

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.

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