

## A HOSPITAL BASED PROSPECTIVE STUDY TO ASSESS THE EFFICACY OF DIAGNOSTIC LAPAROSCOPY IN IDENTIFYING THE ETIOLOGY OF UNDIAGNOSED CHRONIC ABDOMINAL PAIN IN TERTIARY CARE CENTER

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Received : 04/08/2023  
Received in revised form : 02/09/2023  
Accepted : 15/09/2023

**Keywords:**

Chronic Abdominal Pain, Diagnostic Laparoscopy, Appendicular Pathology, Pain Assessment.

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DOI: 10.47009/jamp.2023.5.5.257

Source of Support: Nil,  
Conflict of Interest: None declared

*Int J Acad Med Pharm*  
2023; 5 (5); 1302-1305



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### Abstract

**Background:** Chronic abdominal pain is a common complaint which is difficult to manage by both physician and surgeon. It is the 4th most frequent chronic pain syndrome in general population. Laparoscopy can identify abnormal findings and improve outcome in majority of the patients with chronic abdominal pain. This study is mainly designed to highlight the significance of laparoscopy in diagnosing the etiology of chronic abdominal pain and impact on the treatment and post-operative pain relief. **Materials and Methods:** A hospital based prospective study conducted in 40 patients presented with abdominal pain more than 3 months whose diagnosis was doubtful or could not be made by our routing physical, laboratory and imaging modalities. Subsequently the intra operative findings, therapeutic/diagnostic intervention done, correlation of the intra operative findings with the histopathology report, complication during intra and post-operative period and the relief from the pain were recorded and analyzed. After undergoing thorough preoperative evaluation, their intensity of the pain was assessed by using the Verbal Rating Scale (VRS). **Results:** Appendicular pathology is the leading cause for chronic abdominal pain of unrevealed etiology and it is about 35%, followed by adhesion is about 25%. Positive outcome is 80% in the follow up of 1 month and 90% of the patients got complete pain relief in the follow up of 3 months. **Conclusion:** We concluded that Diagnostic laparoscopy is a safe and effective tool to establish the etiology of chronic abdominal pain and allows for appropriate interventions.

## INTRODUCTION

Chronic abdominal pain is a common complaint which is difficult to manage for both physician and surgeon. It is the 4th most frequent chronic pain syndrome in the general population.<sup>[1]</sup> This condition affects the patient both physically and psychologically. Although this patient has undergone numerous diagnostics works up definite diagnosis remains challenge to the surgeon.

History taking, physical examinations, laboratory tests and advanced noninvasive imaging modalities may help, but are insufficient for complete diagnosis. Exploratory laparotomy is done in cases where no definite diagnosis can be concluded though every modality has been tried. Laparoscopy is a minimally invasive surgical procedure by which the peritoneal

cavity and intraabdominal organs can be visualized to enable to detect pathology. It has both diagnostic and therapeutic potential and is mainly useful in patients who are hemodynamically stable and who do not need urgent surgical intervention.<sup>[2]</sup> It is helpful so as to enable us to make out the etiology and allows for appropriate intervention. Patients with chronic abdominal pain may have already undergone many diagnostic procedures and a conclusion cannot be reached in > 40% patients even after evaluation with imaging studies, and only then a surgeon is consulted and so many a times a chance of a non-therapeutic abdominal exploration is very high. So a diagnostic laparoscopy is an intermediate modality which helps in deciding whether to open and perform laparotomy for a patient.<sup>[2]</sup>

With the introduction of diagnostic laparoscopy new tools have been added to our knowledge.

Laparoscopy can identify abnormal findings and improve outcomes in the majority of patients with chronic abdominal pain. This study is mainly designed to highlight the significance of laparoscopy in diagnosing the etiology of chronic abdominal pain and impact on the treatment and post-operative pain relief.

## MATERIALS AND METHODS

A hospital based prospective study conducted in 40 patients presented with abdominal pain more than 3 months whose diagnosis was doubtful or could not be made by our routine physical, laboratory and imaging modalities. They were recruited from the outpatient clinic of General Surgery Department in Government Medical College & Hospitals, Sikar, Rajasthan, India during one-year period.

### Inclusion Criteria

- Age between 15 and 55 years
- Both males and females
- Abdominal pain more than 3 months

### Exclusion Criteria

- Known abdominal malignancy patient
- Known psychiatric patient

### Methods

The record data included particulars of the patient, duration of the illness, and site of abdominal pain, other associated symptoms such as vomiting, fever or white discharge per vagina, past history of surgical explorations, co morbid conditions, investigations. Subsequently the intra operative findings, therapeutic/diagnostic intervention done, correlation of the intra operative findings with the histopathology report, complication during intra and post-operative period and the relief from the pain were recorded and analyzed.

After undergoing thorough preoperative evaluation, their intensity of the pain was assessed by using the Verbal Rating Scale (VRS): the patient is asked to rate their pain on a five-point scale as "none, mild, moderate, severe or very severe". These patients were posted for diagnostic laparoscopy.

### Technique

All surgeries were carried out under general anaesthesia. All patients had a Ryle's tube inserted and bladder catheterized prior to anaesthesia. Pneumoperitoneum was created using Hasson's technique. A 10 mm umbilical camera port was inserted and two lateral 5mm ports depending on the organ of interest and the suspected pathology.

The sites of port insertion varied depending on the presence or absence of previous abdominal surgery scars. Diagnostic laparoscopy of the abdomen was carried out carefully inspecting the entire visceral contents of the abdomen for any pathology.

Starting from the liver, the gall bladder, anterior surface of the stomach, large intestine, entire length of small intestine with particular emphasis on appendix and terminal ileum, anterior surfaces of the retroperitoneal organs, uterus, fallopian tubes and

ovaries and peritoneal surface. Adhesions between the bowel loops or to the anterior abdominal wall was also looked for.

The surgical procedure carried out were depending on the intra operative findings and as per indications which ranged from biopsy from suspicious lesions to adhesiolysis to appendectomy. All the ports were closed using absorbable suture materials at the end of the procedure.

## RESULTS

Our study of 40 patients with chronic pain abdomen showed a peak incidence of chronic pain abdomen in the third decade. The youngest patient in our study was 16 years and the oldest patient being 68 years. Female preponderance to chronic pain abdomen (55%) in our study. Most of the patients having pain duration around 6 months, not more than 1.8 years in our study. Most of the patients present with the right lower quadrant pain about 60%, particularly in the right iliac fossa. Around 10 (25%) of patients in our study had undergone a previous surgery compared to 30 (75%) of them without any history of abdominal surgeries (table 1).

In our study of 40 patients, the most common finding was appendicitis, in 35% of patients. The appendices felt firm to palpate per operatively. Appendectomy was done in such patients. Subsequent histopathological examination confirmed our diagnosis in most of these cases.

The next most common finding at laparoscopy in our study was adhesion (25%). most of the patients in this group were females and had a past history of abdominal surgery, tubectomy, previous LSCS in most cases. adhesiolysis was done in all the patients. HPE turned out to be chronic inflammation in the appendix and hence included in this group for statistical analysis.

Three patients were diagnosed with carcinoma per operatively. One of them being Carcinoma caecum and the other had peritoneal deposits whose biopsy turned out to be Adeno Carcinoma. Mesenteric lymph node biopsy was done in patient. Diagnosis of tubercular strictures was made in 2 patients. This patient underwent resection and anastomosis of the long segment stricture and stricturoplasty for another short segment stricture by open method. Post operatively, he was started on anti-tubercular drugs and the patient followed up. Histopathological examination confirmed tuberculosis (table 2).

Most of the patients had moderate pain which accounts for 70% (n=28) (table 3). In most of our cases there was no post-operative complications except in two patients who developed surgical site infection which was managed conservatively by appropriate antibiotic cover and alternate day wound dressing. No mortality was encountered in our study group. Post-operative hospital stay ranged from 4 to 11 days with a mean duration of stay of 6.7 days. The average length of the operative time was 68.23

minutes and two patients required conversion to an open procedure. Both the cases were converted due to technical difficulties (table 4).

During the follow up period, all patients were re-evaluated for pain. The patients were reviewed at one month and three months post operatively. Subjective assessment of pain was done during the follow up and positive outcome (less pain or disappearance of pain) was noted, and negative outcome (persistence of pain

or worsening pain) was also noted. Verbal Rating Scale for pain perception was analyzed.

At the end of 1st month 80% of patients got complete pain relief and at 3rd month 90% got complete pain relief. In the remaining 10% patients there were no changes in pain grading, it may be because of the disease nature. And the patient whose laparoscopic findings were normal also feel symptom free in the follow up. It may be due to placebo effect (table 5).

**Table 1: Demographic profile & clinical characteristics of patients**

Demographic Profile& Clinical Characteristics	No. Of Cases (N=40)	Percentage
Age (Yrs)		
15-30 Yrs	14	35%
31-40 Yrs	10	25%
41-50 Yrs	6	15%
>50 Yrs	10	25%
Sex		
Male	18	45%
Female	22	55%
History Of Previous Abdominal Surgeries		
Yes	10	25%
No	30	75%
Duration Of Pain (Months)		
Mean±Sd	5.9±1.3	
Location Of Pain		
Right Upper Quadrant	4	10%
Right Lower Quadrant	24	60%
Left Upper Quadrant	2	5%
Left Lower Quadrant	6	15%
Perumblical	4	10%

**Table 2: Findings of Laparoscopy and intervention done**

Diagnosis	Procedure	No. of cases (Percentage)
Post-operative adhesion	Adhesiolysis	10 (25%)
Appendicitis	Appendectomy	14 (35%)
Carcinoma	Laprotomy/Biopsy	6(15%)
Pelvic etiology	Conservative	4 (10%)
Rif Mass	(Biopsy/ATT)	2 (5%)
Mesenteric cyst	Conservative	2 (5%)
Intussusception	Laparotomy	2 (5%)

**Table 3: Preoperative pain grading**

Grading	No. of cases	Percentage
Mild	2	5%
Moderate	28	70%
Severe	10	25%
Very severe	0	0%

**Table 4: Outcome**

Outcome	No. of cases	Percentage
Post op. complication (SSI)	4	10%
Duration of Hospital stay (Days)	6.7±2.3	
Duration of surgical procedure (Min.)	68.23±10.56	

**Table 5: Post-operative pain Relief**

Duration	Positive outcome	Negative outcome
After 1 month	32 (80%)	8 (20%)
After 3 months	36 (90%)	4 (10%)

## DISCUSSION

Chronic abdominal pain is a common problem dealt not only by the general surgeon but by all practicing physicians. Even after extensive noninvasive work up of such patients, the exact cause of pain abdomen is seldom known.

Our study of 40 patients with chronic pain abdomen showed a peak incidence of chronic pain abdomen in the third decade. Female preponderance to chronic pain abdomen (55%). Our study comparable with Klingensmith et al,<sup>[3]</sup> Thanaponsathron et al,<sup>[4]</sup> Raymond et al,<sup>[5]</sup> and Gouda M El- Labban and Emad N Hokkam,<sup>[6]</sup> found mean age was 39 years, 27.5

years, 42 years and 36 years respectively with female preponderance.

In our study, the duration of pain ranged between 3 months to 3 years, which was comparable with Raymond et al,<sup>[5]</sup> and Gouda M El- Labban and Emad N Hokkam,<sup>[6]</sup> found duration of pain 3month to 5 years and pain duration 3 month to 15 months respectively.

Diagnostic laparoscopy revealed normal anatomy and no pathological lesion was found in 10% of the patients. The laparoscopic study of Marana and his co-worker,<sup>[7]</sup> and Gowri and Krolikowski,<sup>[8]</sup> who detected that laparoscopy failed to detect any abnormalities in 20% of the patients but in this study, it is 10%.

The common site for chronic abdominal pain is the right lower quadrant (60%) followed by left lower quadrant (15%). Common intra operative findings were abnormal appendix (35%) followed by adhesions (25%) which require appendectomy and adhesiolysis. Di Lorenzo and colleagues,<sup>[9]</sup> reported frequency of abdominal adhesions in chronic abdominal pain were 18.6% in their study but it is 25% in this study. It was found that location of pain in the site of adhesions in 90% of cases, although there was no correlation between extent of adhesion and severity of pain.<sup>[10]</sup> The pain in the adhesion is due to restrict mobility and distension of the organ particularly bowel.<sup>[11]</sup>

7 % of patients required conversion into open techniques this is because of the extensive bowel adhesions.

Positive outcome is 80% in the follow up of 1 month and 90% of the patients got complete pain relief in the follow up of 3 months. This figure coincides with Gouda and Emad's,<sup>[12]</sup> study which reports, "the diagnostic laparoscopy yields 80% positive outcome in evaluation of chronic abdominal pain in the follow up of 2 months.

## CONCLUSION

Diagnostic laparoscopy has a definitive role in the management of patients with chronic pain abdomen

and should be an important investigative tool in the armamentarium of all practicing surgeons. Laparoscopy is safe, quick and effective modality of investigation for chronic abdominal pain. Diagnostic laparoscopy can identify abnormal findings and improve the outcome in patients with chronic abdominal pain. However, it should be considered only after a complete diagnostic evaluation has been carried out.

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