

A HOSPITAL BASED PROSPECTIVE STUDY TO EVALUATE THE ROLE OF DIAGNOSTIC LAPAROSCOPY IN CHRONIC ABDOMINAL PAIN AND ITS CORRELATION WITH CLINICAL AND IMAGING FINDINGS AT NEWLY ESTABLISHED TERTIARY CARE CENTER

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Abstract

Background: Patients with chronic abdominal pain are amongst the most difficult to manage. When the limits of reasonable noninvasive testing are reached in an individual patient's illness, which is likely to occur without the extensive testing practiced today, the surgeon is often consulted. The aim of this study to evaluate the role of diagnostic laparoscopy in chronic abdominal pain and its correlation with clinical and imaging findings. **Materials and Methods:** A hospital based prospective study done on 30 patients admitted to the surgical wards with pain abdomen of 3 months duration and not responding to medical management. The recorded data included particulars of the patient, duration of illness, site of abdominal pain, 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, complications during the intra and post-operative period and the relief from the pain were recorded and analyzed. **Result:** Our study showed that mean age of patients was 32.56 years and female preponderance to chronic pain abdomen (70%). The most common finding was recurrent appendicitis in 63.33% of patients. Most of the patients in this group were females. Recurrent appendectomy was done in all these patients. The next most common finding at laparoscopy in our study was a post operative adhesion (13.33%). One patient was found to have abdominal Tuberculosis for which Cat 1 ATT was started. 3 out of 30 patients in our study no significant abnormality was found. All subjects underwent computerized tomographic scanning (CT scan), out of which, 16 (53.33%) patients had a change in findings when compared with the findings on ultrasonography. **Conclusion:** We concluded that the efficacy of diagnostic laparoscopy was 90% in the current study. 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.

INTRODUCTION

Patients with chronic abdominal pain are amongst the most difficult to manage. More than 40% of the patients presenting with chronic abdominal pain had no specific etiological diagnosis at the end of their diagnostic workup.^[1] Chronic abdominal pain is associated with poor quality of life and significant levels of depressive symptoms.^[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. These searches for pathology often include such procedures as upper and lower gastrointestinal endoscopies, computerized tomography and screening for undetected carcinoma. When the limits of reasonable

noninvasive testing are reached in an individual patient's illness, which is likely to occur without the extensive testing practiced today, the surgeon is often consulted. A high chance of a non-therapeutic abdominal exploration naturally results. Clearly diagnostic laparoscopy is an important intermediate option between refusing to explore a patient's abdomen and performing a laparotomy.^[3]

Most surgeons feel that exploratory laparotomy is a more complete examination and carries little morbidity and mortality.^[4] Minimal access surgery or minimally invasive surgery has grown widely. Diagnostic laparoscopy is invasive and has both diagnostic and therapeutic value. In case of diagnostic uncertainty, laparoscopy avoids unnecessary laparotomy and provides accurate diagnosis to planned surgical treatment.^[5,6] Due to improvement in instrumentation and greater experience with therapeutic laparoscopy, the procedure is no longer limited to visualization. Operative intervention can be provided at the same instance and formation of adhesions which is an important cause of chronic abdominal pain is less compared to laparotomy. Diagnostic laparoscopy has an important role in our country as it can reduce the cost of investigations by eliminating or minimizing the subsequent costly, time consuming, and potentially hazardous investigations. It also helps in the exclusion of serious conditions whenever pain goes undiagnosed. The aim of this study to evaluate the role of diagnostic laparoscopy in chronic abdominal pain and its correlation with clinical and imaging findings.

MATERIALS AND METHODS

A hospital based prospective study done on 30 patients admitted to the surgical wards with pain abdomen of 3 months duration and not responding to medical management, where clinical examination, laboratory investigations, and noninvasive study (USG), along with gynecological examination had been carried out but did not yield any accurate diagnosis were included in the study during one year period. Chronic abdominal pain was defined as a continuous or intermittent abdominal pain with daily intake of analgesics, and duration of at least 3 months.^[7]

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 >15years of age.
- Cases of clinically diagnosed chronic abdominal pain of >3 months duration not responding to the treatment given.

Exclusion Criteria

- Patients with acute myocardial infarction, cancer patients, Pregnant Women, Women who had recently given birth, Patients with coagulation defects.
- Patients less than 15 years of age.
- Large Ventral and diaphragmatic hernia.
- Patient's refusal.

Method: A detailed history was taken from each of the patients 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, and other associated symptoms such as vomiting or 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, complications during the intra and post-operative period and the relief from the pain were recorded and analyzed.

Visual analogue scale (VAS) was used for grading the pain. The pain scale involved asking the patient to estimate their pain severity as a number between "0" being no pain and "10" being worst possible pain. Patients with VAS (1-4) were categorized as mild type of pain, those with VAS (5-8) were categorized into moderate type of pain, and those with VAS (9-10) were categorized into severe type of pain. Pain was graded preoperatively, on day 7, day 60, and day 180.

Surgical Procedure: The patient was placed in a supine position and operated under general anesthesia. In cases of previous upper midline incision or suspected massive intra-abdominal adhesions, the Veress needle was passed through the abdominal wall in an area with no scars, most often in the left upper quadrant of the abdomen. After pneumoperitoneum was achieved, a standard three-trocar technique was used (10-mm via umbilical trocar and two 5-mm lateral trocars). A fourth 5-mm trocar was inserted in a few cases. The whole abdominal cavity was inspected carefully starting from the liver, gallbladder, anterior surface of the stomach, and spleen. With fine smooth graspers, these structures were touched safely and elevated for further inspection. The small bowel was examined using atraumatic graspers from the ligament of Treitz to the ileocecal valve. The colon including the appendix was inspected as a small bowel. In females, the uterus, adnexa, and the pouch of Douglas were inspected, and the amount of fluid, color and its site were noted.

Statistical Analysis: We used *t* test to compare continuous variables and Mann Whitney test to compare medians. *P* value <0.05 was considered statistically significant.

RESULTS

Our study showed that mean age of patients was 32.56 years and female preponderance to chronic pain abdomen (70%). 43.33% of the patients in our study gave a history of pain in abdomen of duration between 18 to 36 months. The majority of the patients in our study of 13 patients were presented with periumbilical region pain. It was followed closely by diffuse pain abdomen. Around 26 (86.66%) of patients has no history of previous surgery compared to 4 (13.33%) of them with history of previous abdominal surgeries. Post-operative hospital stay ranged from 3 to 8 days with a mean duration of stay of 5.23 days. The average length of the operative time was 40.6 minutes and no patients required conversion to an open method [Table 1].

In most of our cases there were 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.

In our study of 30 patients, the most common finding was recurrent appendicitis in 63.33% of patients. Most of the patients in this group were females. Recurrent appendectomy was done in all these patients. The next most common finding at laparoscopy in our study was a post operative adhesions (13.33%). Adhesiolysis was done in all these patients with adhesions and in patients with normal study follow up observation was done. 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. We did laparoscopic cholecystectomy for 2 of our patients. HPE confirmed our findings in this group of patients. One patient was found to have abdominal Tuberculosis for which Cat 1 ATT was started. 3 out of 30 patients in our study no significant abnormality was found. One patient was found to have haemorrhagic ovarian cyst for which aspiration was done.

Table 1: Demographic and clinical profile of patients

Demographic and clinical profile of patients		No. of patients (N=30)	Percentage
Age (yrs) (Mean ±SD)		32.56±8.69	
Sex	Male	9	30%
	Female	21	70%
Duration of pain (Months)	3-12	11	36.66%
	12-18	5	16.66%
	18-36	13	43.33%
	>36	1	3.33%
Region of pain	Upper abdomen	4	13.33%
	Lower abdomen	4	13.33%
	Peri umbilical	13	43.33%
	Diffuse abdomen	9	30%
History of previous abdominal surgeries	Present	4	13.33%
	Absent	26	86.66%
Duration of hospital stay (days)		5.23±2.45	
Operative time (minutes)		40.6±9.46	

Table 2: Findings at laparoscopy and intervention done

Diagnosis	Procedure	No. of patients (N=30)	Percentage
Recurrent Appendicitis	Appendectomy	19	63.33%
Post-operative adhesions	Adhesiolysis	4	13.33%
Chronic Cholecystitis	Cholecystectomy	2	6.66%
Ovarian cyst	Aspiration	1	3.33%
Tuberculosis	CAT 1 ATT	1	3.33%
Normal study	Observation	3	10%

DISCUSSION

Chronic abdominal pain is a common problem dealt not only by the general surgeon but by all practicing physicians. Even after extensive non-invasive work up of such patients, the exact cause of pain abdomen is seldom known. 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 confirmed that in this difficult patient group, laparoscopy could safely identify abnormal findings and can improve the outcome in a majority of the cases.

In a study involving 34 patients by Klingensmith et al,^[8] the majority were women (85%). The average age in their study was 39 years (Range 21-75years) which was compatible with our results.

In a study by Raymond et al,^[9] for utility of laparoscopy in chronic abdominal pain involving 70 patients, the average age was 42 years, which was higher age with our findings.

In our study, the duration of pain ranged between 3 months to 3 years. Gouda M El- Labban and Emad N Hokkam,^[10] found duration of pain ranged from 3 to 15 months.

In a study, Salky,^[11] was able to identify pathology in 69 of 70 patients with either appendicitis or

gynecological pathology being the main finding. Al-akeely MH,^[12] in his study reported tuberculosis to be the common final diagnosis (45.71%) followed by carcinomatosis peritonei (28.5%) and lymphoma (8.57%). The reason behind the low percentage of tuberculosis in our study could be due to the tendency of a therapeutic trial of anti-tubercular treatment being given in our society to patients with a strong suspicion of tuberculosis, without any diagnostic proof.

All patients included in this study had chronic abdominal pain, they were subjected to laparoscopic evaluation after exclusion of all organic causes of the pain by detailed history, complete clinical examination, laboratory tests, radiographic evaluations, and upper gastrointestinal or lower gastrointestinal endoscopy were applicable. The study confirmed that in this difficult patient group, laparoscopy could safely identify abnormal findings and can improve the outcome in a majority of cases. 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.

The role of laparoscopy in chronic abdominal pain is still debated by some authors who deny its value in adhesiolysis and consider it controversial and not evidence-based, and therefore, do not recommend it as a treatment for adhesions in patients with chronic abdominal pain.^[13,14] 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. However, laparoscopy has got its own limitations such as non-visualization of deep parenchymal organs, processes of retroperitoneal space and the inner surface of hollow organs, and not allowing the surgeon to palpate the organs.^[15] Idiopathic chronic abdominal pains are among the most challenging and demanding conditions to treat across the whole age spectrum. Potentially it can be unrewarding for both patients and the medical team. Studies conducted with large community samples or hospital populations imply chronic abdominal pain is a pervasive problem. Abdominal pain was the third most common complaints of individuals enrolled in a large health maintenance organization.^[15]

In our study comprising 30 patients, laparoscopy identified pathology in 27 patients (90%). No abnormality was found in the remaining 3 patients (10%) who were just observed without any intervention. All subjects underwent computerized tomographic scanning (CT scan), out of which, 16 (53.33%) patients had a change in findings when compared with the findings on ultrasonography. The CT scan was better able to suggest dilatation of gut loops and retroperitoneal/mesenteric lymphadenopathy. Miller et al reported that laparoscopy provided diagnoses in 89.8% of patients.^[16] These results compare favourably with our series and another study done by Lal et al had

shown that laparoscopy was able to detect the pathologies in 84% of the patients with chronic abdominal pain.^[17]

Recurrent and chronic appendicitis do exist as disease of the appendix. Investigation of the appendix should be included in the work up of chronic abdominal pain, when no other diagnosis is readily apparent. Doubt remains whether the appendix should be removed in the case of inconclusive findings. In a study by Fayez et al, records of chronic abdominal pain undergoing appendectomy were reviewed 92% of patient's appendices had abnormal histological findings and the 95% of patients had resolution of pain.^[18]

CONCLUSION

We concluded that the efficacy of diagnostic laparoscopy was 90% in the current study. 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. Not only does laparoscopy point to a diagnosis, it has the added advantage that therapeutic intervention can be done at the same sitting in most cases thus avoiding another hospitalization or another exploration of the abdomen.

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