

ROLE OF LAPAROSCOPY IN LOWER ABDOMINAL PAIN AS A DIAGNOSTIC TOOL

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ABSTRACT:

Objective: To evaluate the role of Diagnostic Laparoscopy in cases of Unexplained Lower Abdominal pain in whom the other investigations are negative.

Design & Duration: Prospective study from Jan. 2004 to Dec. 2005.

Setting: Sarfaraz Rafiquee Shaheed Hospital, New Chali, Karachi.

Patients: All patients with lower abdominal pain of more than 6 months duration, in whom the diagnosis was not possible with conventional methods.

Methodology: Diagnostic laparoscopy was performed in 49 patients. These patients represented 25% of the patients undergoing investigations for lower abdominal pain.

Results: 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 series.

Conclusion: Diagnostic Laparoscopy is a safe and successful investigative tool in cases of undiagnosed lower abdominal pain.

KEY WORDS: Abdomen, Pain, Laparoscopy, Diagnostic Tool

INTRODUCTION

In surgery we frequently encounter patients with lower abdominal pain, who despite frequent examination and all major investigations remain undiagnosed, and are often labelled as functional. Many of them undergo appendectomy, some are put on anti-tubercular treatment especially in the tropical countries, while females often end up taking anti androgens. Thus these patients with lower abdominal pain continue to pose challenges to the diagnostic capabilities of the general surgeon.

The introduction of laparoscopic cholecystectomy

and the evolution of laparoscopy has generated a new interest among the general surgeons about the diagnostic capabilities of laparoscopy¹. There have been discreet reports in literature about the use of laparoscopy as a diagnostic tool in abdominal pain. The aim of this study was to evaluate and to establish the role of diagnostic laparoscopy in cases of unexplained lower abdominal pain.

PATIENTS & METHODS

This prospective study was carried out on 197 patients with lower abdominal pain of more than six months duration at Sarfaraz Rafiquee Shaheed Hospital, Karachi over a period of two years. All the patients were from Karachi and adjoining areas. All of them underwent detailed history taking and thorough examination including general, systemic, abdominal and gynaecological examination.

Following investigation were performed in all these patients:

- 1) Blood Complete Picture and ESR.
- 2) Random Blood Sugar and Blood Urea Nitrogen.
- 3) Serum Creatinine and Electrolytes.

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- 4) Stool Detailed Report and Occult blood.
- 5) Urine Detailed Report and Culture.
- 6) X-rays Chest and Abdomen.
- 7) Ultrasound whole Abdomen.
- 8) Upper GI endoscopy and Colonoscopy.

Some patients were subjected to few additional investigations as indicated by their symptomatology:

- 1) Serology for Tuberculosis.
- 2) Contrast Gastro-intestinal studies.
- 3) Ascitic fluid examination.
- 4) CT Scan Abdomen.
- 5) Liver Function Tests.
- 6) Intravenous Urography.
- 7) Cystoscopy.

Out of 197 patients, the diagnosis was only possible in 103 (52%) patients on the basis of the clinical findings and investigations. The main conditions in these patients were abdominal tuberculosis, adhesions and genitourinary tuberculosis (Table I). Of the remaining 94 undiagnosed cases, only 49 agreed for laparoscopy. The inclusion and exclusion criteria are as follows:

Inclusion Criteria

All patients with lower abdominal pain of more than 6 months duration who had

1. Normal or inconclusive investigations.
2. Normal or inconclusive gynaecological examination.

Exclusion Criteria

1. Patients undergoing some elective abdominal procedure.
2. Uncorrectible coagulopathy.
3. Known medical, surgical or gynaecological cause of pain.

Table I. Causes of Abdominal Pain

Diagnosis	No.
Intestinal or Peritoneal TB	35
Adhesions	24
Genito-Urinary Tuberculosis	17
Endometriosis	10
Fibroid	5
Cystitis	2
Ureteric stone	3
Pelvic Inflammatory Disease	7
Total	103

4. Severely decompensated cardio-respiratory system.
5. Pregnancy.

Laparoscopic procedure was performed under general anaesthesia. Each patient received a single intravenous dose of Cefuroxime (750 mg) as prophylaxis at the time of induction. A 10 or 5 mm scope was used through the umbilical port. The second port (5/10 mm) was made in the right upper abdomen, while the third (5 mm) was made in the left lower quadrant, if required. The whole small bowel, ileocaecal junction, appendix, large bowel, omentum and pelvic organs including uterus, both tubes and ovaries in females were routinely examined. Any fluid present in the pelvis was aspirated for cytology, biochemistry and culture. Omental or peritoneal biopsy was taken in case of suspicion. Appendectomy was performed, only if the organ was found inflamed or deformed. Adhenolysis was performed where necessary.

RESULTS

Out of the 49 patients that underwent diagnostic laparoscopy for lower abdominal pain 33 were females, 11 being unmarried. The ages of the patients varied from 15 to 58 years. On laparoscopy the diagnosis was possible in 44 (90%) cases as shown in Table II. Abdominal tuberculosis and appendicitis were the most frequent pathologies amongst male patients, while in the females gynaecological conditions were the most frequently seen, genitourinary tuberculosis being the commonest. No cause could be identified in five patients, including one patient whose appendix was found to be normal on

Table II. Findings of Laparoscopy

Diagnosis	No.
Abdominal Tuberculosis*	14
Appendicitis (Chronic/Resolving)**	13
Postoperative Adhesions	4
Jejunal Diverticulosis	1
Genito-Urinary Tuberculosis	5
Endometriosis	2
Fibroid Uterus	2
Pelvic Inflammatory Disease	3
No Cause found	5
Total	49
(*Peritoneal-9, Intestinal-5)	
(**Including 1 normal Appendix)	

Procedure	No.
Appendicetomy*	13
Peritoneal / Omental Biopsy	12
Pelvic Fluid Study	7
Resection & Anastomosis**	1
Adhenolysis***	4
Total	37
(*10 Laparoscopic and 3 Open)	
(**Laparotomy for Jejunal Diverticulosis)	
(***)3 Laparoscopic and One Open	

Table III. Procedures done including Open Surgery cases

histopathological examination. Laparoscopic findings were considered positive if the pathological lesion could be related to the patient's symptoms.

Out of the 49 patients that underwent laparoscopy, in 13 cases appendicectomy was performed; these included three cases which had open surgery either because of difficult anatomy or due to some complication of the appendicitis; amongst these one was found normal on histopathology (Table III). One patient underwent laparotomy and adhenolysis for severe adhesions. Another patient required resection of small bowel for jejunal diverticulosis by open surgery.

The average duration of the whole procedure, including the therapeutic procedure, was 30 minutes. The average hospital stay was 2.5 days; in few cases where an open procedure was performed, the average hospital stay was four days. Few patients in this series experienced mild side effects of general anaesthesia like nausea and vomiting, but there was no procedure related complication. In most of these patients oral feeding was resumed by next morning.

DISCUSSION

Lower abdominal pain has been a challenge for the surgeon as well as the gynaecologist. Before the era of therapeutic laparoscopy these patients used to undergo a battery of costly investigations over a period of months or years, while remaining dissatisfied. The main aim of this study was to evaluate the role of laparoscopy as a major diagnostic tool. In a large series Salky¹ was able to identify pathology in 69 out of 70 patients, with either appendicitis or gynaecologic pathology being the main cause. Easter et al² identified 47% cases positively,

with adhesions being the main causative factor. The present study clearly shows a very high diagnostic rate of 90% in patients with lower abdominal pain. Common pathologies in our study were abdominal tuberculosis, genitourinary tuberculosis and appendicitis. Easter et al² had a high incidence of postoperative adhesions, the majority of which were treated by laparoscopic adhenolysis at the same sitting. However in our study post-operative adhesions were not common, important causes being abdominal tuberculosis and chronic/ resolving appendicitis.

Abdominal tuberculosis is a common disease in Pakistan, as was seen in the present study. Laparoscopy has a great deal to offer in the early diagnosis of abdominal tuberculosis. The common findings in abdominal tuberculosis are peritoneal or visceral tubercles varying from 2 mm to 1 cm. Small bowel adhesions and strictures can also be seen³. Laparoscopy in cases of tuberculous peritonitis is of special significance especially in the underprivileged areas where high end investigations are not available⁴.

Laparoscopy is very sensitive in the diagnosis of appendicitis, whether acute or chronic. It not only detects appendicitis but also avoids the negative appendicectomies^{2,5-7}. In our study 12 out of 13 appendicectomies had positive histopathology. Similarly in females if gynaecological pathology is identified by laparoscopically, specific therapy could be instituted soon with great psychological boost to the patient.

It is a useful tool for the diagnosis, staging and exclusion of cancer. It decreases the number of laparotomies for non-resectable malignant lesions⁸. In many conditions it can be a more effective investigation than the CT scan or MRI, especially in the developing world. As we target biopsy under vision, histological diagnosis is possible in all patients.

One of the objectives of this study was also to find a less invasive alternative instead of a more invasive diagnostic approach like exploratory laparotomy or blind open appendicectomy. During laparoscopy thorough visualization of the peritoneal cavity was done, hence only four patients needed an open procedure or laparotomy for effective surgical treatment. In expert's hands laparoscopy is even a better option than laparotomy, as one can visualize the entire abdomen better because of the video magnification.

There have been no major procedure related complications in most of the studies. Laparoscopy is an invasive procedure and is usually performed under general anaesthesia. Few patients in the present series experienced

mild side effects of general anaesthesia like nausea and vomiting, but these were negligible in comparison to those experienced after laparotomy. Lately we have been doing diagnostic laparoscopy under the local anaesthesia also.

CONCLUSION

We have been following all these patients for a long time now and we can say that in the majority of patients who had a negative outcome, the exclusion of significant disease not only gives peace of mind but also avoids further costly and uncomfortable investigations. Therefore it can be concluded that laparoscopy is a very safe, useful, quick and cost effective diagnostic tool in undiagnosed cases of lower abdominal pain. Laparoscopy shortens hospital stay and minimizes hospital visits, thus decreasing patient's expenses. Laparoscopy should be performed as an early investigative procedure in these patients because "Diagnosis should precede treatment whenever possible" as quoted by the Hutchison's Clinical methods⁹.

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