Original Article

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Assessing the Utility of Diagnostic Laparoscopy in Patient with Non-Specific Chronic Abdominal Pain and Its Correlation with Clinical, Pathological, and Radiological Investigations

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Abstract

Introduction: Chronic abdominal pain can be a diagnostic challenge. Introduction of laparoscopic surgery have been increasingly recognized as a procedure that offers precise visual assessment of intraabdominal conditions for diagnosis and prompt intervention. This study was undertaken to assess the efficacy of performing diagnostic and therapeutic laparoscopy in patients with chronic abdominal pain for longer than 12 weeks.

Materials and Methods: In our study 30 cases of nonspecific chronic abdominal pain admitted in surgical wards of Government Medical College, Surat, from November 2013 to October 2014 were enrolled in study. 30 cases underwent diagnostic laparoscopy and therapeutic intervention or other diagnostic procedures were performed if required. Intraoperative findings were correlated with clinical, radiological and pathological investigations performed before. Patients were followed up for 6 weeks & watched for prognosis, complications and recurrence.

Results: The results of the study were compared with clinical, radiological and pathological findings and patients were followed up for prognosis and recurrence.

Conclusion: In view of the above, diagnostic laparoscopy is an effective tool to find out the cause of chronic abdominal pain which remained nonspecific even after all possible clinical, radiological and pathological investigations. Therapeutic intervention can also be done at the same time as and when required.

Key words: Chronic abdominal pain, Diagnostic laparoscopy, Intraabdominal pathology.

INTRODUCTION

Chronic abdominal pain is a diagnostic challenge. When the patient reports to a surgeon, often myriad of tests have had already been performed with no conclusive diagnosis of the etiology.[1] Laparoscopy is the only method of visualizing the pathologic anatomy of the abdominal cavity in clinical practice. It is minimally invasive, safe, efficacious, and effective diagnostic modality and can be performed rapidly, safely with the minimal sequel. It provides an accurate diagnosis, helps plan surgical management, and prevents unnecessary laparotomy. It has both diagnostic and therapeutic role.[2]

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Aims and Objectives

1. To conclude exact diagnosis in long-standing non-specific abdominal pain
2. To carry out therapeutic intervention at the same time
3. To avoid unnecessary laparotomy
4. To perform the diagnostic procedure under vision, i.e., tissue biopsy and peritoneal lavage cytology.

MATERIALS AND METHODS

The study was conducted in the Surgery Department of Government Medical College, Surat, after getting ethical

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clearance from human research ethics committee. It included 30 patients presenting with history of abdominal pain for 3 or more months duration between November 2013 and October 2014. A detailed history was recorded from patients and thorough clinical examination was performed.

Basic Investigations which were Carried out in all Patients

- Complete blood count
- Erythrocyte sedimentation rate
- Urine microscopy
- Random blood sugar
- Blood urea nitrogen
- Serum creatinine
- Stool for ova, cyst, and occult blood
- Chest radiograph

Imaging Modalities

- Plain abdominal radiographs
- Ultrasound studies
- Computerized tomography (CT) abdomen

Inclusion Criteria

1. Patients with history of abdominal pain for 3 months or more
2. Physical examination and diagnostic tests are unrevealing
3. Patients with previous history of abdominal operation.

Exclusion Criteria

1. Age under 14 years
2. Pregnant women
3. Patients with critical illness
4. Medically unfit for surgery.

Appropriate surgical interventions were done as per etiology. Intraoperative findings and operative interventions undertaken were recorded. Patients were followed up at regular intervals of 1 month up to 3 months. 3 patients were lost from follow-up. Subjective assessment of pain was done by asking patients, what occurred to their pain, resolution, or no change in pain. After informed consent, surgeries were done. All surgeries were carried out under general anesthesia. Catheterization and nasogastric tube insertion were done in all patients. Pneumoperitoneum was created with Veress needle at the rate of 5-6 L/min so that end point of intra-abdominal pressure should not exceed 20-25 mmHg. 10 mm umbilical trocar and two 5 mm lateral trocars were inserted.

The laparoscopy was started by a diagnostic inspection of organs in the following manner:

1. Liver
2. Gallbladder
3. Anterior surface of stomach
4. Large bowel
5. Small bowel
6. Appendix
7. Gynecological organs
8. Peritoneal surfaces.

Observation

In Table 1, age distribution of cases is seen which is divided into several different groups.

In Table 2, sex distribution of cases can be seen in numbers as well as in percentage form.

Table 3 explains the duration of non-specific chronic abdominal pain in weeks ranging from 12 weeks to 110th week.

Table 1: Age distribution of cases

Age group (years)	Number of cases (%)
19-30	16 (54)
30-40	04 (13)
40-50	04 (13)
50-60	03 (10)
60-70	03 (10)
Total	30 (100)

Table 2: Sex distribution of cases

Sex	Number of cases (%)
Male	11 (37)
Female	19 (63)

Table 3: Duration of pain (weeks)

Duration (weeks)	Number of cases (%)
12-30	21 (70)
30-50	03 (10)
50-70	02 (06)
70-90	01 (04)
90-110	03 (10)

Table 4: Location of pain

Location	Number of cases (%)
Lower abdomen	17 (56)
Diffuse abdomen	10 (34)
Upper abdomen	03 (10)

Table 5: History of previous operation

History of operation	Number of cases (%)
Present	10 (34)
Absent	20 (66)

In Table 4, it shows in which part of abdomen there in pain, whether in lower abdomen, diffuse abdomen, and upper abdomen.

In Table 5, how many cases had the previous history of operation was denoted.

In Table 6, correlation between ultrasonography (USG) and laparoscopy findings was recorded.

Table 6: Correlation between USG and laparoscopy findings

Findings	USG	Laparoscopy
Appendicular pathology (1)	3	10
Mesenteric lymphadenopathy (3)	6	4
Bowel wall thickening	6	4
Collection	1	4
Liver pathology	3	3
Dilated bowel loops	2	3
Acalculous cholecystitis	1	1
Tuberculous lesion (2)	0	6

Table 7: Correlation between CT and Laparoscopy findings

Findings	CT findings	Laparoscopy
Appendicitis (1)	6	10
Mesenteric lymphadenopathy	12	4
Bowel wall thickening	9	4
Collection	5	4
Liver pathology	3	3
Dilated bowel loops	2	3
Adrenal lipoma	1	0
Tubercular lesion (2)	0	6

Table 8: Correlation between radiological, pathological, and laparoscopic findings

Findings	Radiological	Laparoscopic	Histopathological
Bowel wall thickening	9	4	2
Mesenteric lymphadenopathy	12	4	4
Inflamed appendix (1)	6	10	10
Intra-abdominal collection	5	4	4
Hepatomegaly with hepatic cysts	1	1	1
Partially liquefied liver abscess	2	2	
Dilated bowel loops	3	3	-
Cholecystitis	2	1	1
Tubercular lesions (2)	0	6	6
Adhesions	0	3	3
Cecal perforation	0	2	2
Normal findings	5	3	-
Positive findings	25	27	27

Table 7 shows the correlation between CT and laparoscopy findings.

Table 8 shows the correlation between radiological, pathological, and laparoscopic findings.

In Table 9, the effect of the laparoscopic intervention on pain is been recorded.

In Table 10, These study results are compared with other studies previously conducted.

DISCUSSION

Most common age of presentation was between 19 and 30 years with female patients presenting more than males. Most commonly, the duration of pain was between 12 and 30 weeks. Most of the patients presented with diffuse lower abdominal pain. Most common causes found were appendicitis, abdominal Koch's, typhlitis with sealed perforation, adhesions, perihepatic fluid collection, acalculous cholecystitis, and malignancy. The most common cause was appendicitis which was found in 10 (34%) cases. Some were thickened and adherent to adjacent structures, while some were curved and felt rigid. It was confirmed by histopathology in all cases. The second most common findings were abdominal tuberculosis (20%) which was found in 6 cases. All patients were proven with omental or lymph node biopsy then treated with category 1 antitubercular drugs. 3 patients had perihepatic collection with liver pathology or which peritoneal lavage and aspiration of liver abscess performed. 3 patients had intra-abdominal adhesions at the previous operative site for which laparoscopic adhesiolysis was performed. 2 patients had features of bowel malignancy for which laparoscopy was converted to laparotomy and after frozen section confirmation resection anastomosis was performed. 1 patient had thickened gall bladder wall; laparoscopic cholecystectomy was done. In 3 patients, no abnormality

Table 9: Effect of laparoscopic intervention on pain

Outcome	Number of cases (%)
Resolution of pain	23 (85)
No change in pain	04 (15)
Total	27 (100)

Table 10: Comparison of diagnostic efficiency in various studies

Study	Diagnosis (%)	Number of cases
Onders *et al.*[3]	85.7	70
Miller *et al.*[4]	89.8	59
Present study	90	30

was found and kept on observation. In 27 patients with chronic abdominal pain, pathological findings on laparoscopy were present, giving a diagnostic accuracy of 90%. Out of 5 patients having normal radiological findings, 3 patients had adhesions on laparoscopy. Mesenteric lymphadenopathy in USG and CT scan was over reported.

CONCLUSION

In patients with chronic abdominal pain, even after an extensive workup no pathological condition is found by non-invasive investigations, and the pain is often attributed to unsubstantiated diagnosis. Following are the limitations of diagnostic laparoscopy:

1. The retroperitoneal space and the inner surface of the hollow organs cannot always be visualized
2. Palpation of organs is not possible
3. Before laparoscopy, USG and CT imaging needs to be done.

The chronic abdominal pain of unknown origin represents a significant problem in surgical patients. This study showed that laparoscopy is an effective approach in the management of patients with chronic abdominal pain, both diagnostic and therapeutic. It is the only method to visualize abdominal cavity directly. As far as its utility in chronic abdominal pain is concerned, laparoscopy revealed many cases of chronic appendicitis, abdominal Koch's, etc., undiagnosed by other means and the appropriate therapy started (as in abdominal Koch's). Being minimally invasive technique, good patient compliance is noted.

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