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ORIGINAL ARTICLES

Acquisition of Diagnostic Laparoscopy in undiagnosed Right Lower Abdominal Pain Patients.

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Abstract

Background: Patients with right lower abdominal pain in whom routine investigations and sonography are negative, is challenging to the surgeons. In many patient's laparotomy is the only alternative. Laparoscopy is defined as the technique in which abdomino-pelvic cavity is visualized through small openings in the wall of abdomen through instruments. In patients with RIF pain, only diagnostic laparoscopy can be considered as the gold standard and provide correct diagnosis and concurrently may prove to be therapeutic

The Aim of the study is to evaluate role of laparoscopy in right lower abdominal pain with uncertain diagnosis.

Settings and Design: In this prospective study, patients with right lower abdominal pain with uncertain clinical diagnosis, USG abdomen and laboratorial investigation, coming to surgery OPD of our institute, over a period of 24 months were considered for Diagnostic Laparoscopy.

Material and Methods: Diagnostic laparoscopy was performed in 174 patients. These patients presented with right lower abdominal pain and undergone investigations for the same.

Results: Laparoscopy yielded positive findings in 170 (97.7%) of these patients. Appendicitis and gynaecological pathology, abdominal tuberculosis, were the major findings. Therapeutic procedures were performed in 165 patients (laparoscopically 158). There was only one complication in this series, in which patient developed surgical site infection on post-operative day 2. So, the patients who had remained as undiagnosed otherwise, were diagnosed and given appropriate treatment.

Conclusion: This study establishes role of Diagnostic Laparoscopy as a safe and one of the most prolific investigative tools in undiagnosed right lower abdominal pain.

Keywords; laparoscopy, Appendicitis, RIF tenderness, abdominal pain

Introduction

In surgical practice we frequently encounter patients with lower abdominal pain, who despite frequent routine examination and all major investigations remain undiagnosed. Many of them undergo appendectomy, some are put on anti -tubercular drugs specially in tropical countries. Thus, patients with right lower abdominal discomfort continue to pose challenges to the diagnostic capability of general surgeon. [1]

Diagnostic laparoscopy can be done under direct vision with simple equipment as it does not require a video camera

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or the electronic gadgetry associated with laparoscopic surgery. With advances in optics, laparoscopy allows perfect visual examination of the peritoneal cavity and further makes possible histological diagnosis of target biopsy under vision. Laparoscopy is as much a surgical procedure as an exploratory laparotomy, often just as enlightening, and to the trained surgeon affords a better interpretation of the entire peritoneal cavity than the usual exploratory incision. To achieve a high rate of positive diagnosis from laparoscopy requires much more than correct technique; it requires a thorough contextual of surgery, sound clinical acumen as also knowledge and awareness of abdominal pathology [2]

Laparoscopy is very sensitive for diagnosis of appendicitis. It not only detects appendicitis but also avoids negative appendicectomy [3]. The use of laparoscopy as diagnostic tool can cut down unnecessary appendectomies.

Acute appendicitis is the most common surgical cause of pain in right iliac fossa. Simple appendicitis can progress to perforation, which is associated with a much higher morbidity and mortality, and surgeons have therefore been inclined to operate when the diagnosis is probable rather than wait until it is certain [4].The surgical principle about acute appendicitis *"when indoubt, take it out",* is not correct in view of the number of major and minor complications following appendectomy.

Despite more than 100 year's experience, accurate diagnosis still evades the surgeon. Owing to its myriad presentations, acute appendicitis is a common but grim diagnostic problem. The accuracy of the clinical examination has been reported to range from 71% to 97% and varies greatly depending on the experience of the examiner [5]

A scoring system described by Alvarado was designed to reduce the negative appendectomy rate without increasing morbidity and mortality which was modified by M.Kalan, D.Talbat, W.J.Cunliffe and A.J.Rich [6]. However, this system is not a substitute for clinical judgment and just an aid in diagnosing acute appendicitis and assist in arriving at a conclusion whether a particular case should be operated or not, so that the number of negative laparotomies will be reduced.

The Aim of the study is to evaluate role of laparoscopy in right lower abdominal pain with uncertain diagnosis**.**

The objective is; to evaluate its feasibility and value as an aid in surgical decision making in cases with uncertain clinical diagnosis of right lower abdominal pain; to assess the role of laparoscopy in reducing the number of negative appendectomies.

Materials & Methods

This study was conducted at GIMS hospital in department of surgery from January 2017 to 2019, and it is a prospective type of study.

Study population: Total 174 patients were included in this study.

Inclusion Criteria; All patients with right lower abdominal pain who had uncertain clinical diagnosis, Whose diagnosis was not established by clinical examination, USG abdomen and laboratorial investigation.

Exclusion Criteria *were; Children under 15 year of age; Patients with palpable lump in RIF**; Patients who are unfit for laparoscopic surgery**; Pregnancy**; Patients unfit for general anaesthesia**; Patients with complicated appendicitis*

Study Factors; Following study factors were studied.

A. Demographic Factor; - Age; Gender; Occupation; Educational Status; Marital status

B. Investigations; Haemogram; Renal function test; Blood sugar; HIV; HbsAg; Sonography of abdomen and pelvis

Results; Diagnostic laparoscopic findings were considered positive if pathological lesion could be related to patient's symptoms.

Statistical Analysis; All variables were analysed by using Fisher exact test. In this study total 134 patients were included .Out of which 75 were female (66%) and males were 59(41%).(Tab. 1)

Gender	No of cases	Percentage
Male	77	44%
Female	97	66%

Table 1 Observation & Results gender distribution

Age of the patients include in this study ranges from 15 yr to 70 yr. Mean age of presentation was 31.52 yrs . Maximum no of patients i.e.51 patients were from 26-35 group followed by 38 patients in 36-45 age group. (Tab. 2)

Sr. No	Range of age (yrs)	No. of cases (%)
1	15-25	37 (21%)
2	26-35	66 (38%)
3	36-45	49 (28%)
4	46-60	14 (9%)
5	60-70	5 (3%)

Table 2 Age distribution

According to the clinical characteristics, it was found that in all cases the patient suffered from abdominal pain, 69 (40%) of the cases with anorexia, in 63 (36%) of the cases with nausea and vomiting, in 16 (9%) of the cases with fever. (Tab. 3)

Clinical features	No of cases
Abdominal pain	174
Anorexia	69
Nausea and vomiting	63
Fever	16

Table 3 Clinical features

All the 174 patients underwent diagnostic laparoscopy. Out of which154 patients had appendicitis alone and only appendectomy was done in these patients. USG findings were inconclusive in all the patients. (Tab. 4)

Diagnostic laparoscopic findings	No of cases
Appendicitis	154
Tubercles/nodules(peritoneum, omentum, small bowel)	03
Pelvis inflammatory disease	04
Ruptured endometriosis	01
Meckels diverticulum	01
Right Ovarian cyst + Appendicitis	01
PCOD	01
Mesenteric adenitis	04
Adhesions/ bands	01
Foreign body (copper T)	01
Normal findings	03

Table 4 Diagnostic laparoscopic findings

Operative findings	Treatment
Appendicitis	Appendectomy
Tubercles/nodules(peritoneum, omentum, small bowel)	Biopsy followed by ATT
Pelvis inflammatory disease	Conservative
Ruptured endometriosis	Conservative
Meckels diverticulum	RA
Right Ovarian cyst + Appendicitis	Appendectomy+Cystectomy
PCOD	Conservative
Mesenteric adenitis	Biopsy
Adhesions/ bands	Adhesiolysis
Foreign body (copper T)	FB removal
Normal findings	Conservative

Table 5 - Distribution of the performed procedures

All the 174 patients underwent diagnostic laparoscopy. Out of which154 patients had appendicitis alone and only appendectomy was done in these patients. USG findings were inconclusive in all the patients.

Only one patient had appendicitis along with right ovarian cyst. Right ovarian cyst was diagnosed in USG but appendix was normal on USG. With the help of laparoscopy appendicitis was diagnosed which was missed on USG. (Tab. 5) (Fig. 1, 2)

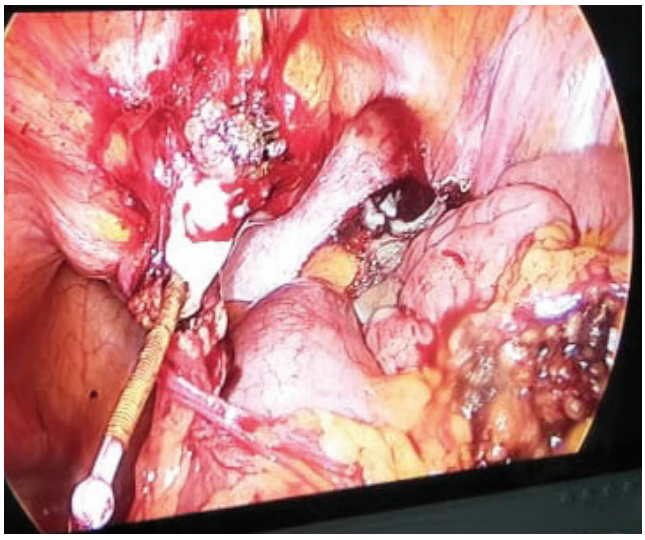

Figure 1 (Displaced Cu – T with RIF tenderness)

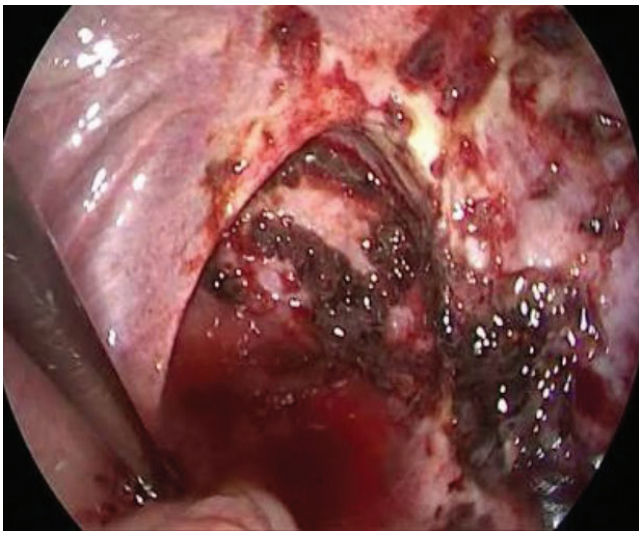

Figure 6 (Displaced Cu – T with endometriosis)

Complications rate was very low only one cases with wound infection.

Discussion

Lower abdominal pain has been always exciting for the surgeons and gynecologists. Until otherwise presented with associated other symptoms it's difficult to diagnose the patient clinically, and patient is made to run series of investigations [1]. Later if they turning out to be unconvincing is again makes treating surgeon a dilemma, weather the patient is being managed conservatively or to be treated surgically and it can be exasperating.

Abdominal pain was the third most common pain complaint of individuals enrolled in a large health maintenance organization[8].

Main aim of this study was to evaluate the role of laparoscopy as a major diagnostic tool in patients with Right iliac fossa(RIF) pain.

In 174 patients with abdominal pain in RIF of no obvious cause or uncertain diagnosis were evaluated laparoscopically, to determine the underlying cause of pain and possible management.

Diagnostic Laparoscopic examination of n= 174 patients, 154 (88.5%) turned out to have appendicitis, 4 (2.29%) pelvic inflammatory disease which is happens to second most common cause for lower abdominal pain, 4 (2.29%) patients had mesenteric adenitis. 1(0.57%) patient each had PCOD, Meckel's diverticulum, right ovarian cyst + appendicitis and ruptured endometriosis due to copper T each. Other 4(2.29%) patients with RIF tenderness has absolutely normal anatomy with no inflammatory pathology.

In a well-known series of Salky was able to identify pathology in 69 out of 70 patients with either appendicitis or gynaecologic pathology being the main finding [9], present study also identified 154(88.5%) patients with appendicitis and 4(2.29%) pelvic inflammatory disease comprising 90% of cause for RIF pain.

Other common pathologies identified in our study are Mesenteric adenitis of inconstant cause and Tubercles/ nodules in peritoneum, omentum, small bowel.

Patients diagnosed as mesenteric adenitis on laparoscopy, their samples are sent for biopsy and processed, then started on anti-tubercular treatment.

Tuberculosis is a common disease in India, laparoscopy gives us great prospect in early diagnosis of abdominal tuberculosis and better management.

Laparoscopy is very sensitive for diagnosis of appendicitis whether acute or chronic. It not only perceives appendicitis but also avoids negative appendicectomy [1, 4, 8, 9].

In our study 154 appendicectomies has been done, after following up with histopathological report all had constructivefindings. Similarly, in females if proper gynaecological pathology is identified by laparoscopy, specific therapy could be instituted soon with great psychological boost to the patient [1].

The most frequent abdominal pathology detected in study conducted by Abhay Kumar, M Yousuf Sarwar, Nawal Kishor Pandey were abdominal adhesions, in contrast to our study majority of the cases were appendicitis. It is because our study is more of acute pain abdomen presentation and the study by Abhay Kumar is chronic pain abdomen.

In many instances' laparoscopy would be more effective than CT scan or MRI, especially in developing world. We can get target biopsy directly under vision, histopathological diagnosis is possible in all the patients. Diagnostic laparoscopy will be less invasive and alternative to more invasive diagnostic approach like exploratory laparotomy or blind open appendicectomy [1, 8]. Six to eight fold magnification is possible with laparoscopy. Decreases denovo adhesion formation. . It rules out serious / malignant disease.

There have been no major procedure related complications in most of the studies. In our study only 1(0.57%) case has a complication, that is surgical site infection on the second post-operative day, which can be accredited to non-compliant to hygiene of operated site. Laparoscopy is an invasive procedure and is usually performed under general anaesthesia.

In our study, we found that, laparoscopic intervention in inexplicableright abdominal pain and inconclusive investigations is usually associated with a positive outcome in 170 (97.7%), and gave accurate diagnosis and accordingly the treatment. The same finding is justified in many previous studies [1, 2, 4, 5, 8, 9].

This gives increased accuracy of diagnosis and Best diagnostic method for appendicitis, endometriosis, PID, adhesions

Conclusion

Diagnostic laparoscopy in patients with unknown aetiology for right sided lower abdominal pain is a significant examination and therapeutic tool which helps in diagnosis, increases our knowledge of many underlying abdominal pathologies. However, it should be undertaken, after a complete radiological diagnostic evaluation which and more non-invasive and gives prolific findings in many instances. It's not only diagnostic, but also substantially therapeutic, irrespective of origin of pain.

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Conflict of interest; Author holds no conflict of interest

References

1. Arya PK, Gaur KJBS. Laparoscopy, A tool In diagnosis of lower abdominal pain. Indian J Surg 2004; 66:216-20 http://www.bioline.org.br/pdf?is04051
2. H. R. Satish Kumar, Virupaksha K. L. "To Study the Efficacy of Laparoscopy in Chronic Abdominal Pain". Journal of Evidence based Medicine and Healthcare; Volume 1, Issue 14, December 08, 2014.
3. Connor IJ, Garcha IS, Ramshaw BJ, Mitchell CW, Wilson JP, Mason EMDiagnostic laparoscopy for Suspected Appendicitis. Am Surg 1995;61:187-9 https://pubmed.ncbi.nlm.nih.gov/7856985/
4. Hoffmann J, Rasmussen OO. Aids in the diagnosis of acute appendicitis. Br J Surg 1989; 76: 774-779.https://pubmed.ncbi.nlm.nih.gov/2527580/
5. John H, Neff U, Kelemen M. Appendicitis diagnosis today: clinical and ultrasonic deductions. World J Surg1993; 17:243 -249. https://pubmed.ncbi.nlm.nih.gov/8511921/
6. Kalan M, Talbot D, Cunliffe WJ, Rich AJ. Evaluation of the modified Alvarado score in the diagnosis of acute appendicitis: a prospective study. Ann R Coll Surg Engl. 1994 Nov;76(6):418-9. PMID: 7702329; PMCID: PMC2502264. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2502264/
7. Lamparelli M. A prospective evaluation of the combined use of the modified Alvarado score with selective laparoscopy in adult females in the management of suspected appendicitis. Ann R Coll Surg Engl 2000; 82:192. https://pubmed.ncbi.nlm.nih.gov/10858683/
8. Abhay Kumar, M Yousuf Sarwar, Nawal Kishor Pandey. "Role of diagnostic laparoscopy in nonspecific chronic abdominal pain: experience of 100 cases". Journal of Evolution of Medical and Dental Sciences 2013; Vol2, Issue 48, December 02; Page: 9361-9366.
9. https://www.jemds.com/data_pdf/3_yousuf%20sarwar.pdf
10. Salky B. Diagnostic Laparoscopy. Surg Laparosc & Endosc 1993;3:132-4 https://pubmed.ncbi.nlm.nih.gov/8269233/