



ROLE OF DIAGNOSTIC LAPAROSCOPY IN CHRONIC ABDOMINAL PAIN

General Surgery

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ABSTRACT

Background: Diagnosis of Chronic Abdominal Pain is a challenge as these patients even after undergoing a wide range of diagnostic workup remain undiagnosed. For a definitive diagnosis followed by a definitive treatment, Diagnostic Laparoscopy is becoming a useful tool. Another advantage of diagnostic laparoscopy is that a definitive intervention can be done at the same time. **Methods:** The study was conducted at GCS Medical College in 38 patients having Chronic Abdominal Pain for duration of more than 12 weeks and which remained undiagnosed after various diagnostic modalities. After taking a detailed history and appropriate diagnostic workup, the patients underwent Diagnostic Laparoscopy. Postoperative Pain Assessment was done using Visual Analog Scale (VAS) score. **Results:** Using Diagnostic Laparoscopy, a definitive diagnosis was made in 34 out of 38 patients with chronic abdominal pain. Postoperatively pain was relieved in 30 (78.95%) patients, reduced in 5 (13.16%) patients and persisted in 3 (7.89%) patients. Diagnostic Laparoscopy effectively diagnosed the cause of pain in 89.4% patients in the study. Intervention was done in 47.37% of patients. **Conclusion:** Diagnostic Laparoscopy is an effective tool for diagnosis of chronic abdominal pain. It also has a therapeutic value in such cases.

KEYWORDS

Diagnostic Laparoscopy, Chronic Abdominal Pain, Definitive Diagnosis, Pain Relief.

INTRODUCTION

Chronic abdominal pain is a common disorder. Pain persisting for more than 12 weeks; intermittent or continuous, is referred to as Chronic Abdominal Pain.^[1] Although patients with this type of pain may have undergone numerous diagnostic workups, their pain remains a challenge to all known diagnostic and treatment methods.^[2] In spite of being subjected to myriad of tests, almost 40% of patients remain undiagnosed at the end of it.^[3] Chronic abdominal pain is associated with a poor quality of life and significant levels of depressive symptoms.^[4] The most common organic conditions include intestinal adhesions, especially in patients with a past history of abdominal operations, abdominal tuberculosis, appendicular pathology, biliary causes and mesenteric lymphadenopathy.^[5-10]

Abdominal wall pain is also common and frequently mistaken for visceral pain.^[11-12] Despite investigations such as ultrasonography, computed tomography scan, etc., it is difficult to reach to an accurate diagnosis and represents a major diagnostic challenge to the surgeon.^[13]

With the introduction of laparoscopic surgery, a new tool has been added to our knowledge.^[14] The use of this new technology in the diagnosis and management of chronic abdominal pain has been tried earlier by various authors.^[15-16]

Laparoscopy can identify abnormal findings and improve the outcome. In majority of patients with chronic abdominal pain as it allows the surgeons to see and treat many abdominal conditions that cannot be diagnosed otherwise.^[17] It is a safe and an effective tool, which can establish the cause and allows for appropriate interventions in such cases.^[18] However, the role of laparoscopy in chronic abdominal pain is still debated by some authors who deny its value in adhesiolysis and consider it controversial and not evidence-based, and therefore, do not recommend it as a treatment for adhesions in patients with chronic abdominal pain.^[19] Laparoscopic surgery has modified the management of many surgical diseases. Diagnostic laparoscopy is now accepted as the preferred primary approach to many disease processes.

Purpose of this study is to examine and analyze data collected from a group of patients with chronic abdominal pain who underwent diagnostic laparoscopy.

METHODS

The present study was carried out on 38 patients admitted in the Department of General Surgery at GCS Medical College, Hospital and Research Center, Ahmedabad, in the time period from 1st June, 2021 to 15th December, 2022.

AIM

The aim of this study is to assess the role of diagnostic laparoscopy in

undiagnosed cases of chronic abdominal pain.

OBJECTIVES

- To study the outcome of diagnostic laparoscopy in terms of pain response on follow-up after 60 days of the procedure.
- To find out the efficacy of diagnostic laparoscopy in patients with chronic abdominal pain.

Inclusion Criteria

All patients aged ≥ 18 years to < 65 years with a history of chronic abdominal pain for ≥ 12 weeks and undiagnosed despite biochemical and other radiological investigations such as USG/CT/MRI were included in the study.

Exclusion Criteria

Pregnant females
Patients with acute abdominal pain
Hepatitis B, Hepatitis C and HIV positive patients
Patients with uncorrectable coagulopathy

Data Collection

Demographic data (including age and gender) were noted. Patients were interviewed for the medical and surgical history along with presenting complaints. Symptoms such as fever, diarrhea, constipation and burning micturition were recorded. The patients were subjected to clinical examination and details about severity of pain based on visual analog scale (VAS) score, duration of pain, site of pain, and nature of pain was noted.

Investigations including hemoglobin, total leukocyte counts, random blood sugar, platelet count, liver function tests, renal function tests, urine routine microscopy as well as radiological investigations were performed.

Intervention

After the evaluation of preoperative investigations and gaining fitness for anesthesia, the selected patients were subjected to diagnostic laparoscopy under general anesthesia. Patients were kept nil by mouth for 6 hours prior to surgery. Initial port placement was done at umbilical point by open/close technique as per operating surgeon's preference. In cases with scars and previous history of surgery, initial port placement was done at Palmer's point by close technique (Veress needle). Additional ports were inserted as required. The abdominal cavity was examined to the maximum possible extent in each case. Interventions such as adhesiolysis, appendicectomy, peritoneal biopsy, lymph node biopsy or aspiration of any peritoneal fluid were carried out at the discretion of the operating surgeon.

Starting from the pelvis, uterus, ovary and uterine adnexa in females;

rectum and sigmoid colon, descending colon, transverse colon, ascending colon, cecum, Ileocecal region and appendix were examined thoroughly. With the help of bowel grasping forceps, the whole length of small bowel was visualized and examined. Stomach, duodenum, gallbladder, liver and spleen, were serially visualized and examined. In certain cases, the final diagnosis was clinched based on the reports of histopathological examination. Following the procedure, patients received appropriate treatment based on the findings of the laparoscopy. The general anesthesia protocol remained same for all patients, and they were followed up for 60 days for assessment of pain.

Assessment of Pain

The pain was assessed using visual analog scale (VAS) scoring ranging from 0 to 10 considering zero as no pain and 10 as maximum pain points. VAS was explained to the patient during pre-operative visit. The assessment of pain was done at enrolment and during postoperative follow up, i.e., on postoperative day 15th, 30th, 45th and 60th.

RESULTS

The efficacies of various studies reported in the literature in arriving at a diagnosis are >80% giving an indication that diagnostic laparoscopy has got a considerable impact on managing patients with chronic abdominal pain. In our study also it was possible to achieve definitive diagnosis in 34 (89.4%) patients. It led to initiation of appropriate treatment in this difficult patient group and pain response in terms of positive outcome (relief/reduction of pain after diagnostic laparoscopy) was seen in 92.11% of the patients.

The mean age of the patients in the study was 39.42 ± 8.6 years with majority of the patients belonging to age group of 31-40 years (47.37%). The incidence of chronic abdominal pain was higher in females (55.26%) than in males (44.74%).

Gender	Number
Male	17 (44.74%)
Female	21 (55.26%)
Total	38 (100%)

Abdominal pain was present in all cases 38/38 (100%) as a chief complaint along with abdominal distension in 09/38 (23.7%), fever in 16/38 (42.1%) and nausea and vomiting in 15/38 (39.5%). Anorexia/weight loss was present in 7/38 (18.42%) of the patients.

Symptoms	Number of patients
Abdominal pain	38 (100%)
Fever	16 (42.1%)
Weight loss	7 (18.42%)
Abdominal distention	9 (23.7%)
Nausea + Vomiting	15 (39.5%)

The most common site of pain was generalized which was present in 16 (42.1%) patients followed by right lower abdominal pain in 09 (23.7%) patients, peri-umbilical pain in 9 (23.7%) patients, right upper quadrant pain in 3 patients and left upper quadrant region pain in 1 patient.

Site of pain	Number of patients
Generalized	16 (42.1%)
Right lower	9 (23.7%)
Peri-umbilical	9 (23.7%)
Right upper	3 (7.9%)
Left upper	1 (2.6%)

Of 38 cases, 10 (26.31%) had a history of previous surgery and 28 (73.69%) had no history of surgery. All patients who presented with adhesions had history of previous surgery.

History of previous surgery	Number of patients
Present	10 (26.31%)
Absent	28 (73.69%)

Most common laparoscopic finding among the study subjects was abdominal tuberculosis (31.57%) followed by inflamed appendix (21.05%) and dense adhesions (15.79%).

Operative findings	Number of patients
Abdominal tuberculosis	12 (31.57%)
Inflamed appendix	8 (21.05%)
Dense adhesions	6 (15.79%)
Obstructive band	1 (2.63%)
Mesenteric lymphadenopathy	3 (7.89%)
Thick-walled Gallbladder with adhesion	2 (5.26%)
Gallbladder malignancy	1 (2.63%)

Splenoculi with adhesions	1 (2.63%)
No abnormality detected	4 (10.52%)

Anti-tubercular treatment was started in patients with abdominal tuberculosis (31.57%). Laparoscopic Adhesiolysis/band release was done in 18.42% patients. Laparoscopic appendicectomy was done in 21.05% patients. Conservative management was done in 7 (18.42%) patients.

Intervention	Number of patients
Anti-tubercular treatment	12 (31.57%)
Laparoscopic appendicectomy	8 (21.05%)
Adhesiolysis/Band release	7 (18.42%)
Splenoculi excision	1 (2.63%)
Laparoscopic cholecystectomy	2 (5.26%)
Neo-adjuvant chemotherapy	1 (2.63%)
Conservative treatment	7 (18.42%)

Out of 38 patients who presented with chronic abdominal pain, 34 patients achieved definitive diagnosis after diagnostic laparoscopy. Out of these 34 patients, 18 patients underwent therapeutic laparoscopic intervention.

Pain was relieved in 30 (78.95%) patients, reduced in 5 (13.16%) patients and persisted in 3 (7.89%) patients at 60 days follow up.

Pain response	Number of patients
Relief	30 (78.95%)
Reduced	5 (13.16%)
Persistent	3 (7.89%)

In our study, 4 patients had a negative diagnostic laparoscopy. They were treated with conservative therapy and 2 out of 4 (50%) responded positively.

DISCUSSION

Chronic abdominal pain is a persistent problem that requires immediate investigation and management. Despite the availability of a wide array of investigations, a large number of patients with chronic abdominal pain either remain undiagnosed or do not have a definitive diagnosis. The aim of this study was to evaluate the role of laparoscopy as an investigative modality in the diagnosis and management of patients with chronic abdominal pain.

The most common symptom was generalized abdominal pain. Physical examination in patients with chronic abdominal pain varied depending upon the location of pain and chronicity of the patient's symptoms. Generalized tenderness, when compared to localized, poses a greater diagnostic challenge to the surgeons. The vitals and biochemical profile of the patients were quite normal. USG and CT scans conducted in these patients did not result in the diagnosis of chronic abdominal pain whereas laparoscopic findings reported most of these patients had abdominal tuberculosis followed by inflamed appendix. Studies conducted by Salky et al. and Sachin et al. reported abdominal adhesions as a frequent abdominal pathology.^[13,20] In contrast, study by Naniwadekar et al. reported abdominal Koch's as the most frequent cause of chronic abdominal pain, excluding gynecological cases.^[21]

Abdominal tuberculosis is a common disease in India, as was seen in present study. Laparoscopy has a great deal to offer in early diagnosis and treatment of abdominal tuberculosis.

Krishnan et al reported that in patients suspected to have abdominal tuberculosis without evidence of extra abdominal disease, early laparoscopy may be useful to establish a histological diagnosis with acceptable low morbidity (8%). Study conducted by Rai et al reported abdominal tuberculosis in 92% of the 25 patients in whom laparoscopy was performed.^[19]

In our study, common findings in abdominal tuberculosis were peritoneal or visceral tubercles, ascites and small bowel adhesions. For tubercular peritonitis, laparoscopy is of special practical benefit in under privileged areas where high end investigations are not available. Our study reported improvement or resolution of symptoms in all patients with abdominal tuberculosis.

Recurrent and chronic appendicitis do exist as diseases of the appendix. Investigation of the appendix should be included in the work up of chronic abdominal pain when no other diagnosis is readily apparent. Doubt remains whether the appendix should be removed in the case of inconclusive findings. In a study by Fayez et al, records of

chronic abdominal pain undergoing appendectomy were reviewed. Out of these patients, 92% had abnormal histological findings in the appendix and 95% of patients had resolution of pain.^[7]

In our study 34 (89.4%) patients had pathological findings identified at the time of laparoscopy. Study done by Miller et al reported that laparoscopy provided diagnoses in 89.8% of patients.^[22] These results compare favorably with our series and another study done by Lal et al had shown that laparoscopy was able to detect the pathologies in 84% of the patients with chronic abdominal pain.^[23]

In our study, overall pain relief was observed in 92.1% of the patients. The mean VAS score also gradually reduced from day 15–60. At the end of the 60th day, only five patients were having mild pain and three patients reported having moderate pain. A study by Kumar et al. reported no pain or less pain in 86% of the patients after two months of laparoscopy.^[24]

Study	Efficacy%	No. of cases	year	Outcome (% of pain response)
Miller et al.	89.8	59	1996	89.3
Raymond et al	85.7	70	2003	71.4
Moussa And Mahfouz	78.6	56	2004	80.2
El-Labban and Hokkam	83.3	30	2010	80
Tulaskaretal	82.8	35	2013	81.8
Present study	89.4	38	2022	92.1

Based on the findings of above studies it is also clear that early diagnostic laparoscopy can prevent the delay in the arrival at a definite diagnosis and institution of appropriate treatment. The efficacies of these studies were >80% giving an indication that diagnostic laparoscopy has got a considerable impact in managing this difficult group of patients. The overall positive outcome seen in the above-mentioned studies after diagnostic laparoscopy compare favorably with the results obtained by us.

CONCLUSION

It can be concluded that Diagnostic Laparoscopy has an effective role in evaluating patients with chronic abdominal pain in whom conventional methods of investigations have failed to elicit a certain cause. The therapeutic value of diagnostic laparoscopy is also accepted, well-appreciated, and it cannot be underestimated. Being minimally invasive, laparoscopy has solved the problem of delay in the definite diagnosis and has led to considerable reduction in the number of negative exploratory laparotomies. It has also significantly reduced the number of investigations these patients are subjected to, days of hospital stay, which leads to substantial reduction in the cost of the treatment. Diagnostic laparoscopy also solves the problem of dissatisfaction in both the surgeon and the patient which is one of the main issues in the management of these patients.

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