

Role of Diagnostic Laparoscopy in Abdominopelvic Pathologies

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ABSTRACT

Aims: To see the diagnostic role of laparoscopy in cases of abdominopelvic pathologies to avoid unnecessary laparotomies and to enlist the postoperative complications associated with laparoscopy.

Study design: Descriptive case series.

Method: Forty patients with undiagnosed abdominopelvic pathologies were included in this study. Personal and preoperative clinical information of all the patients were entered into pre-designed proforma. Data were analyzed and all patients were followed-up for first week after operative to see the early postoperative complications.

Results: Out of 40, 15 were male and 25 were female between 15 to 75 years. The diagnosis was abdominal tuberculosis in 19 patients, acute appendicitis in 5 patients and pelvic inflammatory disease in 5 patients.

Conclusion: Diagnostic laparoscopy reduces the chances of unnecessary laparotomy by exact diagnosis, reduces scar size, complication related to surgery, operative time, hospital stay, having lesser morbidity and mortality.

Keywords: Laparoscopy, abdominopelvic pathology, laparotomy, postoperative complications

INTRODUCTION

Patient with an obscure and unreliable abdominal condition may be forced to receive open laparotomy for diagnosis. Diagnostic laparoscopy has been suggested as an alternative to diagnostic laparotomy in selected cases. Diagnostic laparoscopy benefits patients by avoiding unnecessary surgery, avoiding unnecessary delay in diagnosis and treatment and as well as shortening the operative and hospitalized period¹. Diagnostic laparoscopy is useful in evaluating patients with right lower abdominal pain, especially in those with equivocal signs of acute appendicitis. It also has the additional benefit of being therapeutic. Premenopausal women benefit the most from this procedure².

Abdominal pain is common and often inconsequential. Acute and severe abdominal pain, however, is almost always a symptom of intra-abdominal disease. It may be the sole indicator of the need for surgery and must be attended to swiftly: abdominal pain is of particular concern in patients who are very young or very old and those who have HIV infection or are taking immunosuppressants³.

Acute life-threatening intra-abdominal pathologies, such as intestinal perforation, ischaemia, sepsis, post-traumatic haemorrhage, pancreatitis and biliary diseases, represent a diagnostic challenge for clinicians. Additionally, intra-abdominal pathologies may occur as complications of long-term

hospitalization. In fact, prolonged fasting or parenteral nutrition, mechanical ventilation and high-dose opioid analgesics are definite risk factors for acalculous cholecystitis, which in critically ill patients, is often complicated by gangrene or perforation, leading to a prolonged recovery^{4,5}. Laparoscopy is now-a-days used to establish the diagnosis of acute right lower abdominal pain and to deal with conditions such as acute appendicitis and perforated ulcer⁶.

Despite new x-rays techniques, or scans and ultrasound, the diagnosis of acute abdomen can be difficult at times. So far, the most accurate non-invasive method of diagnosis is ultrasound but that is not reliable. History and physical examination will generally lead to correct diagnosis occasionally but the diagnostic laparoscopy is the most accurate method even compared to open laparotomy⁷.

The procedure allow rapid and thorough inspection of the paracolic gutters and pelvic cavity that is not possible with the open approach. The emergency laparoscopic approach for patients with acute abdomen improves the diagnostic accuracy and is therefore now-a-days recommended and accepted worldwide⁸.

Since the early of the 20th century, diagnostic laparoscopy has become an important tool in the armamentarium of surgeons and gastroenterologists. Its indications have expanded from initial attempts at tamponading internal haemorrhage to avoid unnecessary laparotomy with accurate staging of malignancies, treatment of intra-abdominal pathologies and as a source for evaluating blunt trauma and chronic abdominal pain⁹. Laparoscopy can be not the only key to clarify a preoperative

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diagnostic doubt, but can act especially in some situations, such as pelvic pathologies in women of child bearing age, the correct surgical approach¹⁰.

Laparoscopy might reduce the frequencies of unnecessary appendectomies in 20-30% and accuracy of diagnosis is 95-99%. Diagnostic laparoscopy has a sensitivity of 92% in diagnosing acute appendicitis including all cases of mucosal inflammation only. The outcomes favoured the laparoscopic approach in the both the negative appendectomy rate and the frequency of an unestablished diagnosis were reduced, most significantly in women in their reproductive years¹¹.

Beside diagnostic laparoscopy was performed during hospitalization if clinical signs and /or laboratory/ imaging findings were suggestive, but not conclusive, for intra-abdominal pathology¹²⁻¹⁴. Diagnostic laparoscopies has decreased the duration of hospital stay; amount of analgesics used, time of immobilization as well as return to normal activity is less as compared to laparotomy, especially in those cases where no pathology is detected¹⁵.

Diagnostic laparoscopy is a safe and successful investigation tool in undiagnosed cases of abdominal tuberculosis, appendicitis and gynaecological conditions¹⁶.

MATERIAL AND METHODS

It was a descriptive case series. Study was done in Surgical Unit III of Sir Ganga Ram Hospital Lahore from February 2013 to July 2013. Total 40 patients were included in the study. Patient of both sex above the age of 12 were included, having undiagnosed abdominopelvic disease even after clinical and non-invasive investigations. Those patients who can be diagnosed clinically or with non-invasive investigation, or having massive ascities or need laparotomy were excluded from the study.

RESULTS

A total 40 patients were included in the study. There were 15 male (37.5%) and 25 female (62.5%). Male to female ratio was 1:1.6 (Table 1). The patients shown in (Table 2) were divided into four age groups. The first age group was 15 to 30 years 15(37.5%). The second age group was from 31 to 45 years 10(25%). The third age group was from 46 to 60 years 9(22.5%) and fourth age group was from 61 to 75 years 6(15%). The mean±SD between the ages was 40.63±7.01 years. The diagnosis was abdominal tuberculosis in 19 patients (47.5%), acute appendicitis in 5 patients (12.5%), ovarian cyst in 3 patients (7.5%), chronic appendicitis in 2 patients

(5%), metastatic ca gallbladder in 1 patient (2.5%) and no diagnosis could be made in 3 patients (7.5%) (Table 3). The diagnostic laparoscopy was done in 40 patients. Out of them, 12 patients (30%) underwent further surgical procedure and in 28 patients (70%), no further procedure was done (Table 4). The diagnosis was made in 37 patients (92.5%) and no diagnosis was made in 3 patients (7.5%) (Table 5).

Table 1: Distribution of cases by sex (n=40)

Gender	Frequency	%age
Male	15	37.5
Female	25	62.5

Male to female ratio= 1: 1.6

Table 2: Distribution of cases by age (n=40)

Age (years)	Frequency	%age
15-30	15	37.5
31-45	10	25.0
46-60	9	22.5
61-75	6	15.0

Mean+SD=40.63±7.01

SD= Standard deviation

Table 3: Frequency and percentage of diagnosis made after diagnostic laparoscopy

Diagnosis	Frequency	%age
Abdominal TB	19	47.5
PID	5	12.5
Acute appendicitis	5	12.5
Ovarian cyst	3	7.5
Chronic appendicitis	2	5.0
Chronic cholecystitis	2	5.0
Metastatic ca gall bladder	1	2.5
No diagnosis made	3	7.5

TB= Tuberculosis

PID= Pelvic inflammatory disease

Table 4: Frequency and %age of procedure done (n=40)

Procedure	Frequency	%age
Operative procedure after diagnostic laparoscopy	12	30
No further surgery after diagnostic laparoscopy	28	70

Table 5: Frequency and %age of diagnosis made (n=40)

Diagnosis made	Frequency	%age
Yes	37	92.5
No	3	7.5

Table 6: Frequency and percentage of post-operative complications after diagnostic laparoscopy and Surgery

Complications	Frequency	%age
Wound pain		
Mild	1	8.3
Moderate	4	33.3
Severe	7	58.4
Infection		
Yes	3	25.0
No	9	75.0

DISCUSSION

The improvement in surgical decision-making for patients with abdominal pain with an uncertain diagnosis, using diagnostic laparoscopy has now been shown to decrease both negative and nontherapeutic laparotomy rates¹⁷.

Laparoscopy, which has been well known as a diagnostic procedure for more than a century, has recently established itself as an important therapeutic procedure in several branches of surgery⁷.

Early laparoscopy is valuable in the management of acute abdomen. It provides a significantly higher diagnostic accuracy and a better improvement in quality of life than the more traditional approach of observation¹⁸.

Laparoscopic methods for urgent abdominal surgery improves the quality of diagnosis and treatment, decrease the rate of postoperative complications, reduce the hospital stay.

Early diagnostic laparoscopy and treatment, results in the accurate, prompt and efficient management of acute abdominal pain. This technique reduces the rate of unnecessary laparotomy and right iliac fossa gridiron incisions and increases the diagnostic accuracy in these patients¹⁹. The utility of diagnostic laparoscopy is a developing field. When performed in carefully selected haemodynamically stable patients, laparoscopy is safe and technically feasible. Schurink et al reported reduce negative and non-therapeutic laparotomy rates in this identified population²⁰.

In spite of new diagnostic developments, such as ultrasonography and computed tomography (CT), it seems that acute abdominal conditions presents a situation in which a surgeon dares to open an abdomen without a clear diagnosis. With the only exception of haemodynamic instability caused by the abdominal condition, this situation is changing in the surgical community; a proper pre-operative diagnosis can lead to better and more specific surgical treatment, because of improved approach²¹. Laparoscopic inspection of the abdominal cavity enables the surgeon to diagnose acute appendicitis accurately. Moreover, it has been showed that leaving an appendix that appears normal during laparoscopic inspection is safe²².

Laparoscopy is extremely helpful in lesions when other imaging techniques are inconclusive. It also helps in the decision making for resectability of malignancy of lower end of esophagus. Para-aortic lymph gland biopsy is performed for staging of malignancies with lymphatic spread to the para-aortic glands²³.

Shabbir and Ahmed performed diagnostic laparoscopy in 49 patients. These patients

represented 25% of the patients undergoing investigations for lower abdominal pain. Diagnostic laparoscopy yielded positive findings in 44(90%) of these patients; the main causes being abdominal tuberculosis, appendicitis and gynaecological conditions. Therapeutic procedures were performed in 18 of these patients, 13 laparoscopically. There was no complication in this series¹⁷.

Saeed et al also performed diagnostic laparoscopy in 31 patients. Diagnostic laparoscopy yielded that 21 patients out of 31 patients had no reason for a further exploratory procedure, this preventing the morbidity or mortality which might occur after unnecessary laparotomy. They proved that diagnostic laparoscopy benefits patients by avoiding unnecessary surgery avoiding unnecessary delay in diagnosis and treatment and shortening the operative and hospitalized period¹.

Lim et al performed diagnostic laparoscopy in 103 patients aged 17-71 years old with right lower abdominal pain which were admitted with suspected diagnosis of appendicitis. They diagnosed acute appendicitis in 78(75.7%) patients 25.6% patients has other concomitant pathologies found on laparoscopy, 25 patients had a normal appendix, gynaecological causes accounted for pain in 15 of these 25(60%) cases. In four (3.9%) patients no pathology was found².

In the present study, the diagnostic laparoscopy was performed in 40 patients. Out of these 40 patients, 19 patients (47.5%) were of abdominal tuberculosis, gynecological condition in 8 patients (20%), appendicitis in 7 patients (17.5%), gall bladder pathology in 3 Patients (7.5%) and no diagnosis was made in 3 patients (7.5%). (Table 3)

Therapeutic procedure was performed in 12 patients. Out of which 3 patients has infection and mean hospital stay was 3.75 days. There was mild pain in 1 patient, moderate pain in 4 patients and sever pain in 7 patients (Table 6). There were 28 patients which had no need of further therapeutic procedure after diagnostic laparoscopy

Advantages of diagnostic laparoscopy (shorter hospital stay, rapid postoperative recovery and faster return to social activities) emerge from the present study and are confirmed by the literature⁷. Diagnostic laparoscopy has an important role in diagnosing undetected abdominopelvic pathologies and avoids unnecessary laparotomy causes minimal pain and infection with short hospital stay.

CONCLUSION

Laparoscopy is a safe diagnostic modality. It is useful to establish diagnosis or exclusion of suspected abdominopelvic complaints remains undiagnosed. It

also provides an opportunity for definite treatment by laparoscopy or open surgery in unsuspected lesions. It is a minimally invasive procedure which has a high percentage of accuracy in diagnosis and impact the further management of abdominopelvic pathologies and avoids unnecessary laparotomies.

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