Section: General Surgery

Original Research Article

STUDY ON EVALUATION OF CHRONIC ABDOMINAL PAIN USING DIAGNOSTIC LAPAROSCOPY IN A TERTIARY CARE HOSPITAL

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ABSTRACT

Background: Diagnosing chronic abdominal pain presents a considerable clinical challenge due to its complex and often elusive nature. Laparoscopy, a minimally invasive technique, holds promise not only as a diagnostic tool but also as a therapeutic option for patients suffering from chronic, undiagnosed abdominal pain. This study aims to thoroughly assess the effectiveness of laparoscopy in diagnosing and managing such patients, exploring its potential to uncover underlying causes that other methods might miss.

Materials and Methods: 75 patients aged above 18 years with chronic abdominal pain of > 3 months duration were admitted by the Department of Surgery to undergo diagnostic laparoscopy.

Results: Most of the patients were females. Younger age group, (30 years) constituted the majority of the patients. Most of the people had abdominal pain since 12-18 months of duration. Post-operative adhesions were the most common cause of chronic abdominal pain, followed by recurrent appendicitis. Most of the patients had positive outcomes (i.e, decrease in abdominal pain).

Conclusion: By evaluating the role of laparoscopy, we hope to provide insights into its utility as a vital investigative modality for improving patient outcomes in cases of persistent abdominal pain.

Keywords: Chronic abdominal pain, laparoscopy, adhesions, appendicitis, cholecystitis.

INTRODUCTION

Chronic abdominal pain is one of the most challenging conditions for both patients and healthcare providers. These patients often experience significant physical and mental distress, leading to a poor quality of life.[1,2] Despite undergoing extensive diagnostic procedures, including upper and lower gastrointestinal endoscopies, computed tomography scans, and cancer screenings, the underlying cause remains elusive in over 40% of cases.

When non-invasive testing reaches its limits, surgeons are frequently consulted, and the likelihood of an unproductive abdominal exploration is high. In such scenarios, diagnostic laparoscopy emerges as a crucial intermediate step, offering a middle ground between avoiding exploration and performing a full laparotomy.[3]

Diagnostic laparoscopy can be performed using simple equipment, without the need for advanced video cameras or electronic devices associated with laparoscopic surgery. The advancements in optics allow for a detailed visual examination of the peritoneal cavity, enabling targeted biopsies and histological diagnoses. Laparoscopy is as informative as an exploratory laparotomy, and in the hands of a skilled surgeon, it can provide a better view of the entire peritoneal cavity.[4,5] In many cases, diagnostic laparoscopy can prevent unnecessary negative laparotomies, leading to early recovery and a quicker return to daily activities, which is a source of satisfaction for the operating surgeon.

This study aims to determine the various causes of chronic abdominal pain as identified through laparoscopic evaluation and to evaluate the efficacy of diagnostic laparoscopy in identifying the underlying cause of undiagnosed chronic abdominal pain.

MATERIAL AND METHODS

This prospective observational study was conducted in the Department of General Surgery over 1-year period. The study group included patients with chronic abdominal pain of at least 3 months duration admitted in our hospital during the study period (March 2023 to Feb 2024).

A detailed history and clinical examination were recorded for each patient. Various investigations were routinely performed, including blood tests, imaging studies, and endoscopies, as and when indicated.

Inclusion Criteria

1. All patients with chronic abdominal pain of 3 months duration which is undiagnosed despite of conducting all the investigations
2. Patients with chronic abdominal pain aged 18 years and above
3. Patients with chronic abdominal pain who are not responding to conventional treatment.

Exclusion Criteria

1. Patients with abdominal pain of < 3 months of duration
2. Patients < 18 years of age
3. Patients who did not consent for the study
4. Patients who lost follow-up.

All surgeries were performed under general anesthesia, with the creation of pneumoperitoneum using the Hasson technique. During the diagnostic laparoscopy, the surgeon systematically examined the entire abdominal cavity, starting from the liver and gallbladder, then moving on to the anterior surface of the stomach, the large intestine, and the entire length of the small intestine, with a particular focus on the appendix and terminal ileum. The anterior surfaces of the retroperitoneal organs, including the uterus, fallopian tubes, and ovaries, as well as the peritoneal surface, were also carefully inspected. Additionally, the surgeon looked for the presence of adhesions between the bowel loops or between the bowel and the anterior abdominal wall.

The surgical procedure was then performed based on the intraoperative findings and indications, ranging from biopsies to adhesiolysis to appendectomy. The laparoscopic ports were closed using absorbable suture material.

RESULTS

This prospective observational study included 75 patients with chronic abdominal pain. Females constituted the majority of the population (60%) and the rest 40% being males. The female: male ratio is 3:2.

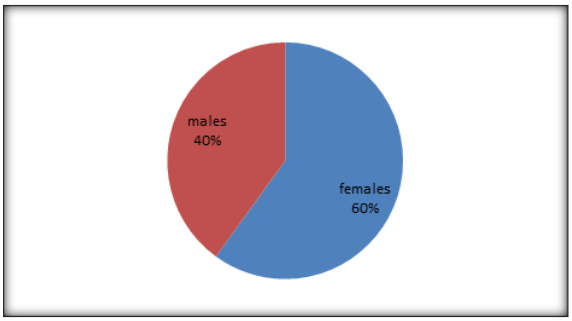

Figure 1: Gender-wise distribution of patients with chronic abdominal pain

Majority of the patients belonged to below 30 years of age (50.6%), followed by 31- 40 years (26.7%). 2.7% of the patients were > 60 years of age. The mean age of study is 34.5 years with the youngest being 18 years of age and the oldest being 71 years. [Table 1]

Most of the patients had suffered for a span of 12-18 months (33.3%). 14.6% of the patients had been experiencing pain >2 years of duration. [Table 2]

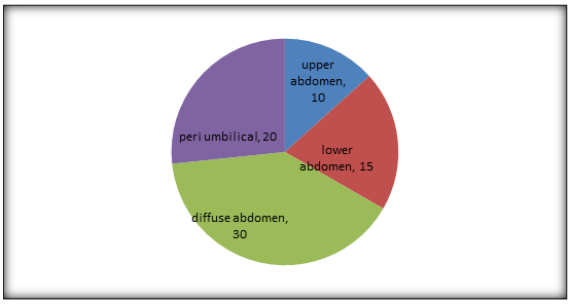

Figure 2: Location of pain

Most of the patients had diffuse abdominal pain and were unable to localize (40%), followed by peri-umbilical pain. Around 53% of the patients had history of previous abdominal surgery. [Table 3]

Most common cause of chronic abdominal pain in present study is post-operative adhesions (24%). Adhesiolysis was done in all patients with post-operative adhesions.

The next most common condition followed by recurrent appendicitis (17.3%), all of whom underwent laparoscopic appendectomy. The appendix was sent for histopathological examination which revealed chronic inflammatory changes. [Table 4]

The next most common condition was chronic cholecystitis (13.3%). Amongst the 10 patients with chronic cholecystitis 7 underwent laparoscopic cholecystectomy and the rest of 3 patients had to undergo laparotomy due to associated peritonitis.

Carcinoma of abdominal viscera was discovered in 8 patients (10.6%). The most common carcinoma detected in our study was pancreatic cancer, which was found in 5 out of 8 patients. The rest of the 3

patients were females; one of them had ovarian adenocarcinoma; 2 of them had colon carcinoma.

Out of the 6 patients with mesenteric lymphadenopathy, 3 had significant lymphadenopathy and had undergone biopsy for the same. The biopsy report was not significant.

5 patients had ileo-cecal tuberculosis who were diagnosed by the presence of peritoneal tubercles. Histopathological examination revealed chronic granulomatous changes. All 5 patients were started on anti-tubercular therapy (ATT) and clinical improvement was seen in patient after 12 weeks.

4 patients had strictures – 2 had biliary strictures and 2 patients had tubercular strictures. The 2 patients with tubercular strictures underwent stricturoplasty and were started on ATT. The patients with biliary strictures underwent Magnetic resonance cholecysto-pancreatography (MRCP) and were diagnosed with chronic pancreatitis.

2 patients had ovarian cysts who underwent cystectomy and 1 patient had significant Malrotation of the gut who had undergone colopexy.

The mean duration of the procedures was 74.21 minutes. 3 patients had to be converted into open laparotomy in view of peritonitis.

All 75 patients included in our study had survived. 4 patients had developed surgical site infections which were managed using appropriate antibiotics.

Most of the patients (80%) had been discharged within 7 days of admission. The rest of 15 patients had extended hospital stay.

All 75 patients were followed up at 1 month, 3 months and 6 months post-operatively, during which subjective assessment of pain was done – whether pain had disappeared or whether the pain has persisted or in worst cases, worsened. Out of the 75 patients, 6 patients lost to follow-up at 5 months.

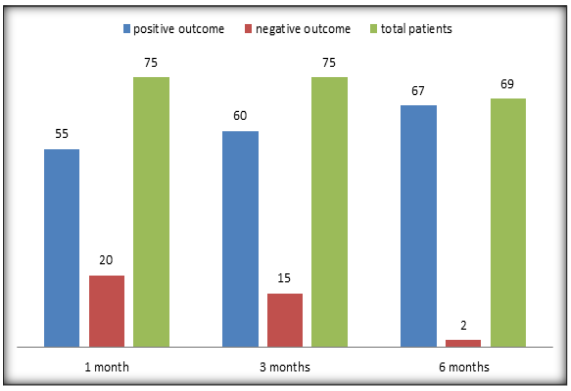

Figure 3: outcomes at 1 month, 3 months and 6 months period

Table 1: Age-wise distribution of chronic abdominal pain

Age in years	No. of patients
<20 years	8 (10.6%)
21-30 years	30 (40%)
31-40 years	20 (26.7%)
41-50 years	15 (20%)
51-60 years	5 (7%)
>60 years	2 (2.7%)

Table 2: Duration of pain before presentation

Duration	No. of patients
3-12 months	20 (26.7%)
12- 18 months	25 (33.3%)
18-24 months	14 (18.6%)
>24 months	11 (14.6%)

Table 3: Diagnosis upon laparoscopy

Laparoscopic diagnosis	Procedure underwent	No. of patients
Post- operative adhesions	Adhesiolysis	18 (24%)
Recurrent Appendicitis	Appendectomy	13 (17.3%)
Chronic Cholecystitis	Cholecystectomy	10 (13.3%)
Carcinoma of abdominal viscera	Biopsy	8 (10.6%)
Mesenteric lymphadenopathy	Biopsy	6 (8%)
Tuberculosis (peritoneum,omentum)	Biopsy + initiation of ATT	5 (6.6%)
Strictures	Excision of stricture	4 (5.3%)
PID	No intervention	4 (5.3%)
Normal study	No intervention	4 (5.3%)
Ovarian cyst	Ovarian cystectomy	2 (2.6%)
Malrotation of gut	colopexy	1 (1.3%)

DISCUSSION

Chronic abdominal pain is the most common cause of morbidity and hospital visits. The condition is not only physically straining, but also outs mental and financial burden on the patient.

In present study, 75 patients with chronic abdominal pain >3 months duration underwent diagnostic laparoscopy.

Most of the patients in present study were females. The female: male ratio is 3:2. This could be owing to the fact that most common cause of chronic abdominal pain is post-operative adhesions which is very common in gynaecological procedures and cesarean sections. Other causes could be that most of the women being homemakers and belonging to middle class families tend to ignore their condition engrossing themselves in household chores and presenting to the hospital only when its beyond tolerance.

Most of the patients belonged to the age group of <30 years (50%). The mean age of patients in present study is 34.5 years. This is in accordance with studies done by Klingensmith et al,[5] (39 years), Gouda et al6 (36 years) and Bellad et al7 (37 years). This is suggestive that most of the patients belong to younger age group.[8,9]

In present study, most of the patients had pain of 12-18 months duration. 14.6% of the patients had abdominal pain of > 2years duration. Raymond et al10 studied 70 patients with chronic abdominal pain and observed that their patients had been suffering with pain from 3 months to 5 years.

In present study, 53% of the patients had a history of previous abdominal surgery. This is similar to study done by Gouda et al6 (56.6%).

In present study, 5.3% of the patients had been left undiagnosed with the laparotomy being normal. However, studies done by Salky et al,[13] and Klingensmith et al,[5] had reported higher percentage of normal diagnostic laparoscopy (21% and 26%, respectively).

Post-operative adhesions was the most common cause of chronic abdominal pain (24%). Adhesions restrict distensibility of abdominal organs, especially the bowel, leading to chronic debilitating abdominal pain.[11] In studies done by Klingensmith et al,[5] Lavonius et al,[12] Salky et al,[13] and Sachin et al,[14] adhesions were the most common cause of chronic abdominal pain. All patients in present study who had post-operative adhesions had undergone adhesiolysis.

The next most common cause of chronic abdominal pain in present study was recurrent appendicitis (17.3%). Onders et al,[15] observed that 7.1% of the patients had chronic appendicitis.

The diagnostic efficacy of laparoscopy is 98.6% in present study as it was able to diagnose 71 out of 75 patients. Raymond et al,[10] Kinnaresh et al,[16] and Schrenk et al,[17] had observed similar high results of diagnostic accuracy in their studies (85.7%, 90% and 87% respectively).

After end of 1 month, 73.3% had positive outcomes, i.e., decrease or complete abolition of pain. By end of 3 months and by end of 6 months, 80% and 97% had been positive outcomes suggestive of excellent therapeutic efficacy. 6 patients lost to follow-up at 5 months. Kinnaresh et al,[16] observed similar such efficacy (94%).

CONCLUSION

Laparoscopy is a highly effective and safe diagnostic and therapeutic tool for managing chronic abdominal pain, particularly when conventional methods fail to identify a cause. It provides quick results, often pinpointing the issue or excluding major concerns, which helps to alleviate patient anxiety and avoid further tests. Additionally, laparoscopy allows for therapeutic interventions during the same procedure, reducing the need for multiple hospitalizations or exploratory surgeries. Consequently, it plays a crucial role in preventing unnecessary laparotomies and should be considered essential for all practicing surgeons dealing with chronic abdominal pain.

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