



## Role of Diagnostic Laparoscopy in non Specific Abdominal Pain

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### Abstract

**Background:** *Diagnostic Laparoscopy provides us with good view of whole peritoneal cavity there by clinching diagnosis. In General population Appendicular pathology is the leading etiology of non specific abdominal pain, it is about 33%, followed by adhesion 23%, positive outcome in 1 month follow up period is 80%, in 3 months follow up period 90% patients got complete relief.*

**Patients and Methods:** *Clinical material for this study was obtained from 50 patients with abdominal pain for three months or more where other clinical symptoms and investigations are not conclusive, attending the Out Patient Department and admitted to Rajah Muthiah Medical College and Hospital, willing for diagnostic laparoscopy. The overall efficacy and outcome of this work includes finding the etiology of Non specific abdominal pain, thereby making a definite diagnosis and to assess the response to treatment in relieving pain after three months.*

**Results:** *Appendicular pathology is the leading etiology of Non specific abdominal pain. Diagnostic laparoscopy help us to initiate appropriate treatment in this difficult patient group and positive outcome of pain relief (relief/reduction of pain after diagnostic laparoscopy) was observed in 90% of patients.*

**Conclusion:** *Diagnostic laparoscopy is a safe, relatively cost-effective and efficient method for finding out the etiology of chronic abdominal pain and to provide specific interventions.*

**Keywords:** *Chronic abdominal pain, Adhesions, Biopsy, Hernia, Diagnostic laparoscopy, Pain relief.*

### Introduction

In general, Chronic abdominal pain is the common clinical scenario which poses a diagnostic difficulty to both physician and surgeon. Almost 40% of patients, Despite of undergoing large number of investigations, diagnosis remains obscure.<sup>1-4</sup> Chronic abdominal pain affects the physical well being of the patients and leading to significant mental depression.<sup>5,6</sup> The leading structural causes include intestinal adhesions<sup>7,8</sup> in cases with past h/o abdominal surgeries,<sup>9</sup>

appendicular causes, mesenteric lymphadenopathy (apart from tuberculosis, it also occurs in gastroenteritis, enteric fever or infective colitis), biliary causes, abdominal tuberculosis and hernia; while functional causes include functional dyspepsia, various motility dysfunction and irritable bowel disease. Abdominal wall pain is often misdiagnosed commonly as visceral pain.<sup>10,11</sup> Despite investigations such as computed tomography scan, ultrasonography, etc., it is difficult to reach to an accurate diagnosis and

represent a major diagnostic challenge to the surgeon.<sup>12</sup> A new tool has been added to our knowledge, with the introduction of laparoscopic surgery.<sup>13,14</sup> Laparoscopy can identify abnormal findings and improve the outcome in a majority of patients with abdominal pain for three months or more, as it allows surgeons to see and treat many abdominal conditions that cannot be diagnosed otherwise.<sup>4,15</sup> Laparoscopic surgery has changed the view of many diseases.<sup>20</sup> Diagnostic laparoscopy now become the preferred procedure for non specific abdominal pain.

**Aim**

To evaluate the diagnostic and therapeutic value of Diagnostic laparoscopy in non specific abdominal pain. Patients with non specific abdominal pain where other clinical symptoms and investigations are not conclusive, intra operative findings, various occult etiology and clinical improvement are evaluated.

**Objectives**

- To identify the various etiologies of abdominal pain for three months or more.
- To study the efficacy of diagnostic laparoscopy in management of abdominal pain for three months or more.
- The accuracy of diagnostic laparoscopy in patients with abdominal pain for three months or more are analysed.

**Patients and Methods**

This is a descriptive cross-sectional study, which included 50 consecutive patients admitted in surgical unit from February 2017 to October 2018, who presented with a h/o abdominal pain for three months or more. After thorough history taking and clinical examination, patients were subjected to routine basic investigations and relevant imaging studies .All these details were entered in the clinical proforma. For patients in whom imaging studies were inconclusive about the etiology of chronic abdominal pain were subjected to diagnostic laparoscopy and the necessary surgical

methods were employed as per the etiology after getting informed valid written consent. Patients were followed up at regular intervals post-discharge and then 3 months after the procedure for subjective assessment of pain was done. The findings and outcomes of laparoscopy were recorded and analyzed.

**Results**

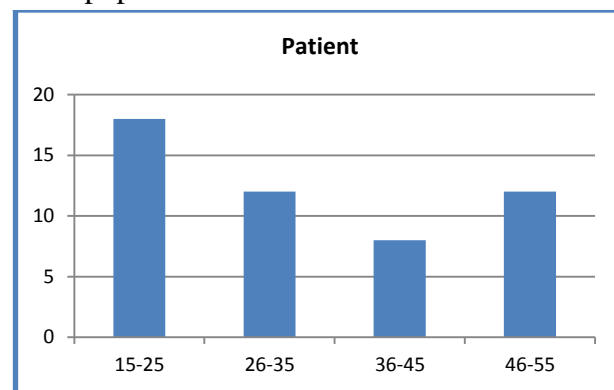
**Baseline characteristics of studied patients**

**Age Distribution**

AGE	PATIENT
15-25	18
26-35	12
36-45	8
46-55	12
Total	50

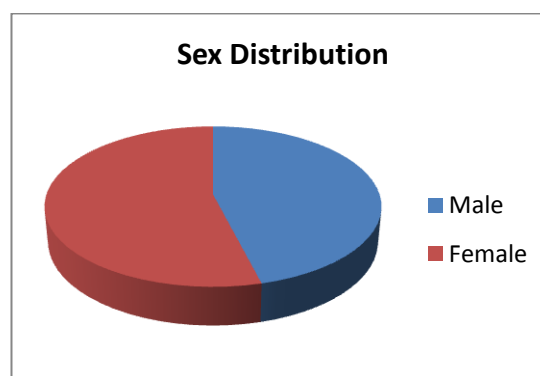
**Mean age = 34 years**

Most of them in the age group between 15-25 in adult population



**Sex Distribution**

Gender	Patient
Male	23
Female	27
Total	50



- Almost male Vs female ratio is equal in study population..
- Slightly higher in females

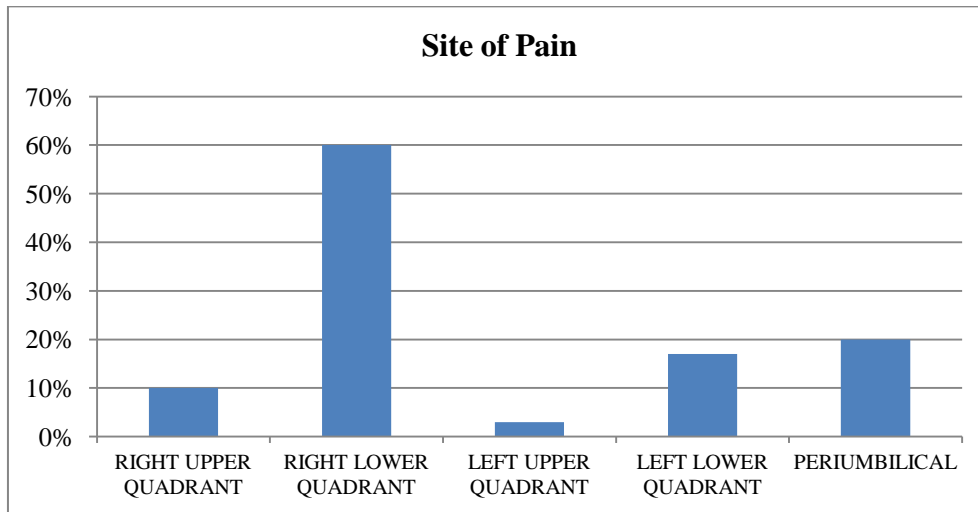
Most of them had pain duration around 6 months, not more than 2 years.

**Site of Pain**

Right Upper Quadrant	5 (10%)
Right Lower Quadrant	30 (60%)
Left Upper Quadrant	2 (3%)
Left Lower Quadrant	8 (17%)
Periumbilical	10 (20%)

**Duration of Pain**

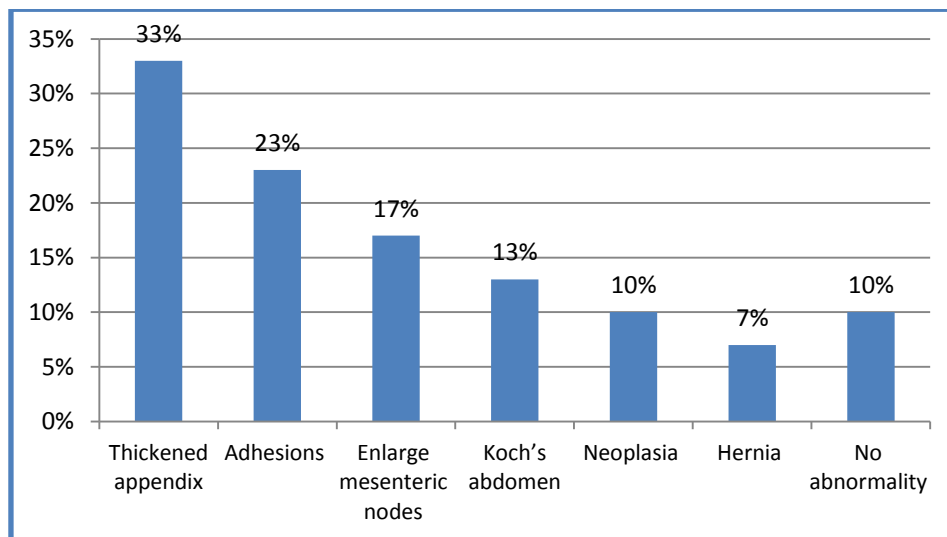
Mean = 6 month (3-24 months)



Most of them presented with the right lower quadrant pain which constitutes about 60%, particularly in the right iliac fossa.

**Intra operative findings**

Findings	Percentage
Thickened appendix	16 (33%)
Adhesions	12 (23%)
Enlarge mesenteric nodes	9 (17%)
Koch's abdomen	6 (13%)
Neoplasia	5 (10%)
Hernia	3 (7%)
No abnormality	5 (10%)



We found that appendicular pathology is the leading cause for abdominal pain for three months or more of unrevealed etiology and it is about 33%, followed by adhesion is about 23%.

Laparoscopic appendicectomy was performed in cases with appendicular pathology like inflamed, thickened appendix and localized adhesion with caecum and abdominal wall. All the histopathological reports of appendix specimen sent, revealed chronic inflammation.

These cases recovered post operatively without any complication and free of pain in 1 month follow up.

Adhesions were found in 23% (n=12), out of that 6 patients had H/O previous surgery. Two patients underwent open cholecystectomy and other 4 had previous history of LSCS. Omentum was adherent to the anterior abdominal wall in the scar region.

5 patients with previous H/O surgery, had undergone laparoscopic adhesiolysis, and two of them were converted into open technique because of the extensive adhesion which could not be managed laparoscopically.

In other 5 patients without previous H/O surgery, adhesion of the caecum and appendix to the anterior abdominal wall was found during laparoscopy and adhesiolysis was performed successfully.

Koch's abdomen was diagnosed in 13% (n=6). Intra operative findings were multiple tubercles over the peritoneum, bowel and omentum. In one case we found that flimsy adhesion between the

bowel loops and anterior abdominal wall. In all other four cases minimal ascitic fluid was present. Omental and peritoneal biopsy was taken, ascitic fluid was also sent for biochemical analysis. The results confirmed the tuberculous abdomen. They were started on anti tuberculous drug post operatively.

Malignancy was diagnosed in (n=5) 10% of patients. Two of them had metastatic colonic cancer and in one patient, histopathological diagnosis of mesothelioma was made and administered palliative chemotherapy.

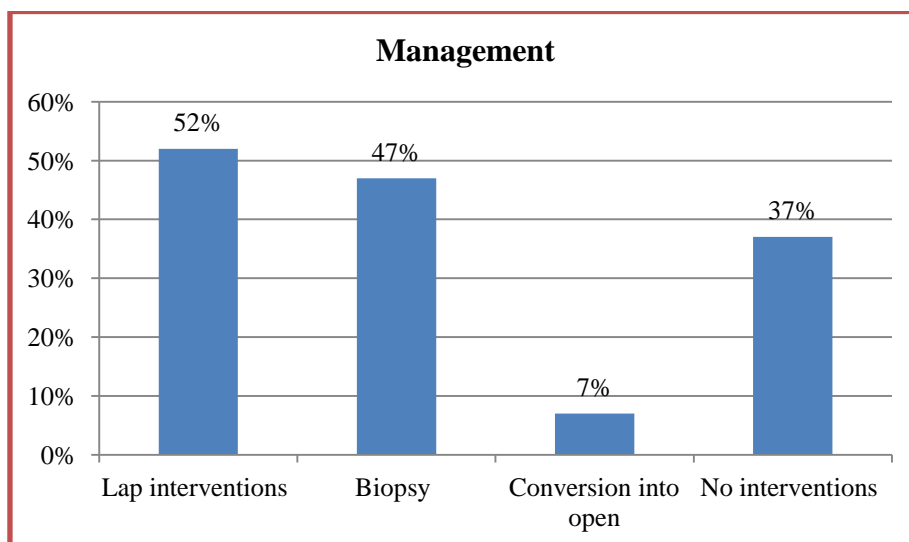
7% (n=3) of the patients had ventral hernia and underwent hernioplasty. One had small defect in the paraumbilical region with omentum adherent to it; another had omental adhesion in the previous LSCS scar, in whom after reducing the content there was a small defect in one corner of the scar region. Mesh repair was done in both the cases.

History of previous abdominal surgery was found in 4 patients out of which 3 had omental adhesion and one presented with small incisional hernia.

Mean operating time for diagnostic laparoscopy alone is 30 minutes but if combined with therapeutic procedures it was  $73 \pm 30$  minutes.

**Management**

Lap interventions	26 (52%)
Biopsy	24 (47%)
Conversion into open	4 (7%)
No interventions	18 (37%)



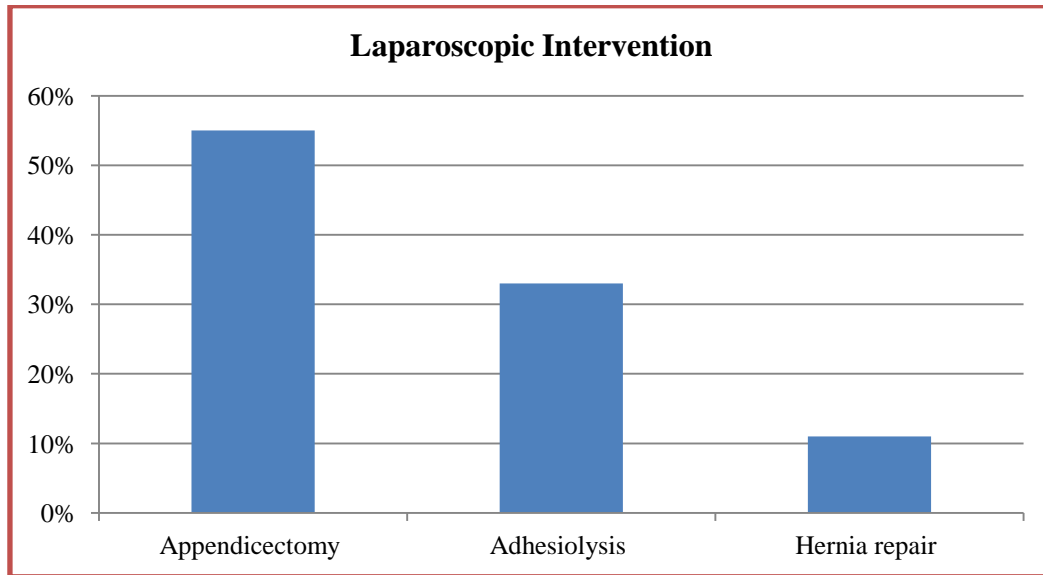
Therapeutic procedure was done in 52% (n=26) of the patients which includes appendicectomy 55 %, adhesiolysis 33 %, hernioplasty 11%.

17% (n=8) of the patients had enlarged mesenteric nodes in the terminal ileum which was taken up for biopsy and reports showed features of non specific adenitis.

No abnormality is noted in 7% (n=4) of the patient suggestive of negative laparoscopy present in our study.

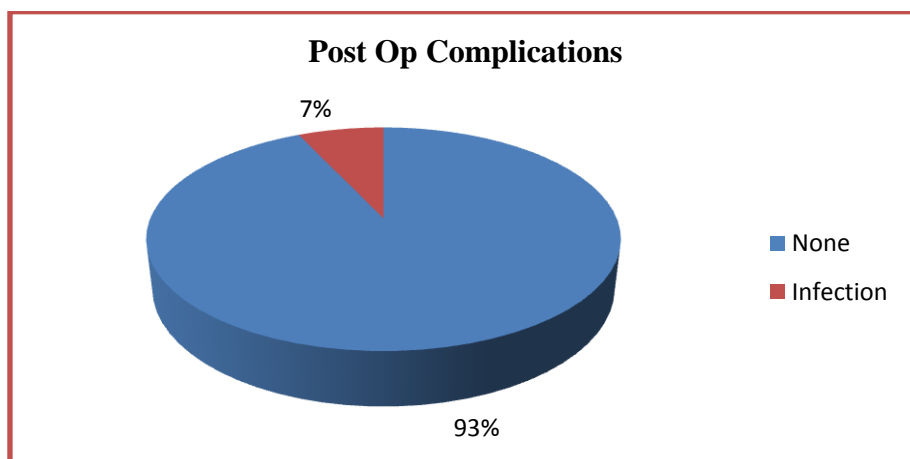
**Laparoscopic Intervention**

Lap interventions	Percentage
Appendicectomy	16 (55%)
Adhesiolysis	12 (33%)
Hernia repair	3 (11%)



**Post op Complications**

Post op complication	Percentage
None	47 (93%)
Infection	3 (7%)



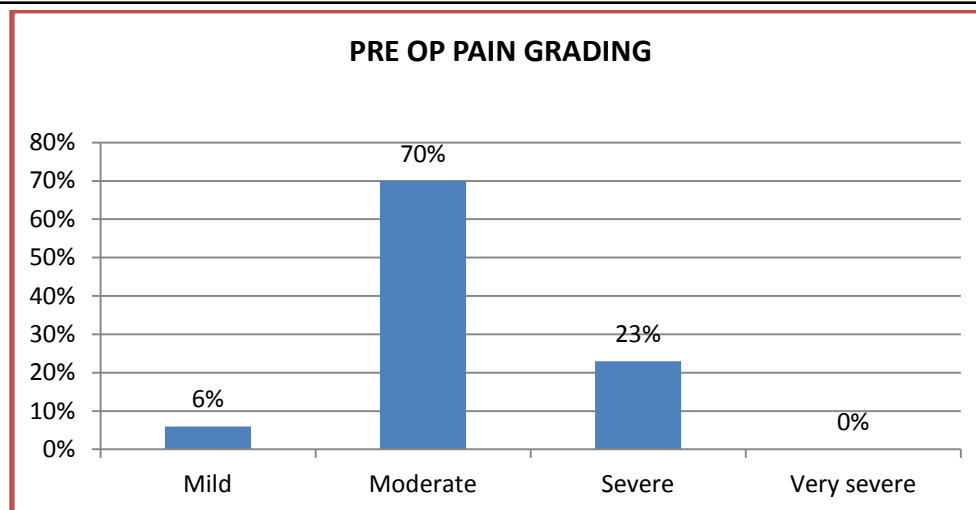
7% (n=3) of cases had wound infection in the post operative period which was minimal and it was managed by appropriate antibiotics and dressing.

No other major complication occurred in the intraoperative or post operative period.

Mean Postoperative hospital stay was 2.5 days

**Pre op Pain Grading**

Grading	Percentage
Mild	3 (6%)
Moderate	35 (70%)
Severe	12 (23%)
Very severe	0 (0%)



Most of the cases had moderate pain which accounts for 70% (n=35)

### Post op Pain Relief

Duration	Positive out come	Negative out come
After 1 month	80 %	20 %
After 3 month	90 %	10 %

All cases were observed in the immediate post operative period for pain perception and amount of analgesics needed for treatment. All of them were followed up in 1<sup>st</sup> month and 3<sup>rd</sup> month. Verbal Rating Scale for pain perception was analysed.

At the end of 1<sup>st</sup> month, 80% patients got complete pain relief and at 3<sup>rd</sup> month 90% got complete pain relief. In remaining 10% of cases, there were no changes in pain grading, it may be due to course of the disease and the cases, whose laparoscopic findings were normal also were symptom free in the follow up. It may be due to placebo effect.

### Discussion

Chronic abdominal pain is defined as continuous or intermittent pain in the abdomen more than 3 months duration. Diagnosis and treatment of these patients is usually difficult and frustrating.

It is one of the most common surgical symptom and most challenging problem faced by the surgeons and physicians<sup>21</sup>.

We evaluated 50 consecutive patients with chronic abdominal pain with no obvious cause and uncertain diagnosis was evaluated laparoscopically.

No pathological lesion was found in 7% of the patients. In a similar laparoscopic study by Marana and his coworker<sup>22</sup> Gowri and Krolkowski<sup>23</sup>, no pathological lesion was found in 20% of the patients but in our study it was 7%.

Common site for chronic abdominal pain is right lower quadrant (60%) followed by periumbilical region (20%).

Common intra operative findings were abnormal appendix (3%) followed by adhesions (23%) which requires appendectomy and adhesiolysis.

Di Lorenzo and colleagues<sup>24</sup> reported frequency of abdominal adhesions in chronic abdominal pain were found in 18.6% but it was 23% in our study.

It was found that location of pain in the site of adhesions was found in 90% of cases, although there was no correlation between extent of adhesion and severity of pain<sup>25</sup>. The pain in the adhesion is due to restrict mobility and distension of the organ particularly bowel.<sup>26</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>26</sup> study which reports, "the diagnostic laparoscopy yields 80% positive outcome in evaluation of chronic abdominal pain in the follow up period of 2 months."

### Conclusion

Diagnostic laparoscopy is a minimally invasive surgical procedure that allows complete visualisation of the intra-abdominal organs for making accurate diagnosis. Laparoscopy is useful in evaluating patients with chronic abdominal pain, in whom various imaging modalities are not conclusive to obtain a definite diagnosis. Due to advent of laparoscopy negative non therapeutic laparotomies are reduced. Diagnostic Laparoscopy is helpful in making a definite diagnosis and provides proper management of patients. The therapeutic value of diagnostic laparoscopy is also accepted, well-appreciated, and it cannot be underestimated. It has also significantly reduced the number of investigations that these patients are subjected to, days of hospital stay, which leads to substantial reduction in the cost of the treatment. Diagnostic laparoscopy is a safe, relatively cost-effective and efficient method for finding out the etiology of chronic abdominal pain and to provide specific interventions.

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