

Original research article**The impact of elective diagnostic laparoscopy in diagnosing chronic abdominal pain****¹Dr. Roja Rani, ²Dr. Laxmikanth Gurrām, ³Dr. Sai Krishna Konatham**¹Post-Graduate Resident, Department of General Surgery, Mamata Medical College, Khammam, Telangana, India²Assistant Professor, Department of General Surgery, Mamata Medical College, Khammam, Telangana, India³Senior Resident, Department of General Surgery, Mamata Medical College, Khammam, Telangana, India**Corresponding Author:**Dr. Laxmikanth Gurrām (drkanth1987@gmail.com)**Abstract**

Background: Chronic idiopathic pain syndromes are the most challenging to thing to treat among all age groups. Even after these patients have had multiple diagnostic tests, their pain continues to be an obstacle to all established diagnostic and treatment approaches.

Aims and Objectives: We aim to evaluate the diagnostic and therapeutic efficacy of laparoscopy in the management of such patients in this prospective study.

Materials and methods: Thirty five patients with chronic pain abdomen were included in this study. The pain in all these patients for >3 months duration were included. Pain of shorter duration and patients less than 14 years of age were excluded from the study. All patients were subjected to diagnostic laparoscopy. The results were tabulated and analyzed.

Results: Females were more affected and the most common site of pain being the peri-umbilical region. A definitive diagnosis was made per-operatively in 29 patients (82.85%) while in the remaining 6 (17.14%), no obvious pathology was detected. The most common findings in our study was post-operative adhesions (51.42%), followed by recurrent appendicitis (14.28%), Carcinoma (5.71%), Mesenteric lymphadenopathy and Tuberculosis (2.85% each). Pain assessment done at 1 month follow up showed pain relief in 85.7% and 3 month follow up showed pain relief in 70% of patients.

Conclusion: Post-operative adhesions form a majority of cause for causing chronic pain abdomen. Diagnostic laparoscopy is a safe and effective modality for the diagnostic and therapeutic management of such patients.

Keywords: Diagnostic laparoscopy, chronic pain abdomen, post-operative adhesions, diagnostic efficacy

Introduction

Patients with chronic abdominal pain are amongst the most difficult to manage. Potentially it can be unrewarding for both the patient and the treating physician. Chronic abdominal pain is a difficult complaint ^[1]. It leads to evident suffering and disability, both physically and psychologically. Chronic abdominal pain is associated with poor quality of life ^[2]. Studies conducted with large community samples or hospital populations imply chronic abdominal pain is a pervasive problem.

Most patients in this group would have already undergone many diagnostic procedures. More than 40% of the patients presenting with chronic abdominal pain have no specific etiological diagnosis at the end of their diagnostic workup ^[3-6]. Pathological examinations often involve endoscopies of the upper and lower gastrointestinal tract, CT scans and screening for cancers that have not yet been identified. When the patient's condition warrants reasonable non-invasive testing, which is likely to occur without the extensive testing practiced today, the surgeon is often consulted. The risk of a non-therapeutic abdominal examination is high, which is why a clear diagnostic laparoscopic examination is an important alternative to refuse to explore a patient's abdomen and perform a laparoscopic operation ^[7].

Laparoscopy is performed under direct vision using simple equipment, without the need for a video camera or other laparoscopic equipment. Thanks to advances in optics, it is possible to have a perfect visual view of your peritoneal cavity, and it is possible to make a histological diagnosis of the target biopsy under visual examination.

Although it is a surgical procedure as well as an exploratory one, it is often just as informative and, for the trained surgeon, it provides a much better view of the whole peritoneal cavity.

Achieving high rates of positive diagnosis from a laparoscopy procedure requires much more than just good technique. It requires a thorough background in surgery, sound clinical knowledge, as well as knowledge and understanding of abdominal pathology ^[8].

In many cases it prevents unnecessary/negative laparotomy. The rapid recovery and return to normal activity that follow diagnostic laparoscopic surgery provide an extra incentive for the surgeon to adopt more laparoscopic techniques. The aim was to study the efficacy of diagnostic laparoscopy in identifying the etiology of undiagnosed chronic abdominal pain.

Materials and Methods

The Prospective study was carried out in the Department of General Surgery, Mamata General hospital, khammam, Telangana from August 2021 to August 2023 with an total of 35 patients admitted to surgical ward. Study was approved by the institutional ethics committee and written informed consent was obtained from all patients participating in the study.

Study population: Patients came with complaint of pain abdomen during the study period and subjected for investigations and who were positive included in the study.

Inclusion criteria

- All cases of undiagnosed (by conventional methods and investigations such as detailed history, clinical examination, blood counts, urine examination, USG abdomen, Plain x ray abdomen) chronic abdominal pain >3months duration of both sex.
- All cases of undiagnosed chronic abdominal pain in patients >14years of age.
- Cases of clinically diagnosed chronic abdominal pain of >3 months duration not responding to the treatment given.

Exclusion criteria

- All cases of undiagnosed chronic abdominal pain <3months duration of both sex.
- All cases of undiagnosed chronic abdominal pain in patients <14 years of age.

Method of collection of data

A detailed history was taken from each of the patient as per the proforma designed before the commencement of the study. The clinical examination findings were also recorded in the proforma. The results were then tabulated.

The recorded data included particulars of the patient, duration of illness, site of abdominal pain, other associated symptoms and Subsequently the intra operative findings, therapeutic/diagnostic intervention done, correlation of the intra operative findings with the histopathology report, complications during the intra and post-operative period and the relief from the pain were recorded and analysed.

As a part of the work up of a patient the necessary blood investigations done and imaging like usg abdomen and x-ray erect abdomen done.

Written informed consent was taken prior to all the procedures. All surgeries were carried out under general anaesthesia. The sites of port insertion varied depending on the presence or absence of previous abdominal surgery scars. The surgical procedures 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.

Statistical analysis was done by using unpaired T test and p value <0.05 was considered significant.

Results

Table 1: Age distribution of patients presenting with chronic pain abdomen

Age (in Years)	No. of Patients	Percentage (%)
15-30	16	45.71
31-40	7	20
41-50	9	25.71
51-60	2	5.71
61-70	1	2.85
Total	35	100

Our study of 35 patients with chronic pain abdomen showed a peak incidence of chronic pain abdomen in the third decade. The youngest patient in our study was 15 years and the oldest patient being 69years. The mean age of presentation was 35 years.

Table 2: Sex Distribution of Patients Presenting with Chronic Pain Abdomen

Sex	No. of cases	Percentage (%)
Male	12	34.28
Female	23	65.71

Table 2 shows out of 35 patients showed a female preponderance to chronic pain abdomen (66%).

Table 3: Duration of pain before laparoscopy

Duration of pain (months)	No. of patients	Percentage (%)
3-12	12	34.28
12-18	3	8.57
18-36	18	51.42
>36	2	5.71

51% of the patients in our study gave a history of pain abdomen of duration between 18 to 36 months.

Table 4: Location of Pain

Region of pain	No. of Patients	Percentage (%)
Upper abdomen	6	17.14
Peri umbilical	13	37.14
Lower abdomen	4	11.42
Diffuse abdomen	12	34.28

Table no 4:- The majority of the patients in our study of 35 patients presented with peri-umbilical region pain. It was followed closely by diffuse pain abdomen.

Table 5: History of Previous Abdominal Surgeries

History of surgery	No. of cases	Percentage (%)
Present	22	62.85
Absent	13	37.14

Table No 5: Around 22(63%) of patients in our study had undergone a previous surgery compared to 13 (37%) of them without any history of abdominal surgeries. Most of the patients had a previous history of tubectomy and subsequent adhesions.

Table 6: Findings at laparoscopy and intervention done

Diagnosis	Procedure	No. of Patients	Percentage (%)
Post-operative adhesions	Adhesiolysis	18	51.42
Normal Study	No intervention	6	17.14
Recurrent Appendicitis	Appendectomy	5	14.28
Chronic Cholecystitis	Cholecystectomy	2	5.71
Carcinoma	Biopsy	2	5.71
Mesenteric Lymphadenopathy	Biopsy	1	2.85
Tuberculosis (Strictures)	Resection Anastomosis with Cat I ATT	1	2.85

Table No. 6: In our study of 35 patients, the most common finding was post-operative adhesions, in 51.42% of patients. Most of the patients in this group were females and had a past history of abdominal surgery, tubectomy in most cases. Adhesiolysis was done in all these patients.

The next most common finding at laparoscopy in our study was a normal study (17.14%). These patients were just observed and followed up. Recurrent appendicitis is seen in 5 patients (14.28%). Adhesiolysis and appendectomy was done. HPE turned out to be chronic inflammation in the appendix and hence included in this group for statistical analysis.

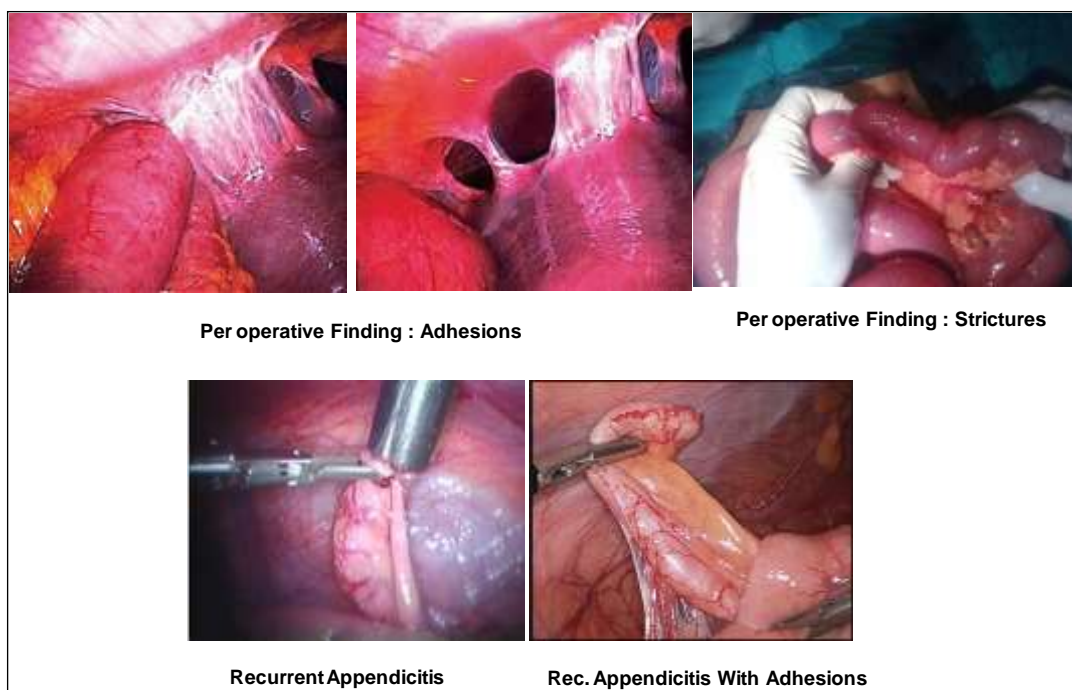


Table 7: Post-Operative Pain Relief

Duration (in months)	Positive Outcome (%)	Negative Outcome (%)
At 1	85.71	14.29
At 3	70	30

The above mentioned table describes about the post-operative pain relief in our study, which shows positive outcome of 85.71,70 % at 1 and 3 months respectively.

Discussion

Chronic abdominal pain isn't just a problem that the general surgeon deals with, it's a problem that all practicing physicians deal with. Even after a thorough non-invasive examination of these patients, the cause of abdominal pain is rarely identified. The aim of our study is to study the efficacy of diagnostic laparoscopy as an investigative and therapeutic modality in the diagnosis and management of patients with chronic pain abdomen. Diagnostic laparoscopy makes it possible for the surgeon to directly visualize the contents of the abdominal cavity better than any other investigative modality. The study showed that in this challenging patient population, laparoscopic examination can safely detect issues and improve outcomes in most cases.

In this prospective study 35 patients were considered who were admitted in the surgical wards of mamata general Hospital, attached to Mamata Medical College and between august 2021 to august 2023. All patients had pain abdomen lasting for more than a period of three months. There were 12 males and 23 female patients in the study. The age group of patients in this study ranged from 15 to 69 years with the average age being 35 years. Male: Female ratio was 1: 1.9. In a study involving 34 patients by Klingensmith *et al.*,^[15] the majority were women (85%). The average age in their study was 39 years (Range 21-75 years).

In a study by Raymond *et al.*,^[18] for utility of laparoscopy in chronic abdominal pain involving 70 patients, the average age was 42 years. All the above studies show that the female sex was more commonly afflicted by chronic pain abdomen and the average age at presentation in our study is comparable with the aforementioned studies. In our study, the duration of pain ranged between 3 months to 3 years. In a study by Raymond *et al.*,^[18] of 70 patients, the duration of pain ranged from 3 months to 5 years. In our study of 35 patients, 22 patients had previous history of abdominal surgery. In a study by Klingensmith *et al.*,^[15] involving 34 patients, most of the patients had previous history of abdominal surgery.

In our study comprising 35 patients, laparoscopy identified pathology in 29 patients (82.85%). No abnormality was found in the remaining 6 patients (17.14%) who were just observed without any intervention. Post-operative adhesions: 51.42% of the patients in our series were found to have intestinal adhesions secondary to a prior abdominal surgery, mostly tubectomy (in 8 patients). Some patients had a past history of appendectomy (in 7), cholecystectomy (in 2), hysterectomy (in 4) and one patient had a prior history of laparotomy for hollow viscous perforation. Adhesiolysis was done as a therapeutic procedure. In a study by Klingensmith *et al.*,^[15] involving 34 patients, 56% of them underwent adhesiolysis. 17.14% of patients in our study did not have any pathology detected per operatively. In a

study by Klingensmith *et al.*,^[15] involving 34 patients, 26% of patients needed no operative intervention other than laparoscopic exploration. Recurrent Appendicitis: 5 (14.28%) of patients in our study were diagnosed to have recurrent appendicitis. Histopathological examination confirmed the diagnosis in 4 of them. One of the specimens was reported normal. This is still justifiable because it makes the diagnosis of appendicitis less likely if the patient complains of similar pain in the future. In a study by Onders RP and Mittendorf EA^[18] involving 70 patients, appendiceal pathology was detected in 7.14% of cases. The efficacy of diagnostic laparoscopy achieved in the present study compares well with other previous studies.

To conclude, Laparoscopy has an effective diagnostic accuracy and therapeutic efficacy in the management of patients who present to us with chronic abdominal pain, especially in whom conventional methods of investigations have failed to elicit a cause for the pain. Laparoscopy is safe, quick and effective modality of investigation for chronic abdominal pain. Diagnostic laparoscopy has a high diagnostic and therapeutic efficacy.

Ability to pin point a cause for the abdominal pain or exclude a more major cause for pain not only avoids further investigations but also plays a significant role in alleviating the fears in the minds of the patients. Laparoscopy not only indicates a diagnosis, it also has the benefit that in the majority of cases, therapeutic intervention can be performed at the same time, thus eliminating the need for additional hospitalizations or additional abdominal ultrasounds.

Laparoscopy prevents unnecessary laparotomy in a significant number of cases. 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.

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