracic lipomas are usually located at the bronchial, pulmonary or mediastinal area. The finding of a lipoma in the parietal pleura has been sporadically reported in the literature [1].

A pleural origin of lipoma is extremely rare [1]. The incidence of pleural lipomas is not yet fully known.

Case presentation:

A 45-year-old woman with chest discomfort on her left side. On physical examination, the patient was in no acute distress, had air entry bilaterally with equal chest expansion and did not have any wheezing or added sounds on auscultation.

She does not have limitations in her daily activity. Additionally, her pulmonary function testing was unremarkable, including lung volumes and gas diffusion capacity.

CT scan demonstrated benign features on imaging including a homogeneous constitution, Hounsfield units consistent with fat density, smooth borders and no invasion of surrounding structures

Original article, no submission or publication in advance or in parallel

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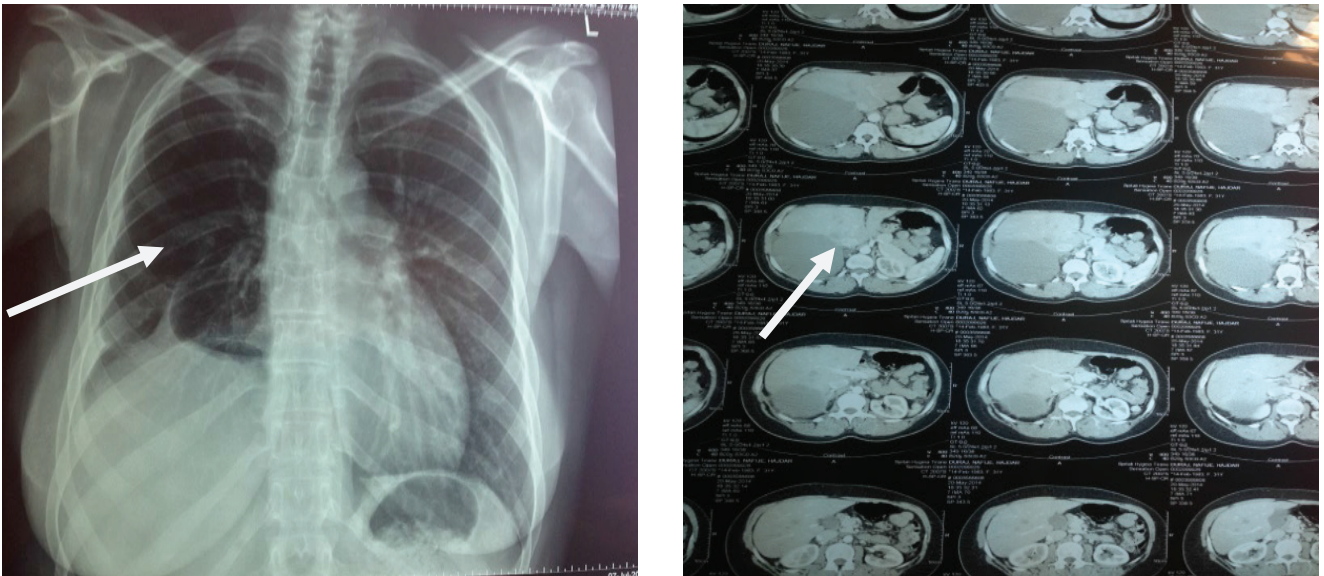


Figure 1, 2 - CT images (axial view) demonstrating the hourglass-shaped mass of fatty density (-110 UH), homogeneous, without contrast enhancement (arterial phase).

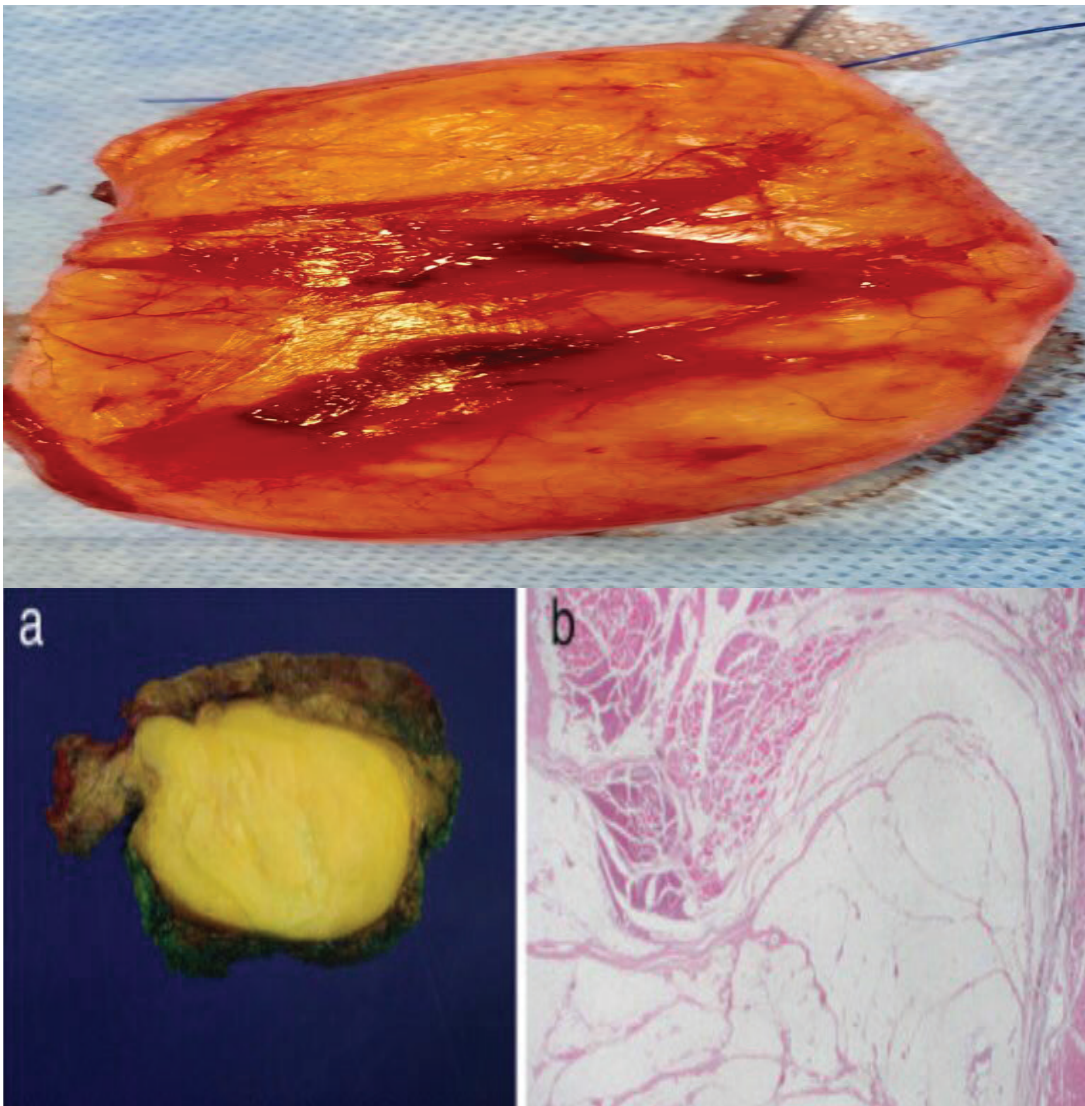


Figure 3, 4 a & b - Adipose tissue (a) macroscopic and (b) microscopic view.

Conclusion:

The majority of patients with pleural lipoma are asymptomatic, and their lesions are incidentally detected on radiograms

Consider pleural lipoma as a differential diagnosis in a chest mass on imaging.

Identify features on imaging that may lead you to observe a chest mass/lesion with serial imaging as opposed to perform invasive workup/procedures.

Important considerations of identifying alarm features in a suspected liposarcoma and when to consider invasive biopsy and/or surgical intervention.

COI Statement: This paper has not been submitted in parallel. It has not been presented fully or partially at a meeting or podium or congress. It has not been published nor submitted for consideration beforehand.

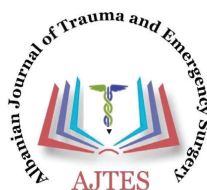
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Disclosure:

The authors declared no conflict of interest. No funding was received for this study.

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AJTES

Albanian Journal of Trauma and Emergency Surgery

EDITORIAL POLICY

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Albanian Journal of Trauma and Emergency Surgery (AJTES) that comes out two times a year, peer-reviewed and open-access international journal. The journal is the official scientific publication of the is the official publication of the Albanian Society for Trauma and Emergency Surgery (ASTES) Tirana, Albania. The language of the journal is English.

AJTES was founded in 2017 for the first time and publishes scientific articles that aims to promote interest, knowledge, and quality of care in emergency and trauma surgery. Its mission is to open an interdisciplinary forum that allows for the scientific exchange between basic and clinical science related to pathophysiology, diagnostics, and treatment of traumatized patients. The journal covers all aspects of clinical management, operative treatment, and related research of traumatic injuries and health care research, conducted in all fields of medicine and health care, as well as interesting case reports and clinical images, invited reviews, invited medical education papers, editorials, opinions and viewpoints, comments and letters to the Editor. The structure of each edition of the publication comprises section categories determined by the Editor and reflects the views of the Editorial Board.

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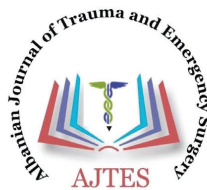
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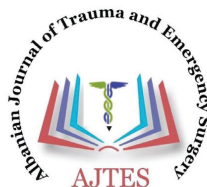
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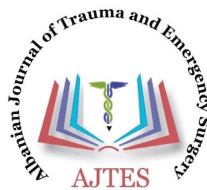
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The main text should not exceed 4500 words, excluding the abstract, references, tables, and figure legends. There should be a maximum of 100 references.

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Review articles are sometimes referred to as survey articles or, in news publishing, summary articles.

Academic publications that specialize in review articles are known as review journals.

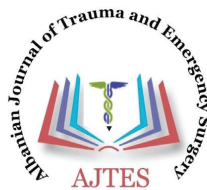
Review articles learn about:

- *Main people who were/are working in a field*
- *Recent major advances and discoveries*
- *Significant gaps in the research*
- *Current debates*
- *Ideas on where the research might go next.*

Review articles in journals analyze or discuss research previously published by others, rather than reporting new studies results. An expert's opinion is valuable, but an expert's assessment of the literature can be more valuable. When reading individual articles, readers could miss features that are apparent to an expert clinician-researcher. Readers benefit from the expert's explanation and assessment of the validity and applicability of individual studies.

Literature reviews provide a summary of what the authors believe are the best and most relevant prior publications.

Systematic reviews determine an objective list of criteria, and find all previously published original papers that meet the criteria; they then compare the results presented in these papers.



Some journals likewise specialize in the review of a field; they are known as review journals.

The concept of “review article” not need to do peer-reviewed or is non-peer-reviewed.

Abstracts must begin on a separate page and should not exceed 350 words.

Abstracts should be structured with the following subheadings: *Background, Aims, Methods, Results, Conclusion and Keywords*.

The main text should not exceed 4500 words, excluding the abstract, references, tables, and figure legends. There should be a maximum of 20 tables and/or figures and 150 references.

Commentaries articles:

are usually by invitation only, are short, narrowly focused articles that are usually ordered by the journal. These articles are generally not reviewed.

A comment generally takes one of two forms:

- The first form aims to highlight one or more exciting research articles or clinical trials recently published in a journal or other one, to discuss specific issues within a subject area, rather than across the field, and to explain the clinical implications of the article rather than new findings in context. Opinions are welcome as long as they are based on fact.
- The second form is more editorial in nature and includes an aspect of an issue that is relevant to the purpose of the journal. Examples of this type of comment could be a discussion on the impact of new technology on research and treatment or a discussion on peer review changes or grant application procedures and their effect on research. By their nature, the second form of comment is less common. Comments are usually commissioned by well-known experts in a particular field, and authors are asked to provide a balanced summary of the field, to cover only the work that has been published (or is still in print at the time of writing), and not to discuss and mention mainly their work or that of their close colleagues.

Abstracts must begin on a separate page and should not exceed 250 words.

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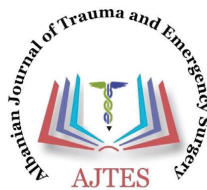
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Perspective articles; have an important role in academic research. They stimulate further interest in presented topics within the reader audience.

They are different from other types of articles because they present a different take on an existing issue, tackle new and trending issues, or emphasize topics that are important but have been neglected, in the scholarly literature.

In some scientific fields, they bridge different areas of research that the journal publishes, while in others they bring new issues and ideas to the forefront. In general, their role is to enlighten a general audience about important issues.

It gives researchers the opportunity to contribute to their discipline in different ways, while at the same time enhancing their own professional work.



A perspective article is a way for young researchers to gain experience in the publication process that can be often arduous and time-consuming. It can be a way in which they learn from the publication process while they are working on their original research articles that often take years to complete.

In the case of experienced researchers, provides them at least two distinct benefits:

- The first, it allows them to step back and reflect on a significant issue that they may know a lot about, but that they have never had the time to address.
- The second benefit is that the researcher gets the opportunity to give their own authorial voice to a published article that will reach a wide audience.

Before one decides to write and submit a perspective research article to an academic journal, it is important to become familiar with the article's expectations of the target journal.

Although academic journals hold a similar definition and purpose of a perspective article, there are differences in the technical requirements each journal has. When it comes to the length of the perspective article, some journals have strict limitations while others allow articles to vary the length within a given range. The perspective article has a limitation of 2,500, with defined reference and figure limits. Abstracts must begin on a separate page and should not exceed 250 words.

With respect to the structure of the perspective article, journals define their expectations in different terms. The perspective article emphasizes the structure of the article, requiring sections such as the *abstract, introduction, topics, and conclusion*.

Opinion articles allow readers of a newspaper to voice their thoughts and ideas on topics ranging from local happenings to international controversy. Most opinion articles are about 1500 words long, with a professional tone. If you want to try your hand at writing an op-ed, you can learn to choose a compelling topic, write an effective draft, and finish off your op-ed like a professional editor. The perspective article emphasizes the structure of the article, requiring sections such as the *abstract, introduction, topics, and conclusion*. Abstracts must begin on a separate page and should not exceed 250 words.

The latest articles discuss the current or recent news of general interest (the problem of the day) or of a specific topic (of interest to the general public and its results are quite welcome). A final article may include randomized and non-randomized (complete and partial) of scientific data in the interest of a local, national, regional, continental, and global study. The Latest articles emphasize the structure of the article, requiring sections such as the *abstract, Background, Aims, Study, Methods, Results, Discussions, and Conclusion*.

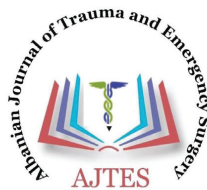
The main text should not exceed 4500 words, excluding the abstract, references, tables, and figure legends. There should be a maximum of 20 tables and/or figures and 100 references.

Abstracts should be structured with the following subheadings: *Background, Aims, Study, Methods, Results, Conclusion, and Keywords*. Abstracts must begin on a separate page and should not exceed 250 words.

Short Report:

Short reports or short communications are short versions of research, applications, or work in progress limited to 1500 words. These articles can include clinical or laboratory work, collected case reports of scientific significance, etc.

Abstracts must begin on a separate page and should not exceed 250 words.



Abstracts should be structured with the following subheadings: *Background, Aims, Study, Methods, Results, Conclusion, and Keywords*.

The main text should be structured with the following subheadings: *Introduction, Material and Methods, Results, Discussion, Conclusions, Acknowledgments, References, Tables, and Figure Legends*. The main text should not exceed 1500 words, excluding the abstract, references, tables, and figure legends. There should be a maximum of 8 tables and/or figures and 25 references.

Invited Review or Medical education articles: Invited review and Medical education articles are comprehensive analyses of specific topics in medicine, which are written upon invitation due to the extensive experience and publications of authors on the review subjects. They can also be articles focused on clinical teaching and guidelines.

All invited review articles will also *undergo peer-reviewing prior to acceptance*. Review articles must not exceed 5000 words for the main text (excluding references, tables, and figure legends) and 250 words for the unstructured abstract. A review article can be signed by no more than 6 authors and can have no more than 50 references.

Case Report: Interesting cases demonstrating new findings can be reported. Cases should be unique, representing a diagnostic or therapeutic challenge, and having a learning point for the readers.

Abstracts of case reports should mainly include information about the case and should be limited to a maximum of 250 words.

The abstract must begin on a separate page and should be structured with the following subheadings: *Background, Case Report, Conclusion, and Keywords*.

The main text of case reports should be structured with the following subheadings: *Introduction, Case Report, Discussion, Acknowledgments, and References*.

Case reports must not exceed 1500 words (excluding references, tables, and figure legends).

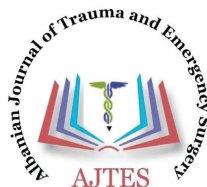
Case reports can be signed by no more than 6 authors and can have no more than 15 references and 6 figures or tables. It is highly recommended that the Case reporting must follow the CaRe (Case Report) guidelines.

Clinical Reasoning: Clinical reasoning represents rational thinking through the various aspects of patient care to better define the medical strategy regarding the diagnosis and/or treatment of a clinical problem in a specific patient. Conducting a physical exam, taking a medical history, ordering complimentary exams, and describing safe and effective treatment are necessary steps in gathering clinical data from a patient before engaging in the process of clinical reasoning. The latter represents a critical thinking process about all the important clinical information using personal skills and abilities often achieved from the experience.

This article type is intended to help clinicians think differentially and take the next step which determines the best course of action to take based on what is known or what can reasonably be hypothesized from clinical data.

The authors are encouraged to present clinical cases from their experience which has generated a real diagnostic dilemma.

The first section, case presentation, should include the patient's complaints as well as historical and clinical data enough to present an initial differential diagnosis.



The second section, complementary exams, is dedicated to pertinent and necessary complementary examinations according to previous topographic and clinical differential diagnosis.

In the third section, the authors should present all steps (surgery, biopsy, pathological exam) needed in defining the final diagnosis.

A supplementary section should include an overview of the final diagnosis.

The maximum lengths of the text and the references should not exceed 2500 words and 30 references, respectively. No abstract is required.

Clinical Image: The journal publishes original, interesting, and high-quality clinical images having a brief explanation (maximum 500 words excluding references but including figure legends) and of educational significance. The figure legend should contain no more than 100 words.

It can be signed by no more than 5 authors and can have no more than 5 references and 2 figures or tables. Any information that might identify the patient or hospital, including the date, should be removed from the image.

An abstract is not required with this type of manuscripts.

The main text of clinical images should be structured with the following subheadings: Case, and References.

Letter to the Editor: Letters in reference to a journal article must not exceed 600 words (excluding references). Letters not related to a journal article must also not exceed 600 words (excluding references). An abstract is not required with this type of manuscripts. A letter can be signed by no more than 5 authors and can have no more than 5 references and 2 figures or tables.

Other: Editorials, reviewer commentaries, book reviews, reports on publication, and research ethics, Opinions and View-Points are requested by the Editorial Board.

A summary of the article type's characteristics is given in the table below.

Article Type	Limit of				
	Word	Abstract word	Reference	Author	Tables/Figures
Original Article	4500 ¹	300 ⁴	100	None	20
Review Article	4500	350	150	6	20
Commentaries articles	2000	250	50	6	-
Perspective articles	2500	250	40	2	2
Latest articles	4500	250	100	10	20
Invited Review	5000 ¹	250	50	6	6
Case Report	1500 ¹	250 ⁵	15	6	6
Clinical Image	500 ²	N/A	5	5	2
Letter to the editor	600 ³	N/A	5	5	2
Clinical reasoning	2500 ³	N/A	30	5	3
Short report	1500	250 ⁴	25	4	8

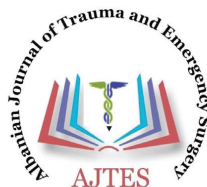
¹ This should not include the abstract, references, tables or figure

² This should include the figure

³ This should not include the

⁴ Should be structured with the following subheadings: Background, Aims, Study Design, Methods, Results, Conclusion, and Keywords.

⁵ Should be structured with the following subheadings: Background, Case Report Conclusion, and Keywords.



Preparation and submission of a manuscript

All manuscripts should be submitted via email to the following address: ajtes.editor@gmail.com; ajtesjournal@gmail.com

The submission should be divided into SEPARATE files in the following order:

1. *Cover Letter (separate file)*. <https://drive.google.com/file/d/1pKueirCkP2-DNd6RsY5Lk-NzQOBjQnKO/view?usp=sharing>
2. *Authorship Contributions, Copyright Transfer, and Conflict of Interest Statement Form (separate signed file)*.
<https://drive.google.com/file/d/11VGyfpvqsXruNwFeKothDX0zt2WGiXxb/view?usp=sharing>
https://drive.google.com/file/d/1_53doLRgxRlp1kVbiyYVh9XDLzaDtjv_/view?usp=sharing
<https://drive.google.com/file/d/1hB-5WsprQAiwsqWNiL4Yqrr0Zkm2tf-I/view?usp=sharing>
3. *Manuscript (Title page, Abstract page, main text, references, tables, and figure legends)*.
4. *Figures (if applicable)*.

1. Cover Letter

The cover letter addressed to the Editor in Chief from the corresponding author, should include:

the article title and type of article he/she is submitting (for example original article, case report, review article, or clinical image).

The corresponding author should briefly summarize why their work is a valuable addition to the scientific literature. Furthermore, there should be a statement that the manuscript has not already been published, accepted, or under simultaneous review for publication elsewhere.

AJTES does not accept multiple submissions and duplicate submission. For manuscripts that have been presented orally or as a poster, this must be stated on the title page with the date and the place of the presentation.

An example of a cover letter can be found on the journal's webpage (AJTES Cover Letter). <https://drive.google.com/file/d/1pKueirCkP2-DNd6RsY5Lk-NzQOBjQnKO/view?usp=sharing>

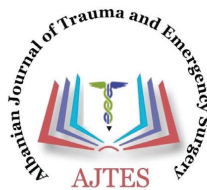
2. Authorship Contributions, Copyright Transfer and Conflict of Interest Statement Form

This is a statement of scientific contributions and responsibilities of all authors.

The form is available for download at the journal's webpage. <https://journal.astes.org.al/>

The ICMJE recommends that authorship has to be based on the following 4 criteria:

- *Substantial contributions to the conception or design of the work; or the acquisition, analysis, or interpretation of data for the work.*
- *Drafting the work or revising it critically for important intellectual content.*
- *Final approval of the version to be published.*
- *Agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.*



A contributor should meet all four criteria to be identified as an author. If a contributor does not meet all four criteria, he/she should be acknowledged in the acknowledgments section of the manuscript. All authors must sign the corresponding declaration.

For more details please refer to the ICMJE's definition of the role of authors and contributors at <http://www.icmje.org/recommendations/browse/roles-and-responsibilities/defining-the-role-of-authors-and-contributors.html>

AJTES recommends that the author ranking in the authorship list has to follow the importance of the contribution of the individual co-authors in the study, with the exception of the last author who is generally the author group coordinator or leader and whose contribution is comparable with the first author.

The authors must state in the section dedicated to the Author Contribution Form and in the main text (before the Reference section) if they have agreed for another ranking order (for example authors A.B and C.D. have an equal contribution to this study, etc).

The specific contribution of each author must be stated at the end of the manuscript, before the references.

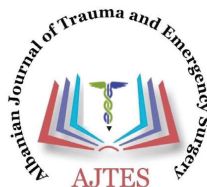
All contributing authors must sign the **Authorship Contributions, Copyright Transfer, and Conflict of Interest Statement Form** and submit it through the submission system during submission. Please see Authorship Contributions, Conflict of Interest Statement and Copyright form for detailed information regarding "Acknowledgement of Authorship, Exclusive Publication Statement, Conflict of Interest Statement, and Transfer of Copyright Agreement".

Please refer to the "conflict of interest policy" for more information. <https://drive.google.com/file/d/1hB-5WsprQAIwsqWniL4Yqrr0Zkm2tf-I/view?usp=sharing>

1 - Manuscript must contain: Title Page (separate page)

This should include:

- a) The complete manuscript title (no more than 150 characters).
<https://drive.google.com/file/d/1YzknUnqHJR9NWah39QOe6gWfUfX1nj3/view?usp=sharing>
- b) The running head (no more than 50 characters).
- c) Word counts for the abstract and text (the text word count does not include references, tables, and figure legends).
- d) The number of references and the number of figures and/or tables.
- e) All authors' full names.
- f) Detailed affiliations and e-mail addresses (all authors should meet the ICMJE's requirements for authorship – see details at "author contribution form"). <http://www.icmje.org/recommendations/browse/roles-and-responsibilities/defining-the-role-of-authors-and-contributors.html>
- g) The name, address, telephone and fax numbers, and email address of the corresponding author.
- h) Key-words: (3 to 6 key-words) from the list provided in Index Medicus under "Medical Subject Heading (MeSH)". <https://www.nlm.nih.gov/mesh/meshhome.html>
- i) Information about where and when the study has previously been presented.



Abstract Page (separate page)

Original articles, invited review articles, and case reports should include an abstract on a separate page.

Abstracts for original articles and short reports should be structured with the following subheadings: *Background, Aims, Study design, Methods, Results, and Conclusion.*

Abstracts for case reports should be structured with the following subheadings: *Background, Case Report, and Conclusion.*

Abstracts for review articles should not be structured. *Clinical images, clinical reasoning, Editorials, Letters to the Editor, and Commentaries or Opinions/Viewpoints* should not contain an abstract.

Main document

The main document should include the main text, acknowledgments, conflict of interest disclosure, authorship contribution description, references, tables, and figure legends, in that order.

Main text

The main text should be structured according to the article type, as described in the Article Type section above.

Acknowledgments

All contributors who do not meet the criteria for authorship (ICMJE: authorship and contributorship: <http://www.icmje.org/recommendations/browse/roles-and-responsibilities/defining-the-role-of-authors-and-contributors.html>) should be mentioned in this subheading.

<https://drive.google.com/file/d/1s-yaIzH5B36Wksr9U8VzvrFzDIsjU86B/view?usp=sharing>

Conflict of interest disclosure: The authors should disclose any potential conflict of interest.

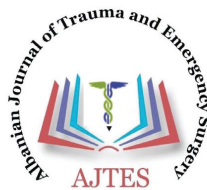
Statement about specific author contribution at the study (including concept, design, supervision, resource, materials, data collection and/or processing, analysis and/or interpretation, literature search, writing, and critical reviewing).

For example A.B (concept, design, data collection, etc); B.C. (data collection, analysis, writing, reviewing, etc).

They should comply with ICMJE recommendations that authorship be based on the following 4 criteria: <http://www.icmje.org/recommendations/browse/roles-and-responsibilities/defining-the-role-of-authors-and-contributors.html#two>

- *Substantial contributions to the conception or design of the work; or the acquisition, analysis, or interpretation of data for the work.*
- *Drafting the work or revising it critically for important intellectual content.*
- *Final approval of the version to be published.*
- *Agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.*

A contributor should meet all four criteria to be identified as an author. If a contributor does not meet all four criteria, he/she should be acknowledged in the acknowledgments section of the manuscript.



References

Authors are encouraged to cite primary literature rather than review articles in order to give credit to those who have performed the original work. Reference listings must be in accordance with ICMJE standards and numbered consecutively at the end of the manuscript in the order in which they are mentioned in the text. While citing publications, preference should be given to the latest, most up to date publications. Full papers must be clearly differentiated from abstracts presented in scientific meetings and published as supplements in scientific journals (see below: Abstract example).

If an ahead of print publication is being cited the DOI number should be provided. The authors are responsible for the accuracy of references.

Journal titles should be abbreviated in accordance with the journal abbreviations in Index Medicus/ Medline/Pub Med (for journal abbreviations consult the List of Journals Indexed for MEDLINE, published annually by NLM).

When there are 6 or fewer authors, all authors should be listed. If there are 7 or more authors, the first 6 authors should be listed followed by “et al”. In the main text of the manuscript, references should be cited using Arabic numbers in parentheses.

The reference styles for different types of publications are presented in the following examples:

Journal article: Bendo Hysni, Halimi Omer, Traka Luan, Sakakushev Boris, Zago Mauro. Blunt abdominal trauma management... P 321 genes in three ethnic groups from Albania. Albanian Journal of Trauma and Emergency Surgery 2018; 2 (2): 84-92.

Book: Skibe Michal Ocular manipulation. 1st ed. Stuttgart-New York: Georg Thieme Verlag; 2009.

Book chapter: Moor Ernest. the relationship between PATI and ISS score. In: Mos F, Thompton J, Peitersen E, editors. Trauma Management. New York: Springer Verlag; 2012:325-30.

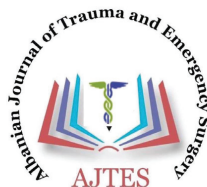
Abstract: Erion Spaho, Artid Lame et al. Management of C4-C5 Fracture with Approach 360 Without the Spinal Instrumentation 2018; 36: (abstract).

Article in electronic format: Morse SS. Factors in the emergence of infectious diseases. Emerg Infect Dis (serial online) 1995 Jan-Mar (cited 1996 June 5): 1(1): (24 screens). Available from: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2626828/pdf/8903148.pdf>.

For other reference styles, please refer to “ICMJE Uniform Requirements for Manuscripts Submitted to Biomedical Journals: Sample References”.

Tables

Tables should be presented within the main document and after the reference list. All tables should be referred to within the main text and they should be numbered consecutively in the order they are referred to within the main text. A descriptive title should be provided for all tables and the titles should be placed above the tables. Abbreviations used in the tables should be defined below the tables (even if they are defined within the main text). Tables should be created using the “insert table” command of the word processing software and they should be arranged clearly to provide an easy reading.



Figures and Figure Legends

Figures, graphics, and photographs should be submitted as separate files (in TIFF or JPEG format). They should not be embedded in a Word document. When there are figure subunits, the subunits should be labeled in small letters (a, b, c, etc.). Thick and thin arrows, arrowheads, stars, asterisks, and similar marks can be used on the images to support figure legends. Like the rest of the submission, the figures should be blind too. Any information within the images that may indicate an individual or institution should be blinded. The minimum resolution of each submitted figure should be 300 DPI. To prevent delays in the evaluation process all submitted figures should be clear in resolution and large in size (minimum dimensions 100x100 mm).

Figure legends should be listed at the end of the main document. When there are figure subunits, the figure legends should be structured in the following format.

Example: Figure 1. a-c. Primary culture of choroid plexuses on day 2 after seeding of dissociated cells ($\times 400$). Nesting staining in green (a). GFAP staining in red (b). Nuclear labeling in blue and merged images (c).

Checklist

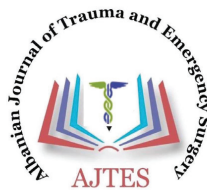
Before submission, the corresponding author should ensure that all files mentioned below meet the journal requirements:

- *A cover letter containing*
- *The article title and type*
- *A brief statement describing the novelty and importance of the work*
- *A statement declaring the absence or presence of a conflict of interest*
- *A statement that the manuscript has not been previously published or accepted for publication and is not submitted or under simultaneous review for publication elsewhere.*

The author's contribution, Transfer of Copyright Agreement and Conflict of Interest Statement Form (all in a separate signed file) is included and signed from all the authors.

A title page including

- *Title (less than 150 characters), running title (less than 50 characters)*
- *Authors' affiliations and e-mail addresses, including the name of the corresponding author*
- *Keywords: 3 to 6 key-words*
- *Word count for the abstract and main text*
- *A statement of the date and place of the meeting where the manuscript was presented orally or as a poster, if*
- *Structured Abstract (on a separate page-see above)*



Structured main text (see above)

Ethical approval and/or informed consent has to be mentioned in the text (Methods)

References are in the correct format and cited sequentially in the text

All Tables and Figures have been included and appear correctly

Permission for reprinted figures, tables, materials or photographs has been obtained (if available)

REVIEWING PROCESS

Revisions

When submitting a revised version of a paper, the author must submit a detailed “Response to reviewers” reporting in great detail how each issue raised by the reviewers was covered.

Revised manuscripts must be submitted within 30 days from the date of the decision letter. If the revised version of the manuscript is not submitted within the allocated time, the revision option will be automatically cancelled. If the submitting author(s) believe that additional time is required, they should request a 2-week-extension before the initial 30 days period is over.

Change of authorship and withdrawal request Any request to change the author list after submission, such as a change in the order of the authors or the deletion or addition of author names, is subject to the Editorial Board’s approval.

In order to obtain this approval, please include in a letter to the editor the following information:

- 1 - The reason for the change of authorship.
- 2 - Signatures of all authors (including the new and/or removed author).

Please note, if you are adding or removing author/authors, a new copyright transfer form signed by all authors should also be sent to the editorial office after the Editorial Board approves the change of authorship.

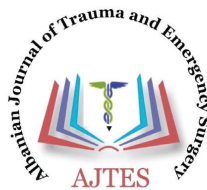
All withdrawal requests at any stage after submission are evaluated by the Editorial Board. The *Albanian Journal of Trauma and Emergency Surgery* has the right to not accept a withdrawal request. The authors should explain their reason to withdraw the paper by a detailed letter.

If the reason of withdrawal is not justified by the Editorial Board, the authors of the paper can be banned for up to 1 (one) year from submitting a new paper to the Journal.

Ethical guidelines

AJTES is committed to the highest standards of research and publication ethics. If ethical misconduct is suspected, the Editorial Board will act in accordance with the relevant international rules of publication ethics (i.e. COPE guidelines, WAME resources, WMA policies and ORI).

An approval of research protocols by an ethics committee in accordance with international agreements (“WMA Declaration of Helsinki - Ethical Principles for Medical Research Involving Human Subjects, October 2013, Fortaleza, Brazil”, “Guide for the care and use of laboratory animals, 8th edition, 2011” and/or “International Guiding Principles for Biomedical Research Involving Animals, 2012”) is required for all experimental and clinical and drug trial studies. For articles concerning experimental research on humans, a statement should be included that shows informed consent of



patients and volunteers was obtained following a detailed explanation of the procedures that they may undergo. Informed consent must also be obtained for case reports. All recognizable photographs of a patient must be accompanied by written permission from the patient for reproduction. Procedures that were performed to eliminate any pain, harm and distress in subjects/animals should clearly be stated. The authors should clearly state their compliance with internationally accepted guidelines and the guidelines issued by the relevant authority of their country. The journal requests a copy of the Ethics Committee Approval received from the relevant authority.

All authors should meet the ICMJE's authorship criteria outlined at the "authorship contribution form" section. *AJTES* does not accept gift, guest, or ghost authorship, and will act according to the COPE guidelines and flowcharts when faced with cases of suspected misconduct.

Plagiarism Detection

AJTES does not allow any form of plagiarism. In accordance with our journal policy, submitted manuscripts are screened with plagiarism software to detect instances of overlapping and similar text at least two times (during the evaluation process and after acceptance).

Appeals and complaints

Appeal and complaint cases are handled within the scope of COPE guidelines by the Editorial Board of the journal. Appeals should be based on the scientific content of the manuscript. The final decision on the appeal and complaint is made by the Editor in Chief. An executive Editor or the Ethical Committee of the Journal is assigned to resolve cases that cannot be resolved internally. Authors should get in contact with the Editor in Chief regarding their appeals and complaints via e-mail at ajtes.editor@gmail.com.

Proofs and DOI number

Manuscripts accepted for publication are provided with a DOI number immediately after acceptance. Accepted manuscripts are copy-edited for grammar, punctuation, and format. Once the publication process of a manuscript is completed, it is published online on the journal's webpage as an ahead of print publication before it is included in its scheduled issue.

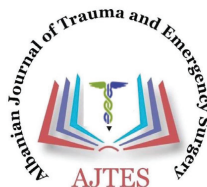
A PDF proof of the accepted manuscript is sent to the corresponding author and their publication approval is requested within 2 days of their receipt of the proof.

Pre-submission inquires and rapid evaluation requests

Pre-submission inquires and rapid evaluation requests can be sent to the *AJTES*.

Pre-submission inquiries are usually sent by the authors to determine if a possible submission of their current work to *AJTES* would receive a high enough priority for publication.

These inquiries are handled by the Editor in Chief and the Editorial Board and a positive feedback from the Editor in Chief does not guarantee the publication of the work in question as all manuscripts submitted to *AJTES* must be peer reviewed. Pre-submission inquiries should be sent to ajtes.editor@gmail.com via e-mail and should include a shorter version of the cover letter accompanied by the title and the abstract of the manuscript.



Rapid evaluation requests are usually sent by the authors to state a particular importance of their current work which requires the manuscript to be evaluated as quickly as possible. These requests are handled by the Editor in Chief of the journal; should be sent to ajtes.editor@gmail.com and should include a shorter version of the cover letter explaining the importance of the manuscript accompanied by the title and the abstract of the manuscript.

Non-scientific reasons, such as academic career needs, will not be considered and may result immediate reject of a manuscript. Authors are not allowed to contact reviewers for their manuscripts. This is an unacceptable behavior and may lead to the rejection of the manuscript and the author/s may be banned for further submissions to the journal. Any question related to the editorial process should be forwarded to the secretariat, managing editor or the editor-in-chief.

Documents to download

- a) Cover Letter
- b) Authorship Contributions,
- c) Conflict of Interest Statement and Copyright Transfer Form

INSTRUCTIONS FOR REVIEWERS

AJTES is a peer-reviewed open-access international journal that publishes interesting clinical and experimental research conducted in all fields of medicine and health sciences, interesting case reports and clinical images, invited reviews, editorials, comments and letters to the Editor including reports on publication and research ethics.

The language of *the Journal* is English. *The Journal* is based on independent and unbiased double-blinded peer-reviewing principles. Only unpublished papers that are not under review for publication elsewhere can be submitted.

The primary aim of *the journal* is to publish original articles with high scientific and ethical quality and serve as a good example of medical publications in the region. The *AJTES* believes that the quality of publication will lead to the progress of medical sciences and healthcare.

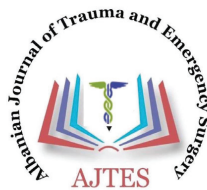
The Editorial Board of the *AJTES* and the Publisher adheres to the principles of the International Council of Medical Journal Editors (ICMJE), the World Association of Medical Editors (WAME), the Council of Science Editors (CSE), the Committee on Publication Ethics (COPE), the US National Library of Medicine (NLM), the US Office of Research Integrity (ORI), the European Association of Science Editors (EASE), the International Society of Managing and Technical Editors (ISMTE). The editor-in-chief has full authority over the editorial and scientific content of the *AJTES* and the timing of publication of the content.

All articles submitted for publication are strictly reviewed for their adherence to the following criteria:

Criteria for Publication

Manuscripts should represent a significant advance in medical science or medical practice in terms of:

- Originality
- Importance to researchers or practitioners in the field
- Interest for researchers or practitioners outside the field



- Rigorous methodology with substantial evidence for its conclusions
- Adherence to the highest ethical standards
- Quality and suitability for *the Journal*

The Review Process

AJTES uses an established scheme for the evaluation process aiming at a fair, quality-based and rapid article processing (Please refer to “*Instructions to Authors*” page for more information).

Manuscripts that comply with the main rules of the journal are sent to at least two external reviewers that are asked for their opinion about the suitability of the paper for publication.

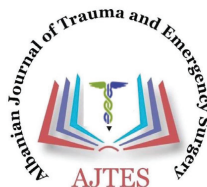
The reviewed manuscripts are then re-reviewed by the Executive Editorial Board and a decision of rejection or acceptance is taken.

Any information that may indicate an individual or institution should be excluded from the main document to ensure a blinded review process. If the reviewers have any potential competing interests, they must notify the editor before agreeing to review a submission.

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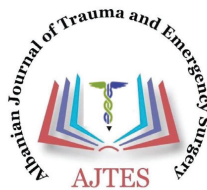


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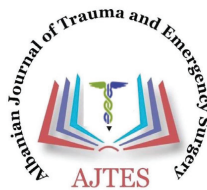
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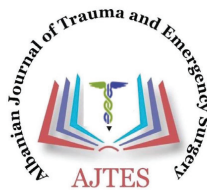
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Main Topics for ACTES 2022

Polytrauma

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Traumatic Brain & Spinal Injuries

Abdominal & Chest Injuries

Skeletal Trauma & Bone Infections

Emergency Surgery & Soft Tissue Infections

Bleeding, Massive transfusion and coagulopathy

Complex Abdominal Reconstructions

Future developments and new techniques

Complex Abdominal Reconstructions

Vascular Injuries

Scorings in ER and ICU

Surgical Critical Care & Burns

Disaster and Military Surgery

Sports Trauma

The Frail Patient

Education

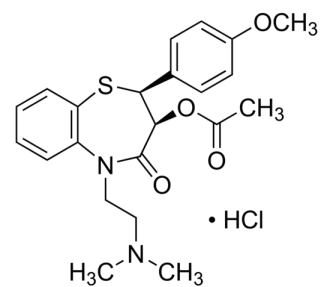


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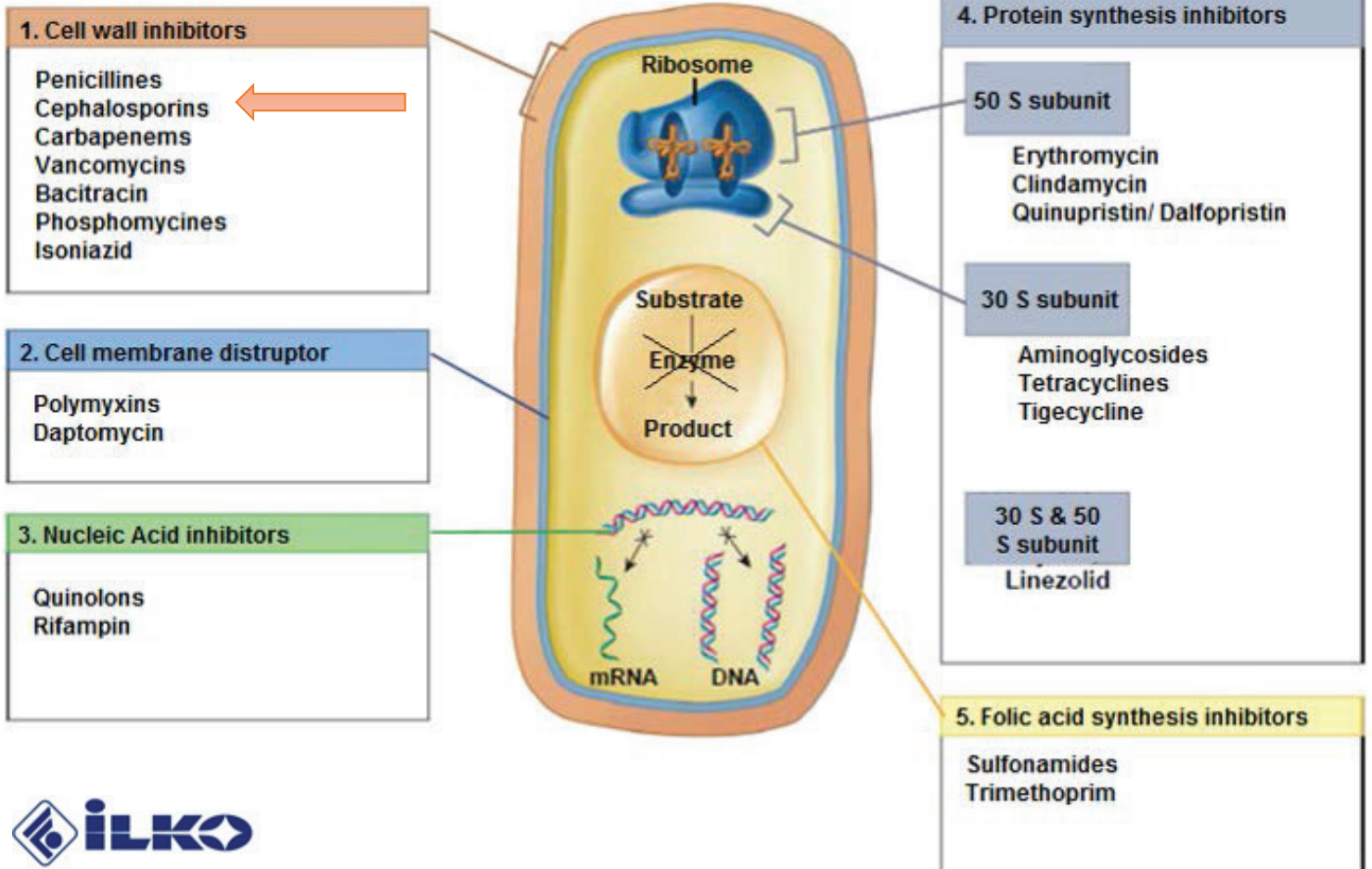
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- ✓ Arrange for transfer to definitive care
- ✓ Ensure optimum care

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