

Role of Diagnostic Laparoscopy in Unexplained Chronic Abdominal Pain

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Abstract

Introduction: Patients with chronic abdominal pain get repeated hospitalization. They fail to perform their duties continuously and thus become burdens for their families. These patients are occupying a good number of indoor beds with dilemmatous diagnosis. This indirectly creates pressure on health care facility and plays a notable negative role to our economy.

Aim: To determine the usefulness of diagnostic laparoscopy for diagnosis and also to find out the therapeutic scope in unexplained abdominal pain.

Method: This is a prospective cross-sectional observational study and was carried out in the Department of surgery, CMH, Dhaka over a period of 2 years from July 2008 to June 2010.

Results: Among the study population, 8 (26.67%) patients underwent abdominal and pelvic operation in the past for various diseases. The duration of chronic abdomen pain in these patients was between 6 months to 24 months or more. Twenty five (83.5%) cases out of 30 were diagnosed. Postoperative band & adhesions (28%), recurrent appendicitis (24%), endometriosis (16%), abdominal tuberculosis (16%) were the most frequently found etiologies of unexplained chronic abdominal pain in these patients. Eighteen (59.4%) patients underwent therapeutic procedure during Diagnostic Laparoscopy and biopsy was taken from 7 (23.1%) patients. Patients were provided treatment according to histopathology report. Patients were followed up for 2 years at Out Patient Department (OPD) at CMH. Around 75% cases became symptom free following therapy, 15% had short term minimal symptom for 6 months and persistent pain was present in small percent of patients (10%).

Conclusion: Laparoscopy is a safe diagnostic modality. It is useful to establish diagnosis or for exclusion of suspected abdominal pathology whenever chronic abdominal complaints remain undiagnosed. It also provides an opportunity for definitive treatment by laparoscopy or open surgery in unsuspected lesions.

Key-words: Chronic abdominal pain (CAP), Chronic Pelvic Pain (CPP), diagnostic laparoscopy.

Introduction

Chronic and recurrent abdominal pain is a common problem faced by the clinicians. It leads to physical and psychological disability in a person. Despite radiological and clinical investigations when diagnosis cannot be ascertained then laparoscopy is one of the modalities that could be of benefit.

Chronic abdominal conditions represent a major group of cases referred to a general surgeon. Mostly, a diagnosis can be made by clinical examination alone or with the help of investigations such as ultrasound or Computed Tomography (CT) scan. But there are a large number of patients in whom the diagnosis cannot be made even with these highly sensitive and advanced modalities.

Chronic abdominal pain represents 13% of all surgical admissions¹. Patients with chronic abdominal pain are usually evaluated and treated by gynecologists, gastroenterologists, urologists and internist ultimately they landed on the surgeons². Patients with chronic and relapsing abdominal pain are usually diagnosed provisionally as pain abdomen (NOS), intestinal colic, sub acute intestinal obstruction, Gastroesophageal Reflux Diseases (GORD) and Chronic Pelvic Pain (CPP).

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With these diagnoses patients receive conservative treatment but symptoms recur with short span of time; usually within 6 months. Those cases are candidates for repeated hospital admissions as well as redo of similar investigations. Sometimes all endeavors become futile to reach a diagnosis or to eliminate the symptoms.

Patients with chronic abdominal pain undergo all routine and some special investigations. The summation of clinical evaluation and investigations may sometimes fail to reach a conclusive diagnosis and leads surgeons to fall in a puzzling situation. Due to unclear aetiology an accurate diagnosis is either delayed or difficult to ascertain which leads to an increase in the sufferings of the patient usually culminating in open surgery putting them further in distress^{3,4}. Studies have shown that the patients with chronic abdominal pain have higher risk of developing depression amongst other various mental disorders and they have to bear the economic and social burden associated with longevity of the disease^{4,5}. Before the invention of the latest equipment (laparoscope), it was one of the trends to go for diagnostic laparotomy in clinically ambiguous cases. But tradition has been diverted to diagnostic laparoscopy. Laparoscopy can detect small lesion in peritoneal cavity or liver which may be missed by CT or USG⁶.

The present motto of modern therapeutic planning is to give more comfort to the patients and also to reduce morbidity. The hallmark of the new approach is the reduction of the trauma of access without compromising exposure of the anatomical regions for intervention⁷. The aim of this study is to observe the role of laparoscopy as diagnostic tool in unexplained abdominal pain. The ultimate goal was to find out the etiology of chronic abdominal pain.

Materials & Method

This is a prospective observational cross-sectional study. It was conducted on 30 patients of both sexes who got admitted in Combined Military Hospital, Dhaka during the period of July 2008 to Jun 2010. Permission for the study was duly obtained from concerned authority. All emergency cases were excluded but cases of abdominal pain of less than 6 months duration where diagnosis is dilemmatous were included as study subjects.

On ethical consideration the patients were first explained about the procedure with their possible outcome. Informed consent was taken from them. Diagnostic laparoscopy was done electively under general anesthesia after preoperative anesthetic optimization. The two ports technique was used routinely employing 10 mm sub umbilical port for telescope and 5 mm port for probing, diathermy and biopsy in the relevant abdominal quadrant. An additional 5mm port was inserted only if necessary. The whole peritoneal cavity, including the pelvis, was thoroughly examined routinely. Multiple biopsies were obtained from the suspected pathology and sent for frozen section and in some cases routine biopsy in order to confirm diagnosis. Statistical analysis was done manually.

Observation and Result

Total 30 cases were studied in this series. The most common symptom was pain in the abdomen in various regions. Definite diagnosis was made in 25 patients (83.5%), remaining 5 patients (16.5%) had no obvious pathology. Adhesions were the most common laparoscopic findings (28%) followed by appendiceal pathology (24%), endometriosis (16%), Intestinal TB (16%), chronic liver disease (8%), GB pathology (4%) and unknown primary malignancy (4%). Age varies from 10 to 60 years. Highest numbers of patients were in 5th & 6th decade. Comparatively older age groups are more in this study. Older age groups suffer from most of the life threatening diseases. Diagnostic Laparoscopy was done at minimum age of 19 yrs and maximum age of 52 yrs (Table-I).

Table-I: Frequency of distribution of patients by age (n=30).

Age in year	Total	Percentage
10-20	1	3.33%
21-30	4	13.33%
31-40	5	16.67%
41-50	12	40%
51-60	8	26.67%

Male patients were 12 (40%) and female patients were 18 (60%) in number. Sex distribution of patients in this study is not equal. Incident of diagnostic laparoscopy is higher (60%) in female groups. It indicates female suffers more from in chronic and relapsing abdominal pain including lower abdomen of pain (Table-II).

Table-II: Distribution of patient by sex (n= 30).

	Number	Percentage
Male	12	40%
Female	18	60%

Majority of the patients were having pain in the abdomen for more than 6 months (40%) the second majority groups of patients were having pain for 2 years or more (23.33%). Remaining patients were having pain less than of 6 months duration and also for more than 9 months up to 2 years duration but they got frequent relapse & remission (Table-III).

Table-III: Duration of pain (n=30).

Time	Total	Percentage
6 months	3	10%
6 months-9months	12	40%
9 months-1year	4	13.33%
1 year-2years	4	13.33%
2 years or more	7	23.33%

Several special investigations were done. Endoscopy of upper GIT revealed mild erosive gastritis in 2 patients. Colonoscopy revealed polyp in 2 cases which removed during the procedure of colonoscopy. Barium follow through, CT scan and MRI were unremarkable. CT scan or MRI was advised where indicated. These modalities of investigations are very sensitive tools for diagnosis of diseases. As these investigations are costly and not readily available and CT scan has radiation hazards, so we did not suggest CT & MRI for all patients (Table-IV).

Table-IV: Some special investigations.

Investigation	Patients	Findings
Endoscopy of upper GIT	10	Mild erosive gastritis was found in 2 patients.
Colonoscopy	5	Polyp was found in 2 cases.
Barium follow through	2	Normal study.
CT scan abdomen & pelvis	8	Normal finding
MRI	5	Normal study

Laparoscopic pathological findings were in 25 cases and 5 of them were normal. Intra-abdominal adhesions, appendiceal pathology, endometriosis and intra-peritoneal collections were 3 cases each total 15 cases. Remaining 10 cases having abdominal lymphadenopathy, peritoneal, pelvic, liver and gall bladder pathology (Table-V).

Table-V: Laparoscope findings (n=30).

Findings	Number
Adhesions of bowel wall with parietal peritoneum	3
Swollen & congested appendix	3
Intra peritoneal fluid	3
Endometrial tissue at pouch of Douglas	3
Intra abdominal lymphadenopathy- seems to be matted	2
Multiple nodule on liver surface	1
Inter loop adhesion of gut	1
Bands in upper abdomen pressing the gut	1
Multiple scattered fibrosis on liver surface	1
Findings in favour of CLD (Chronic Liver Disease) (scattered fibrosis on liver surface, enlarged spleen, Intra-peritoneal fluid etc.)	1
Aggregated loops of bowel at RIF (Right Iliac Fossa)	1
Multiple scattered plaque on omentum	1
Gall bladder congested, thick walled & adhere into omentum	1
Adhesions of pelvic organs causing blockage of fallopian tube	1
Inflammatory adhesion around GB (Gall Bladder)	1
Congested pelvic organ (uterine surface, tubes & ovaries)	1
Normal finding	5

Target organ suspected pathology was confirmed by histopathology. Histopathology report was received some days after the procedure. Treatment was provided according to biopsy reports (Table-VI).

Table-VI: Sites or organ of biopsy (n=7).

Name of Organ	Number
Mesenteric lymph node	2
Liver	2
Parietal lesion	1
Omental plaque	1
Mesenteric lesion	1

Large number of patients i.e. 25 patients (83.5%) were proved by histopathology (where indicated) to have various pathologies of different organs e.g. postoperative adhesions, recurrent appendicitis, endometriosis & abdominal tuberculosis. In five (16.5%) cases, no abnormality was detected. Endometriosis was diagnosed macroscopically. Chronic acalculus cholecystitis was found in gall bladder which was confirmed by histopathology (Table-VII).

Table-VII: Final diagnosis (histopathology-where needed) (n=25).

Diagnosis	Patients	Percentage
Post operative adhesion	7	28%
Recurrent appendicitis	6	24%
Endometriosis	4	16%
Abdominal TB	4	16%
Chronic liver disease	2	8%
GB pathology	1	4%
Unknown primary	1	4%
No abnormal finding	5	20%

Laparoscopic adhesiolysis were done in 7 patients (41.20%), laparoscopic appendectomy were done in 6 patients (35.4%), cautery or ablation of endometrial tissue in 4 cases (23.5%) and laparoscopic cholecystectomy in 1(5.9%) case (Table-VIII).

Table-VIII: Laparoscopic therapy (n=18).

Procedure	Patients	Percentage
Laparoscopic adhesiolysis	7	41.2%
Laparoscopic appendectomy	6	35.4%
Cautery /Ablasion of endometrial tissue	4	23.5%
Laparoscopic cholecystectomy	1	5.9%

Discussion

Laparoscopic examination was able to detect causes of abdominal and pelvic pathology in 25 patients (83.5%) and no abnormality was found in the remaining 5 (16.5%) patients. This figure coincides with the laparoscopic study of Mohammed Hamad Al-Akeely et al. who studied 35 patients where diagnosis was possible in 33 patients (94%). Marana and his coworkers⁶ and Gowri and Krolikowski⁸ were also able to detect pelvic pathology in 80% of their patients with CAP (Chronic Abdominal Pain) but failed to detect any abnormalities in 20% of cases.

Study by Gamal I, Moussa et al. have revealed normal abdominal anatomy with no pathologic lesion in 12 patients (21.4%) whereas some pelvic pathology were found in 44 patients (78.6%). The findings of this study are concordance of other study results. Thirty patients with age ranging from 10 to 60 years of both sexes were included in the study where 60% of the patients were female. Eight (26.67%) patients underwent previous abdominal and pelvic operation for various reasons. Their duration of symptom was between 6 months to 24 months or more. 18 (59.4%) patients underwent therapeutic procedure at the time of DL (Diagnostic Laparoscopy).

They were referred to respective specialist basing on histopathology report. Outcome of DL is encouraging. Around 75% patients became symptom free following laparoscopic therapy. The most frequently found etiology of chronic and relapsing abdominal pain were postoperative band & adhesions (28%), recurrent appendicitis (24%),

endometriosis (16%), abdominal tuberculosis (16%) etc. Post laparoscopic events were mostly uneventful. Patients were followed up for 2 years at outpatient department. Tiwari and Peters⁹ and Di Lorenzo and colleagues¹⁰, reported an incidence of 31.5% and 18.6% respectively. It has been found that pain is located in the area of adhesions in 90% of cases, although there is no correlation between the severity of pain and extent of adhesions¹¹. Adhesions will cause CAP (Chronic Abdominal Pain) as it restricts the mobility or distensibility of abdominal organs especially the bowel¹². Laparoscopic adhesiolysis was carried out for all cases of abdominal adhesions. In the Lancet journal it was reported that 35% of patients who underwent open abdominal or pelvic surgery were readmitted to the hospital an average of two times after their surgery due to adhesion-related or adhesion-suspected complications¹³. Over 22% of all readmissions occurred in the first year after the initial surgery¹³.

Adhesions may occur as the result of tissue damage to the abdomen besides surgery, including traumatic injury, inflammatory disease, intra peritoneal chemotherapy, and radiation therapy¹⁴. Recurrent appendicitis was the cause of Unexplained Chronic Abdominal Pain (UCAP) in 6 patients (24%); all were managed by laparoscopic appendectomy, complete relief of pain was observed in 5 (83.34%) patients and pain reduction in 1 patient. Raymond and his colleagues¹⁴ reported that 15.7% cases of recurrent appendicitis (out of 70 patients) underwent diagnostic laparoscopy only for the evaluation and treatment of chronic abdominal pain, with improvement of pain in 90% of the patients.

While Majeski¹⁵ reported that, the incidence of recurrent appendicitis was found in 27% of the patients presenting with CAP and complete resolution of pain was observed in all patients after laparoscopic appendectomy. Fayez and his coworkers¹⁶ recorded 95% improvement in chronic lower abdominal pain after laparoscopic appendectomy.

Bowel symptoms are extremely common in patients with endometriosis. There is a constellation of bowel symptoms that can occur in patients with endometriosis though CPP (Chronic Pelvic Pain) and infertility are occasional presenting symptoms.

Painful bowel movements, constipation, diarrhea, alternating constipation and diarrhoea, intestinal cramping and abdominal pain have also been reported in good number of cases of endometriosis.

Laparoscopic findings of intestinal TB were reported in 4 patients (16%) in a study by Porpora and Gomel¹⁶. They detected pelvic TB in one patient with CPP. Histopathological confirmation in abdominal TB is difficult due to suboptimal non-invasive access to the involved area, so laparoscopy provide invasive access to the peritoneum. Laparoscopy was safe and helpful in the diagnosis of peritoneal TB in 87% of clinically undiagnosed patients¹⁷. The incidence of tubercular peritonitis in hospitalized patients in Saudi Arabia¹⁸ has been reported to be 3%. Laparoscopic findings in abdominal tuberculosis are omental, peritoneal and/or liver nodules with or without ascites¹⁹. Similar findings may be found in intra-abdominal malignancy. According to present estimations approximately 300,000 people fall ill due to tuberculosis each year and 70,000 die²⁰. The category by anatomical site is pulmonary and extra-pulmonary TB. Extra-pulmonary TB is most commonly found in lymph node, intestine, CNS, bone, joints and kidneys. In this study, other causes evaluated by laparoscopy were chronic liver disease, gall bladder pathology and occult primary cancer. During DL in one patient GB was found unhealthy and cholecystectomy was done by laparoscopic technique. Histopathology of resected GB revealed chronic acalculus cholecystitis. Biopsy was taken from the cases of tuberculosis, CLD & carcinoma with occult primary. Two patients diagnosed as chronic liver disease at early stage of cirrhosis were referred to medical specialist for appropriate medical treatment. Rest 1 patient was diagnosed occult primary malignancy.

Conclusion

Diagnostic laparoscopy in chronic unexplained abdominal pain is a significant invasive examination. Laparoscopy is a safe and effective method to diagnose the cause of chronic abdominal pain in cases where other non-invasive methods prove unreliable. There are two main limitations of our study—firstly, the patient group is small and secondly, MRI could not be done in all the patients before diagnostic laparoscopy due to patients' refusal. To conclude, diagnostic laparoscopy is a

safe and effective procedure without any major risk or complications in evaluating patients with chronic abdominal pain. If done early in the course of the disease, it helps in reducing the hospital stay, treatment cost and morbidity to the patient. This enforces the position of laparoscopy as a gold standard in evaluation of this condition.

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