

**Diagnostic Laparoscopy as a tool for diagnosing cases of Chronic Abdominal Pain in Government Medical College, Rajamahendravaram**Kambhampati Ravi<sup>1</sup>, Gangadharabhatla Padmini<sup>2</sup>, Kota Pragathi<sup>3</sup>, Shaik Fathimunnisa<sup>4</sup><sup>1</sup>Associate Professor, Department of General surgery, Govt Medical College, Rajamahendravaram<sup>2</sup>Assistant Professor, Department of General surgery, Govt Medical College, Rajamahendravaram<sup>3</sup>Assistant Professor, Department of General surgery, Govt Medical College, Rajamahendravaram<sup>4</sup>Assistant Professor, Department of General surgery, GMC, Rajamahendravaram

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**Abstract:**

**Background:** Chronic abdominal pain is a common presenting complaint in the general practice of both physicians and surgeons. The most common cause include intestinal adhesions, biliary causes, and appendicular causes, while functional conditions include irritable bowel disease, functional dyspepsia, and various motility disorders and some extra-abdominal conditions. Laparoscopy is a low risk, minimally invasive procedure and Diagnostic laparoscopy is a key in solving the diagnostic dilemma of chronic pain abdomen. It allows the visual examination of the intra-abdominal organs to detect pathology.

**Aim of study:** To assess the role of diagnostic laparoscopy, a minimally invasive surgical technique in the evaluation and treatment of chronic abdominal pain in adults.

**Methodology:** A prospective observational study done for 8months duration, 25 patients with chronic abdominal pain as per Rome III classification, who underwent diagnostic laparoscopy and further treatment in the Department of General Surgery, GMC, Rajamahendravaram, were considered for this study.

**Results:** Most of patients presenting with CAP are females with 18 out of 25, most common site of pain is right lower quadrant followed by entire lower abdomen. All patients were subjected to diagnostic laparoscopy and 23 out of 25 had final diagnosis. Most common cause of CAP was Adhesions followed by Appendicitis. 18patients had undergone therapeutic procedure in the same sitting apart from 5 patients who obtained samples for histopathological examination that aids in further medical management. No major Intra / Post operative complications were recorded with only 3 patients had minor wound infections.

**Conclusion:** This study has established that Diagnostic Laparoscopy is an effective tool for the diagnosis and treatment of patients with chronic abdominal pain.

**Keywords:** Chronic Abdominal pain, Diagnostic Laparoscopy, Adhesions, Infections, Appendicitis, Complications.

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**Introduction**

Chronic Abdominal pain (CAP) is defined as recurrent abdominal pain for at least 3 days/month in the last 3 months. [1] This must include all of the following: Continuous or nearly continuous abdominal pain; May or may not be related to physiological events such as eating, defecation, menstruation etc; some loss of daily function; the pain is not feigned (malingering); Symptoms not relevant to any functional gastrointestinal disorder that would explain the pain.

Chronic abdominal pain is a common presenting complaint in the general practice of both physicians and surgeons. Patients with chronic abdominal pain present a difficult diagnostic dilemma. By the time of presentation, Patients usually have undergone

numerous diagnostic workups, including surgery with and their pain remains a challenge. More than 40% of the patients presenting with chronic abdominal pain remain undiagnosed at the end of their diagnostic workup. [2,3] It is a leading reason for referral to a gastroenterologist and the 4th frequent condition in the general population - it represents about 13% of all surgical admissions internationally. [4]

Chronic pain abdomen is associated with poor quality of life and significant levels of depressive symptoms [5] with the reasons being many organic and functional disorders. The most common cause include intestinal adhesions [6,7], biliary causes [8], and appendicular causes[9], while functional

conditions include irritable bowel disease<sup>10</sup>, functional dyspepsia, [11] and various motility disorders. Some extra-abdominal conditions present with abdominal pain are Corticosteroid insufficiency, Diabetic Ketoacidosis, Porphyria, Hypercalcemia (metabolic causes), Costochondritis (thoracic causes) and Heavy Metal, Methanol poisoning [12] (toxic causes). Abdominal wall pain can also be frequently mistaken for visceral pain. After ruling out common diseases by careful examination and investigations, many patients are still undiagnosed and represent a major diagnostic challenge to the clinician. Laparoscopy is a low risk, minimally invasive procedure and Diagnostic laparoscopy is a key in solving the diagnostic dilemma of chronic pain abdomen. It allows the visual examination of the intra-abdominal organs to detect pathology.

The use of this technology in the diagnosis and management of chronic abdominal pain have been studied in previous studies. [13,14] Laparoscopy can identify definite abnormality and improve the outcome in a majority of patients with chronic abdominal pain, as it allows surgeons to visualise and treat many abdominal conditions that cannot be diagnosed otherwise. It is a safe and effective modality [3] and can establish the etiology and allows for appropriate interventions in such cases.

Laparoscopy has a distinct diagnostic advantage over ultrasound or CT scan as it can detect lesions <5 mm in size, which cannot be picked up by these investigations. Laparoscopic guided biopsy provides a larger and accurate specimen for histopathological diagnosis than radiologically-guided percutaneous biopsy which accounts for diagnosis in 85%-95% of patients. [15]

In case of diagnostic uncertainty, laparoscopy avoids unnecessary laparotomy, provide accurate diagnosis and help to plan further medical/surgical treatment. Unnecessary laparotomy is painful, increases hospital stay, increases economic burden to the patient and is associated with a morbidity of 5% to 22%.

**Aim of study:** To assess the role of diagnostic laparoscopy, a minimally invasive surgical technique in the evaluation and treatment of chronic abdominal pain in adults.

**Objectives:** To evaluate Laparoscopy as an effective diagnostic tool in patients with chronic abdominal pain to know the underlying causes. To

study the therapeutic value and complications, if any post operatively.

### Methodology:

A prospective observational study done for a period of 8 months in 50 patients with chronic abdominal pain as per Rome III classification (2), who underwent diagnostic laparoscopy and further treatment in the Department of General Surgery, GMC, Rajamahendravaram were considered for this study.

Positive outcome defined as free from symptoms / reduction in symptoms post-laparoscopy and negative outcome defined as persistence of symptoms post-diagnostic laparoscopy.

**Inclusion Criteria:** Patients who presents with history of abdominal pain since 3 months or more, if clinical examination and diagnostic tests are unrevealing. Patients with previous history of abdominal surgeries were also included.

**Exclusion criteria:** Age less than 18 years; patients with known malignancy, pregnancy, coagulation defects, and psychiatric illness were excluded.

**Methods:** Detailed history of each patient considered for study was documented before thorough clinical examination, conducted prior to the procedure as per the details of the proforma. The data includes age, sex, length of time of presentation, location of pain, patient's abdominal examination and diagnostic studies performed apart from intra-operative findings and operative interventions undertaken (if any).

Hb%, TLC, DLC, ESR, Urine microscopy were the basic investigations performed for all patients. Stool examination for ova, cyst and occult blood was performed where indicated. Commonly performed imaging studies, which include ultrasound studies, plain abdominal radiographs, CT Scans, done previously were considered for the purpose of the study.

After the procedure, postoperative hospital stay was recorded. All the patients were re-evaluated immediately after the procedure and after three months post-operatively. Amelioration of pain and absence of pain were referred to as positive outcomes, while unchanged and worse pain was referred to as negative outcomes, on the basis of Visual Analogue Scale.

### Results

**Table 1: Age distribution of patients**

Age in years	No.of patients	Percentage
18-30	8	32
31-40	7	28
41-50	6	24
51-60	4	16
Total	25	100

**Table 2: Gender distribution of patients**

Gender	No of Patients	Percent
Female	18	72
Male	7	28
Total	25	100.0

**Table 3: Duration of Pain (Months)**

Duration of Pain (inmonths)	No. of Patients	Percent
3	8	32
4	6	24
5	1	4
6	3	12
7	2	8
10	2	8
12	3	12
Total	25	100.0

**Table 4: Imaging investigations done**

Imaging investigation	No. of patients	percent
Ultrasound Abdomen	25	100
Erect X-ray Abdomen	8	32
CECT Abdomen	8	32

**Table 5: Site of Pain in the Abdomen**

Site of Pain	No. of Patients	Percent
Diffuse	2	8
Peri-Umbilical	2	8
<b>Right Lower only</b>	13	52
Left Lower only	2	8
Entire Lower Abdomen	6	24
Total	25	100.0

**Table 6: VAS Score before Diagnostic Laparoscopy**

Pre-Operative VAS Score	No. of Patients
3	1
4	10
5	8
6	6

**Table 7: Final diagnosis of patients**

Final diagnosis	No. of patients	Percent
Adhesions	9	36
Appendicitis	6	24
Abdominal tuberculosis	3	12
Right Ovarian cyst	1	4
Mesenteric lymphadenopathy	1	4
Right necrotic hydrosalpinx	1	4
Meckels diverticulum	1	4
Pelvic inflammatory disease	1	4
No abnormality	2	8
Total	25	100

**Table 8: Interventions done during laparoscopy**

Therapeutic Intervention	No. of patients	Percent
Adhesiolysis	9	36
Appendectomy	6	24
Right ovarian cystectomy	1	4
Right salpingectomy	1	4

Meckelian diverticulectomy	1	4
<b>Diagnostic intervention</b>	<b>No. of patients</b>	<b>percent</b>
Biopsy	4	16
Pelvic fluid aspiration	1	4
No intervention	2	8

**Table 9: Duration of Post-Operative Hospital Stay**

Post-operative stay (in days)	No. of patients
2	2
3	2
4	9
5	7
6	2
7	1
10	1
12	1
Total	25

**Table 10: VAS Score at 3 Months Post-Diagnostic Laparoscopy**

VAS Score 3 months Post Diagnostic Laparoscopy	No. of Patients
0	15
1	6
2	3
4	1
Total	25

## Discussion

**Age and Gender of Patients:** This study revealed that 18 (72%) of the 25 patients were females. Studies conducted by Paajanen H et al [3] and Rajeev Karvande et al [16] similarly showed that the female patients outnumbered the males, accounting for 83.3% and 58.7% of the study population respectively. The age of the patients was between 18 to 60 years. A study conducted by Chaphekar et al [17] on 30 patients with chronic abdominal pain also had a similar age profile.

**Duration of Pain:** In this study the duration of pain was between 3 to 12 Months. In the study by Raymond P et al [18] on 70 patients, the duration of pain ranged from 5 months to 7 years. In another study by El-labban GM, Hokkam EN [19] on 30 patients, the duration of pain ranged from 3 to 15 months, which is similar to that observed in this study.

**Site of Pain:** 13 patients (52%) presented with abdominal pain in the right lower quadrant, 6 patients (24%) had entire lower abdominal pain, followed by 2 patients (8%) with diffuse abdominal pain, 2 (8%) in peri-umbilical region and 2 (8%) in left lower quadrant. A similar study conducted on 63 patients by Rajeev Karvande et al [16] also showed that the most prominent site of pain was the right lower abdominal quadrant with 43 patients, that is, 68.2%. Studies by Kinnareash Ashwin Kumar Baria [20] showed that 50% of the patients complained of pain in the right lower quadrant. The result of this study confirms that

majority of the patients complained of pain in the right lower abdomen, similar to the other referenced studies.

**VAS Score before Procedure:** The pre-procedure score on the intensity of pain was between 3 and 6 on the Visual Analogue Scale. This was done to measure the outcome of the diagnostic laparoscopy findings.

**Final Diagnosis after Diagnostic Laparoscopy:** 9 cases (36%) were diagnosed with Intra-Abdominal Adhesions, 6 cases (24%) were diagnosed with Chronic Appendicitis, 3 (12%) patients had omental and peritoneal tubercles suggestive of kochs, 1 (4%) patients had right ovarian cyst, 1 (4%) patients had mesenteric lymphadenopathy, 1 (4%) patient had right necrotic hydrosalpinx, 1 (4%) patient had meckel's diverticulum and 1 (4%) patient had free fluid in pelvis with congestion of fallopian tubes and uterus.

This compares with the previous studies in India, conducted by Kinnareash Baria [20] and Rajeev Karvande et al [16], which have shown that the most common diagnosis was Chronic Appendicitis, constituting 40.7% and 56.1% of the study populations respectively. In other study, Salky [13] was able to identify pathology in 69 of 70 patients with appendicitis being the main finding. Inguinal hernias and biliary pathologies were not reported in the present study.

**Therapeutic Intervention:** Following the diagnosis, 18 out of 25 patients underwent

therapeutic intervention. Laparoscopic management included Adhesiolysis (36%), Appendectomy (24%), ovarian cystectomy (4%), Right salpingectomy (4%) and Meckelian diverticulectomy (4%). 72% of the patients were managed laparoscopically. This finding compares with the findings from the studies of Klingensmith ME et al [21], who reported simultaneous therapeutic intervention in 73% of patients, and Kinnareh Baria, [20] who reported in 94%.

**Diagnostic intervention:** 7 out of 25 patients were undergone diagnostic interventions like Biopsy of tubercles or Omentum in 4 (16%) and of Mesenteric lymphnodes in 1 (4%) and pelvic fluid aspiration for analysis in 2 (8%).

Patients were treated accordingly post laparoscopically based on the histopathological report. Total 23 out of 25 patients were intervened laparoscopically for arriving at a diagnosis and treatment. 2 patients were found to have no intra-abdominal pathology on laparoscopy and were not intervened.

**Post laparoscopy complications:** There were no complications encountered during the procedure, and no major complications post operatively. Minor post laparoscopy complications like wound infections were noticed in 3 (12%) patients and were managed by change of antibiotics and regular dressings.

**Post-Operative Hospital Stay:** The duration of hospital stay post-diagnostic laparoscopy varied from 1 to 12 days. Study by El-labban GM et al [19] showed a similar duration of post-operative hospital stay which ranged from 2 to 9 days.

**VAS Score at 3 Months Post Diagnostic Laparoscopy:** The score for pain based on the Visual Analogue Scale administered to the patients who underwent a review 3 months after the diagnostic laparoscopy varied from 0 to 4.

This test was conducted to measure the outcome of the study. 96% of the patients reported either complete absence of pain or amelioration of pain signifying positive outcome with VAS score of 0 / 1 / 2. In 2 (4%) patients, in who no definitive diagnosis was established post diagnostic laparoscopy, pain still persists with VAS score of 4. In 1 (2%) patient, placebo effect was shown with VAS score of 2, post procedure; even the diagnosis is inconclusive on Diagnostic Laparoscopy.

Salky and Edye [13] were able to establish the etiology in 201 (76%) out of 387 patients undergone diagnostic laparoscopy. Therapeutic procedure was done in 128 (48%) patients.

In this study, diagnosis was established in 92% of cases while the rate of definitive therapeutic procedure was 72%. Patients diagnosed to have Ab-

dominal Tuberculosis confirmed by HPE were treated by Anti Tubercular Therapy and responded well. The rates of complications reported in the literature are as low as <1%, similarly no major complication was reported in this study.

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