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### Original Article

## Evaluation of role of laparoscopy in chronic abdominal pain

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#### ABSTRACT

**Background and Aim :** Chronic abdominal pain is a difficult complaint. It leads to evident suffering and disability, both physically and psychologically. Many diagnostic and therapeutic procedures have been described in literature, but with little proof or evidence of success. Patients with chronic abdominal pain can undergo numerous diagnostic tests with little change in their pain. Laparoscopy is one of the modalities that could be of benefit in such cases. **The aim** of this study was to assess the efficacy of performing diagnostic and therapeutic laparoscopy in patients with chronic abdominal pain for longer than 12 weeks. **Materials and Methods :** Thirty Five patients with chronic abdominal pain were included in this prospective descriptive cross-sectional study. The pain in all patients was of unclear etiology despite all the investigative procedures. All patients were subjected to laparoscopic evaluation for their conditions. The findings and outcomes of the laparoscopy were recorded and analyzed. **Results :** A total of 35 patients (26 women and 9 men) with an mean age of 34yrs underwent diagnostic laparoscopy for the evaluation and treatment of chronic abdominal pain. The average length of time with pain was 32.96 weeks (range 12-30). Findings included abdominal Koch's in 11 patients, appendicitis in 10 patients, cholecystitis in 1 patient, cirrhosis in 1; ovarian cyst in 2, adhesions in 2 patients, mesenteric lymphadenopathy in 2 and 6 patients had no obvious pathology. 81.8% of patients had pain relief at the time of follow up. **Conclusion :** Laparoscopy is an effective diagnostic and therapeutic modality in the management of patients with chronic abdominal pain.

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### 1. Introduction

Chronic abdominal pain is a common disorder both in general practice and in hospitals. These difficult patients are frequently seen by many different physician and are myriad of tests without identifying the etiology of pain. Chronic abdominal pain is a significant clinical problem that often leads to repeated laparotomies. After all, more than 40% of the patients presenting with chronic abdominal pain had no specific etiological diagnosis at the end of their diagnostic workup[1,2,3,4]. The most common

organic conditions include intestinal adhesions[5,6], biliary causes[7,8], and appendicular causes[9] while functional conditions include irritable bowel disease[10], functional dyspepsia[11] and various motility disorders[12]. After ruling out common diseases by careful investigations, many patients are still undiagnosed and represent a major diagnostic challenge to the surgeon[13]. The introduction of laparoscopic surgery and recently laparoscopy have been increasingly recognized as a procedure that offers precise visual assessment of intraabdominal condition for diagnosis and prompt intervention. In case of diagnostic uncertainty, laparoscopy may help to avoid unnecessary laparotomy, provide accurate diagnosis and helps to plan surgical treatment. The use of this new technology in the diagnosis and management of chronic abdominal pain has been tried in previous

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studies[14,15,16]. Laparoscopy can identify abnormal findings and improve the outcome in a majority of patients with chronic abdominal pain, as it allows surgeons to see and treat many abdominal conditions that cannot be diagnosed otherwise.[4,15]. Hence diagnostic laparoscopy should be considered for patients suffering from chronic abdominal pain, as it is minimally invasive, safe, efficacious and effective diagnostic modality and can be performed rapidly, safely with minimal sequel. The aim of the study to determine the diagnostic and therapeutic role of laparoscopy in chronic abdominal pain.

## 2. Materials and Methods

Between nov 2011 and oct 2012, a total number of 35 consecutive patients with chronic abdominal pain were enrolled in this prospective descriptive cross-sectional study. After approval of our Ethics Committee, all the patients underwent laparoscopic surgery for evaluation and management of their chronic abdominal pain. We defined chronic abdominal pain as a continuous or intermittent abdominal pain with daily intake of analgesics, and a duration of at least three months. Detailed history was recorded from patients and thorough clinical examination was performed. The findings were recorded in the proforma. The recorded data included demographics, length of time; it had been presented, location of pain, patient's abdominal examination and diagnostic studies performed. Intraoperative findings and operative interventions undertaken were also identified. HB%, TLC, DLC, ESR, Urine microscopy was the basic investigations done for all patients. Stool for ova, cyst and occult blood were done when indicated. Commonly performed imaging studies included plain abdominal radiographs, ultrasounds studies. Barium studies, upper gastrointestinal and lower gastrointestinal endoscopy were done when indicated.

**Inclusion criteria:** Patients with history of abdominal pain for 3months or more, if physical examination and diagnostic tests are unrevealing. Patients with previous history of abdominal operation are included.

**Exclusion criteria:** Age under 18 years, Oncological patients, Pregnant women.

Patients with coagulation defects, Patients with critical illness and medically unfit for surgery.

### Operative technique

All surgeries were done under general anesthesia, all patients were catheterised and ryle's tube were put. After pneumoperitoneum with veress needle at the rate of 5-6 L/min so that end point of intraabdominal pressure should not exceed 20-25 mmHg, 10mm umbilical trocar and two 5mm lateral trocars were put. The laparoscopy was started by a diagnostic inspection of liver, gallbladder, and anterior surface of stomach, large bowel, small bowel, appendix, gynecological organs and peritoneal surfaces. After laparoscopy, 5mm trocars were removed under visual control,

the air was released from intra-abdominal space and 10mm trocar was removed. All 5mm wounds were closed in one layer with absorbable sutures and 10mm umbilical wound with non-absorbable suture.

### Postoperative evaluation

After the laparoscopy, postoperative hospital stay was recorded. All the patients were re-evaluated after two months, six months, and one year. Less pain and disappearance of pain were referred to as positive outcomes, while unchanged and worse pains were referred to as negative outcomes.

### Statistical analysis

Data base were analysed. All results were expressed in the form of numbers and percentage. A Student t test was used to test the significance of difference for quantitative variables, while Chi Square and Fisher's exact tests were used to test the significance of difference for qualitative variables. A probability value (P-value) < 0.05 was considered statistically significant.

### Results

The studied patients were in the age group ranging from 19 - 60 years, with a mean age of 34 years. Most of the patients studied were females (74%). The mean duration of pain was 32 weeks with the range of duration from 12 to 30 weeks. Most of the patients presented with lower abdominal pain (52%), diffuse abdominal pain (40%) and eight percent with upper abdominal pain.

**Table: 1. Findings at laparoscopy and treatment adopted**

Operative findings	Treatment	No. of cases	Percentage
Tuberculosis	Antitubercular Treatment	11	31.4%
Appendicitis	Appendicectomy	10	28.5%
Ovarian cyst	Aspiration	2	5.7%
Cholecystitis	Cholecystectomy	1	2.8%
Cirrhosis	Symptomatic	1	2.8%
Mesenteric lymphadenopathy	Conservative management	2	5.7%
Adhesions	Adhesiolysis	2	5.7%
Normal study	Observation	6	17.1%

From the above table it is evident that most common findings were abdominal tuberculosis (31.4%) which was found in 11 cases. All patients proven with omental biopsy, then treated with CAT 1 anti-tubercular drugs.

The second common cause was appendicitis which was found in 10(28.5%) cases. At laparoscopy no abdominal and pelvic abnormality was noted except that appendix appeared abnormal. These abnormalities some were thickened and adherent to adjacent structure. Some curved and felt rigid. HPE s/o chronic appendicitis. Table 1 summarises the laparoscopic diagnoses assigned to all patients.

In 29 patients with chronic abdominal pain pathological findings on laparoscopy were present, giving a diagnostic accuracy of 82%.

#### Follow up:

Patients were followed up at regular intervals of one month. Two patients were lost from follow up. Subjective assessment of pain was done by asking patients, what occurred to their pain, resolution or no change in pain.

#### Outcome:

**Table: 2. Effect of laparoscopic intervention on chronic abdominal pain**

Outcome	No. of cases	Percentage
Resolution of pain	27	81.81%
No change in pain	6	18.18%
Total	33	100%

Out of 33 cases who came for regular follow up, 27 patient had resolution of pain (81.8%), 6 patients (18.1%) had no change in pain. Two patients lost follow up.

**Table: 3 . Effect of appendectomy on chronic abdominal pain**

Outcome of pain	No. of cases	Percentage (%)
Resolution of pain	8	80%
No change in pain	2	20%
Total	10	100%

#### Discussion

Diagnostic laparoscopy makes it possible for the surgeon to visualize surface anatomy of intra-abdominal organs with greater details better than any other imaging modality. Laparoscopy may be useful to establish a histological diagnosis of intra abdominal tuberculosis . Deep parenchymal organs, process of the retroperitoneal space, and the inner surface of the hollow organs cannot always be noticed using laparoscopy. Another limitation of laparoscopy is that it does not allow the surgeon to palpate organs. Before laparoscopy is performed in chronic abdominal pain, pre operative imaging studies have to be undertaken. As in our material, most of the patients have been studied by endoscopies and ultrasound before laparoscopy. The subjective benefit of laparoscopy for both the operating surgeons and for the patients is the definitive answers that no serious pathology is found intra abdominally. Therefore the placebo effect of laparoscopy may explain at least partly the patient's pain relief.

In our study 29(82%) patient had pathological findings identified at the time of laparoscopy.

Karl miller et al [17] reported that laparoscopy provided diagnoses in 89.8% of patients. These results compare favorably with our series.

**Table:4. Comparison of diagnostic efficiency of laparoscopy in various studies**

Study	Diagnosis(%)	No. of cases
Raymond P.etal [18]	85.7	70
Karl miller etal [17]	89.8	59
Present study	82	35

In our study, most common findings were abdominal tuberculosis. In study by prafull k.arya and gaur [19], most common findings was intestinal and peritoneal tuberculosis. This correlates with our study.

Second common cause was appendicitis. Our study again correlates with prafull arya and gaur [19].

Krishnan P et al [20] , 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 acceptably low morbidity (8%).

Rai S and Thomas M [21] reported abdominal tuberculosis in 23(92%) patients of the 25 patients in whom laparoscopy was performed.

In our study, common finding in abdominal tuberculosis are peritoneal or visceral tubercles, varying from 2mm to 1cm. Ascites and small bowel adhesions also seen.

**Table: 5. Effectiveness of appendectomy in alleviating pain in patient with chronic abdominal pain.**

Study	Success rate (%)
Raymond P.etal [18]	95%
Karl miller etal [17]	74%
Present study	80%

In a study by Fayez et al [22] , records of chronic abdominal pain undergoing appendectomy were reviewed. 92% of patients had abnormal histological findings and the 95% of patients had resolution of pain.

Raymond et al [18] , reported improvement of pain in 74% of patients with chronic right lower abdominal pain. In our study 80% patient who underwent appendectomy for chronic abdominal pain had resolution of pain.

In our study 6(17%) patients did not have any pathological findings on laparoscopy. Four of these patients had resolution of pain after procedure which suggestive of placebo effect.

In our study 81% of patients had pain relief. Raymond et al [18] reported that more than 70% patients had long term pain relief. Pajnen et al [23] , reported that laparoscopy alleviates the symptoms in more than 70% of patients. This correlate well with our study.

## Conclusion

Laparoscopy has an effective diagnostic 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 laparoscopy is also accepted and appreciated. Abdominal tuberculosis is common disease in India. Laparoscopy has a great deal to offer in early diagnosis of abdominal tuberculosis. Treatment with anti tubercular drugs provided pain relief. Nevertheless, patient selection and appropriate operative technique are essential for rewarding outcome.

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