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Original Research Article

Role of diagnostic laparoscopy in chronic and recurrent pain abdomen

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ABSTRACT

Background: Chronic and recurrent abdominal pain of unknown origin represents a significant problem in surgical patients and poses a diagnostic dilemma. With advances in optics, laparoscopy allows visualisation of entire peritoneal cavity and further makes histological diagnosis possible. The rapidly increasing popularity of laparoscopy may be attributed to several factors including its applicability in both emergency and elective settings, high diagnostic yield, therapeutic management in the same setting, low patient morbidity, reduced hospital stays and expenditure. The objective of the study was to evaluate the role of diagnostic laparoscopy in chronic and recurrent pain abdomen.
Methods: We conducted a prospective descriptive study on 50 patients who suffered from chronic and recurrent pain in abdomen for more than 3 months with inconclusive clinical or radiological diagnosis. All patients were subjected to diagnostic laparoscopy and findings were noted down. Therapeutic procedures were conducted at the same setting wherever indicated. Histopathological evaluation reports were followed up.
Results: Out of 50 patients, laparoscopy established diagnosis in 44 patients, proving diagnostic efficacy at 88%. The most common finding at diagnostic laparoscopy was appendicitis (28%), followed by adhesions (24%). Other findings were tuberculosis (16%), pelvic inflammatory disease (8%), endometriosis (3%), partial torsion of ovarian cyst (4%), cholecystitis (2%). However, diagnostic laparoscopy showed normal study in 6 patients (12%). Appendicectomy followed by adhesiolysis were the most common procedures performed.
Conclusions: Recurrent appendicitis is the most common cause of chronic and recurrent pain abdomen. Diagnostic laparoscopy is a safe and effective modality for both diagnostic and therapeutic management of such patients.

Keywords: Diagnostic, Laparoscopy, Pneumoperitoneum, Appendicitis, Adhesions, Tuberculosis, Cholecystitis, Ovarian torsion, Chronic pain abdomen

INTRODUCTION

Chronic abdominal pain is a common complaint seen in the outpatient surgical departments. Although patients with this type of pain may have undergone numerous diagnostic workups, their pain remains a challenge to the treating surgeons. Even after a battery of investigations, 40% of such patients remain undiagnosed.[1-3] Abdominal pain of longer duration is associated with poor quality of life and significant levels of depressive symptoms.[4] The most common organic conditions include intestinal adhesions, especially in patients with a past history of abdominal operations, abdominal tuberculosis, appendicular pathology, biliary causes, mesenteric lymphadenopathy (could also be due to infectious causes of bowel such as colitis, gastroenteritis or enteric fever apart from tuberculosis),hernia; and functional conditions include irritable bowel disease, functional dyspepsia, and various motility disorders.[5]

With the introduction of laparoscopic surgery, a new tool has been added to our knowledge. Many studies done previously have proven the efficacy of diagnostic laparoscopy in such cases. Laparoscopy can pick up abnormal findings and aid in the diagnosis of patients with chronic abdominal pain, as it allows surgeons to see and treat many abdominal conditions that cannot be diagnosed otherwise. Laparoscopic surgery is a method in which the peritoneal cavity can be visualised without making large surgical incisions.[6] Hence laparoscopy confers additional advantages of being less invasive, lesser postoperative pain and hospital stay with minimal scars.

Aims and objectives

The aim and objectives of the study was to evaluate the role of diagnostic laparoscopy in chronic and recurrent pain abdomen.

METHODS

This study was conducted in the surgical wards of Bowring and Lady Curzon Hospitals and Victoria Hospital attached to Bangalore Medical College and Research Institute between November 2017 to May 2019. The study group consisted of 50 patients who were admitted in view of undiagnosed pain abdomen for more than 3 months duration, meeting the inclusion criteria. A detailed history taking and clinical examination was done for each patient as per the study proforma. The data was entered in MS excel spreadsheet and analysed using IBM SPSS 20.0 software. Data was analysed by descriptive statistics such as mean, median, Standard deviation, interquartile range, percentages, tables and graphs wherever necessary

Inclusion criteria

Inclusion criteria were patients willing to give written informed consent, patients of either sex aged 18-60 years, pain in abdomen of more than 3 months duration where clinical examination, laboratory tests and non-invasive imaging techniques are inconclusive.

Exclusion criteria

Exclusion criteria were inability to tolerate pneumoperitoneum or general anaesthesia, uncorrectable coagulopathy, generalised peritonitis, haemodynamic instability, mechanical or paralytic ileus, acute pain abdomen and pregnant patients.

All surgeries were carried out under general anaesthesia. Pneumoperitoneum was created using Hasson's technique. A 10 mm umbilical port for camera was inserted and two 5 mm ports were inserted under vision depending on the organ of interest and suspected pathology. The sites of port insertion varied depending on the presence of previous surgical scars. Palmer's point was used in cases where there were midline vertical scars. Diagnostic laparoscopy was conducted carefully inspecting the entire visceral contents of abdomen starting from the liver, gall bladder, anterior surface of stomach, large intestine, small intestine, with particular emphasis on terminal ileum, ileocaecal junction and the appendix. In addition to the above, the uterus, fallopian tubes, ovaries and pouch of Douglas were examined in a female patient.

The intraoperative findings of each case were noted down. Fluid if present, was sent for analysis and culture sensitivity. Similarly, biopsies were sent if required. Therapeutic procedure if indicated was performed at the same setting. Histopathological evaluation (HPE) or culture reports were followed up and details were recorded.

RESULTS

Majority of our patients (26%) belonged to the age group between 36-45 years (Figure 1) and were predominantly females (64%) (Figure 2).

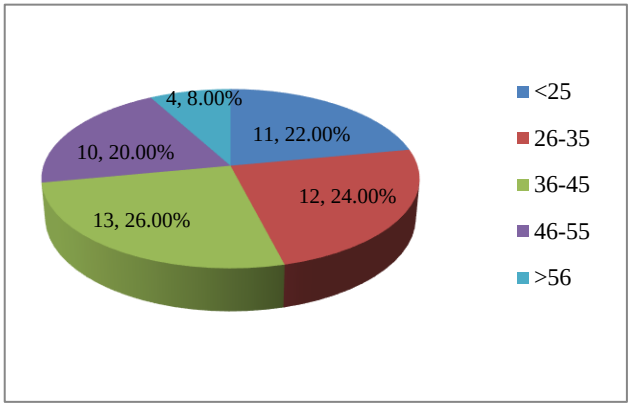

Figure 1: Age distribution.

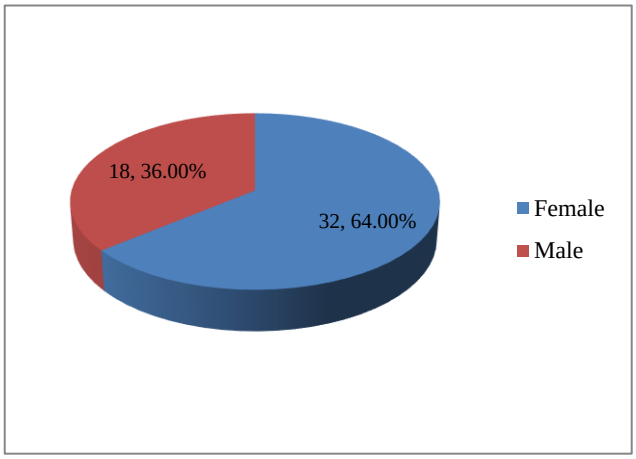

Figure 2: Sex distribution.

56% of our patients gave history of pain abdomen between 7-12 months (Figure 3).

32% of our patients had history of previous abdominal surgeries (Figure 4).

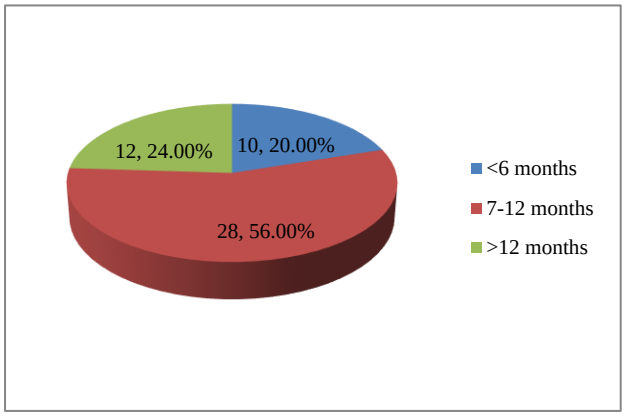

Figure 3: Duration of pain.

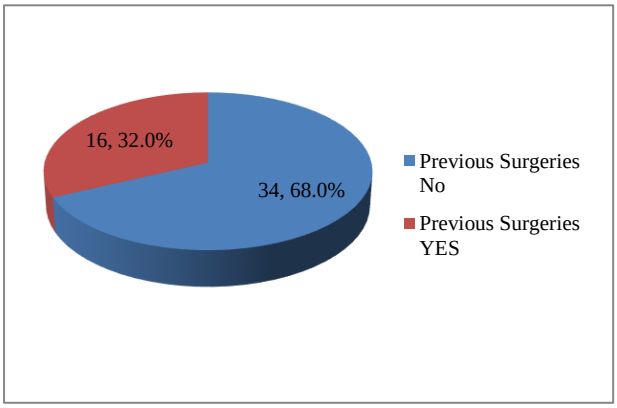

Figure 4: History of previous surgeries.

Appendicitis (28%) followed by adhesions (24%) were the most common findings at diagnostic laparoscopy (Table 1).

Table 1: Intra-operative findings of diagnostic laparoscopy.

Intraoperative findings	N	%
Appendicitis	14	28.0
Adhesions	12	24.0
TB	8	16.0
Normal study	6	12.0
Pelvic inflammatory disease	4	8.0
Endometriosis	3	6.0
Partial torsion of ovarian cyst	2	4.0
Cholecystitis	1	2.0

Appendicitis was more common in males and adhesions were more common in females (Table 2).

Appendicectomy (28%) followed by adhesiolysis (24%) were the most common procedures executed (Table 4).

30 out of 32 patients (93.75%) had correct intra-op diagnosis; remaining 2 cases of pelvic inflammatory disease (PID) turned out to be culture negative (Table 5).

Table 2: Gender wise distribution of intraoperative findings.

Intraoperative findings	Female		Male	
	N	%	N	%
Appendicitis	6	18.8	8	44.4
Adhesions	10	31.3	2	11.1
TB	5	15.6	3	16.7
Normal study	2	6.3	4	22.2
PID	4	12.5	0	0
Endometriosis	3	9.4	0	0
Partial torsion of ovarian cyst	2	6.2	0	0
Cholecystitis	0	0	1	5.6
Total	32	100.0	18	100.0

P=0.052.

Table 3: Distribution of procedures done during diagnostic laparoscopy.

Procedure	N	%
Appendicectomy	14	28.0
Adhesiolysis	12	24.0
Sampling	8	16.0
Nothing specific	6	12.0
Aspiration: C/S	4	8.0
Biopsy	3	6.0
Ovarian cystectomy	2	4.0
Cholecystectomy	1	2.0
Total	50	100.0

Table 4: Distribution of HPE reports of diagnostic laparoscopic surgery done.

HPE reports	N	%
Appendicitis	14	43.8
TB	8	25
Endometriosis	3	9.4
Culture: no growth	2	6.3
Culture: *Neisseria gonorrhoea*	2	6.3
Torsion of ovarian cyst	2	6.3
Cholecystitis	1	3.1
Total	32	100.0

12 were adhesions and 6 were normal in intraoperative and hence HPE was not done.

In our study, diagnostic laparoscopy established diagnosis in 44 patients out of the total 50 patients making the diagnostic efficacy of 88%.

Table 5: Correlation of intraoperative findings with HPE.

Intraoperative findings	Appendicitis		Cholecystitis		Culture: no growth		Endo-metriosis		Torsion of ovarian cyst		*Neisseria gonorrhoea*		TB		Total
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N
Appendicitis	14	100	0	0	0	0	0	0	0	0	0	0	0	0	14
Cholecystitis	0	0	1	100	0	0	0	0	0	0	0	0	0	0	1
Endometriosis	0	0	0	0	0	0	3	100	0	0	0	0	0	0	3
Partial torsion of ovarian cyst	0	0	0	0	0	0	0	0	2	100	0	0	0	0	2
PID	0	0	0	0	2	50	0	0	0	0	2	50	0	0	4
TB	0	0	0	0	0	0	0	0	0	0	0	0	8	100	8

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 our study, out of 50 patients, 32 were female patients and 18 were male patients.

The mean age at presentation was 37.56 years. In a study conducted by Chaphekar et al, out of 30 patients, the average age at presentation was 34 years, predominantly the female sex.[7] In a study conducted by Bhatia et al on 110 patients, average age at presentation was 28.6 years, predominantly the female sex.[8] In a study conducted by Karvande et al, out of 63 patients, average age at presentation was 31.7 years, predominantly of the female sex.[9] In a study conducted by Sinha et al, out of 50 patients, average age at presentation was 34.64 years, predominantly female sex.[10] In a study by Thanaponsathron et al, of 30 patients with chronic right lower quadrant pain, the average age was 27.5 years.[11]

In our study, the average duration of pain before presentation was 9.54 months. In a study conducted by Bhatia et al, the average duration of pain was 10.4 months.[8] In a study conducted by Karvande et al, the average duration of pain was 9.2 months.[9] In a study conducted by Sinha et al, the average duration of pain was 8.1 months.[10] In a study conducted by Rao et al, the average duration of pain was 8 months.[12] In a study conducted by Sayed et al, the average duration of pain was 8.6 months.[5]

In our study, the 32% of patients gave history of previous abdominal surgeries. In a study conducted by Karvande et al, 40% of patients gave history of previous abdominal surgeries.[9] In a study conducted by Sayed et al, 54.5% of patients gave history of previous abdominal surgeries.[5] In a study by Baria et al involving 50 patients, 11 of them had a past history of abdominal surgery.[13]

In our study, 28% had findings of appendicitis on diagnostic laparoscopy. Laparoscopy is a useful technique for the diagnosis and treatment of abdominal pain even if the appendix is normal on inspection.[14] In our study, 24% of patients had adhesions during diagnostic laparoscopy. In a study by Shayani et al involving 18 cases, laparoscopic adhesiolysis resulted in a 77.8% cure rate from chronic abdominal pain.[15] In a study by Dunker et al laparoscopic adhesiolysis resulted in a positive outcome in more than 50% of patients.[16]

In our study 12% patients had normal study on diagnostic laparoscopy. In a study conducted by Sinha et al, 16% of the patients had normal study.[10]

In our study, diagnostic laparoscopy yielded results in 44 cases out of 50 cases making the diagnostic efficacy of 88%. A study conducted by Sayed et al had 89.1% diagnostic efficacy.[5]

CONCLUSION

Laparoscopy has an effective diagnostic accuracy and therapeutic efficacy in the management of patients who suffer from chronic abdominal pain. Many a times, these patients remain undiagnosed even after an extensive workup. Laparoscopy is a quick and effective modality of investigation for chronic abdominal pain. As it is rightly said “seeing is believing”, diagnostic laparoscopy not only points towards a diagnosis, but also has the added advantage of a therapeutic intervention at the same sitting in most cases. Thus, it avoids unnecessary investigations as well as laparotomies. Diagnostic laparoscopy has a definitive role in the management of patients with chronic

pain abdomen and should be considered as an important diagnostic tool by all practicing surgeons.

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