

Original research article

Management of chronic abdominal pain using diagnostic laparoscopy: a clinical studyDr. Santosh Kumar¹, Dr. Shri Krishna Ranjan²¹Assistant Professor, Department of Surgery, Anugrah Narayan Magadh Medical College and Hospital, Gaya, Bihar, India²Associate Professor, Department of Surgery, Anugrah Narayan Magadh Medical College and Hospital, Gaya, Bihar, India.

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Abstract

Background: Chronic abdominal pain is a common disorder both in general practice and in hospitals. Although patients with this type of pain may have undergone numerous diagnostic workups, including surgery, their pain remains a challenge to all known diagnostic and treatment methods.

Aim: the aim of this study to evaluate the role of diagnostic laparoscopy in the management of chronic abdominal pain in Bihar Region.

Material and methods: This Prospective observational study was done in the Department of Surgery, Anugrah Narayan Magadh Medical College and Hospital, Gaya, Bihar, India, for 8 months. All 100 patients with chronic abdominal pain of 6 months or more duration, with normal or inconclusive investigations coming to surgical OPD and patients of age group 18 to 70 years were included.

Results: Majority of the patients (38%) were in the age group of 20-30 years. The mean age of the patients was 35.88±12.77 years. 64 (64%) patients of the study group were female while 36 (36%) patients were male. The most common symptoms were pain (100%) followed by vomiting (47%), fever (30%), abdominal distension (17%) and bowel symptoms (10%). 12 (12%) patients had pain in abdomen for 3-12 months while 39 (39%) and 19 (19%) patients had pain in abdomen for 12-18 months and 18-36 months respectively. 30 (30%) patients had abdominal pain for >36 months. The most common laparoscopy findings were appendicitis (30%) followed by Koch's abdomen (25%), adhesions (25%), sub-acute intestinal obstruction (SAIO) (7%), chronic cholecystitis (5%) and hernia (2%) and (6%) patients had normal findings. All 30 patients diagnosed with appendicitis underwent laparoscopic appendectomy. In all 25 patients diagnosed with Koch's abdomen, laparoscopic biopsy was performed and positive patients were treated with anti-tubercular drugs by standard protocols. All patients with adhesions were treated by adhesiolysis.

Conclusion: 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. The therapeutic value of diagnostic laparoscopy is also accepted, well appreciated, and it cannot be underestimated.

Keywords: Diagnostic laparoscopy, Chronic, Abdominal, Pain, Therapeutic

Introduction

Chronic abdominal pain is a common disorder. Although patients with this type of pain may have undergone numerous diagnostic workups, including surgery, their pain remains a challenge to all known diagnostic and treatment methods. 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.^{2,3} The most common organic conditions include intestinal adhesions, biliary causes, and appendicular causes, while functional conditions include irritable bowel disease, functional dyspepsia, and various motility disorders.⁴⁻⁹ Abdominal wall pain is also common and frequently mistaken for visceral pain.^{10,11} After ruling out common diseases by careful investigations, many patients are still undiagnosed and represent a major diagnostic challenge to the surgeon.¹² With the introduction of laparoscopic surgery, a new tool has been added to our knowledge. The use of this new technology in the diagnosis and management of chronic abdominal pain has been tried in previous studies.¹³ Laparoscopy can identify abnormal findings and improve the outcome in a majority of patients with chronic abdominal pain, as it allows surgeons to see and treat many abdominal conditions that cannot be diagnosed otherwise.¹⁴ It is a safe and effective tool and can establish the etiology and allows for appropriate interventions in such cases.¹⁵ Abdominal adhesions are the most likely findings, especially in patients with a past history of abdominal operations.¹⁶ However, 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.¹⁷ A diagnostic laparoscopy could be a minimally invasive option to explore the abdominal cavity. The present-day laparoscope allows visualization of every aspect of the abdominal cavity. It allows for performing every possible procedure, limited only by the skill, training and coordination of the laparoscopy surgical team.^{18,19} Laparoscopic surgery has modified the management of many surgical diseases. Diagnostic laparoscopy is now accepted as the preferred primary approach to many disease processes.

Material and methods

This Prospective observational study was done in the Department of Surgery, Anugrah Narayan Magadh Medical College and Hospital, Gaya, Bihar, India, for 8 months, after taking the approval of the protocol review committee and institutional ethics committee.

Inclusion criteria

All 100 patients with chronic abdominal pain of 6 months or more duration, with normal or inconclusive investigations coming to surgical OPD and patients of age group 18 to 70 years were included.

Exclusion criteria

Patients with acute abdomen pain, cardiorespiratory disease, abdominal wall sepsis, pregnancy, known abdominal malignancy, using anti-psychiatric drugs, patient under age of 12 and immunocompromised patients were excluded.

Methodology

In any chronic abdominal condition in which the cause was unknown, Laparoscopy was performed after completion of all the necessary hematological, biochemical, radiological, and ascitic fluid analysis, gastrointestinal endoscopic and imaging techniques, and Mantoux test (when indicated). Therapeutic intervention was performed depending on the underlying pathology with open laparotomy or laparoscopic techniques.

Results

Majority of the patients (38%) were in the age group of 20-30 years followed by 27% in the age group of 30-40 years, 15% in the age group of 40-50 years, 6% in the age group of 50-60

years and 6% in the age groups of below 20 years. The mean age of the patients was 35.88 ± 12.77 years (Table 1).

Table 1: Distribution of patients according to age

Age (years)	N	%
Below 20	6	6
20-30	38	38
30-40	27	27
40-50	15	15
50-60	6	6
Above 60	8	8
Total	100	100
Mean\pmSD	35.88 ± 12.77	

Table 2: Distribution of patients according to gender

Gender	N	%
Male	36	36
Female	64	64
Total	100	100

64 (64%) patients of the study group were female while 36 (36%) patients were male (Table 2). The most common symptoms were pain (100%) followed by vomiting (47%), fever (30%), abdominal distension (17%) and bowel symptoms (10%) (Table 3).

Table 3: Distribution of patients according to symptoms

Symptoms	N	%
Pain	100	100
Vomiting	47	47
Fever	30	30
Abdominal distension	17	17
Bowel symptoms	10	10

12 (12%) patients had pain in abdomen for 3-12 months while 39 (39%) and 19 (19%) patients had pain in abdomen for 12-18 months and 18-36 months respectively. 30 (30%) patients had abdominal pain for >36 months (Table 4).

Table 4: Distribution of patients according to duration of pain before laparoscopy

Duration of pain (in months)	N	%
3-12	12	12
12-18	39	39
18-36	19	19
>36	30	30
Total	100	100

The most common laparoscopy findings were appendicitis (30%) followed by Koch's abdomen (25%), adhesions (25%), sub-acute intestinal obstruction (SAIO) (7%), chronic cholecystitis (5%) and hernia (2%). (6%) patients had normal findings (Table 5).

Table 5: Laparoscopy findings of patients

Laparoscopy findings	N	%
Appendicitis	30	30
Koch's abdomen	25	25
Adhesions	25	25

Sub-acute intestinal obstruction	7	7
Chronic cholecystitis	5	5
Hernia	2	2
Normal	6	6
Total	100	100

All 30 patients diagnosed with appendicitis underwent laparoscopic appendectomy. In all 25 patients diagnosed with Koch's abdomen, laparoscopic biopsy was performed and positive patients were treated with anti-tubercular drugs by standard protocols. All patients with adhesions were treated by adhesiolysis. Patients with sub-acute intestinal obstruction were treated by band release (4 patients) and by adhesiolysis (3 patients). 5 patients which were diagnosed to have chronic cholecystitis were treated by laparoscopic cystectomy. 2 patient of hernia was treated by trans-abdominal pre-peritoneal hernia repair (Table 6)

Table 6: Distribution of patients according to treatment

Histopathology findings	Treatment	N	%
Appendicitis	Appendectomy	30	30
Koch's abdomen	Anti-tubercular treatment	25	25
Adhesions	Adhesiolysis	25	25
SAIO	Band release (4)/ adhesiolysis (3)	7	7
Chronic cholecystitis	Laparoscopic cystectomy (5)	5	5
Hernia	Trans-abdominal pre-peritoneal hernia repair	2	2

Table 7: Comparison of post-operative pain relief during follow-up of patients

	Presentation		1 months		3 months		
	N	%	N	%	N	%	
VAS score	6.88	0.58	5.42	0.54	4.29	0.53	<0.05

The post-operative pain relief was assessed by visual analog scale (VAS) score (Table 7). The mean VAS score at presentation was 6.88 ± 0.58 . The VAS score reduced significantly at 1 month (5.42 ± 0.54) and 3 months (4.29 ± 0.53). There was significant improvement in VAS score at follow-up as per ANOVA test ($p < 0.05$).

Discussion

Majority of the patients (38%) were in the age group of 20-30 years followed by 27% in the age group of 30-40 years, 15% in the age group of 40-50 years, 6% in the age group of 50-60 years and 6% in the age groups of below 20 years. The mean age of the patients was 35.88 ± 12.77 years. 64 (64%) patients of the study group were female while 36 (36%) patients were male. This is similar to the studies of Baria et al, Kumar et al, Parray et al and Lingala.²⁰⁻²³

Baria et al study evaluating the use of the laparoscope in the diagnosis and management of patients with chronic abdominal pain found age group ranged from 13-55 years. Most of the patients studied were females (84%).²⁰ Kumar et al study assessing the diagnostic and therapeutic role of laparoscopy in patients with unexplained chronic abdominal pain observed mean age of the patients was 34.42 ± 2.56 years. More than half of the patients studied were females (62%).²¹

Parray et al prospective observational study evaluating the role of diagnostic laparoscopy in patients with acute and chronic abdominal conditions found 70 patients (21 male, 49 female) and age ranged from 15-80 years with a mean age of 36.4 years.²²

Lingala et al study on diagnostic laparoscopy in chronic abdominal pain found 84 patients with chronic pain abdomen with a peak incidence of chronic pain abdomen in the third

decade. The youngest patient was 16 years and the oldest patient being 62 years. The mean age of presentation was 34 years. 84 (65%) patients showed a female preponderance to chronic pain abdomen.²³ The most common symptoms were pain (100%) followed by vomiting (47%), fever (30%), abdominal distension (17%) and bowel symptoms (10%). This is comparable to the study of Parray et al.²²

Parray et al prospective observational study evaluating the role of diagnostic laparoscopy in patients with acute and chronic abdominal conditions observed pain was the most common presenting symptom in 62 patients (88.6%). Vomiting was 2nd most common complaint being present in 31 patients (44.3%) followed by loss of appetite being present in 30 patients (42.9%), distension in 26 patients (37.1%), loss of weight 20 patients (28.6). Other complaints included (altered bowel habits present in 11 patients (15.7%), dysuria 7 patients (10%), fever 5 patients (7.1%) and bleeding per rectum being present in 2 patients (2.9%).²²

In present study, 12 (12%) patients had pain in abdomen for 3-12 months while 39 (39%) and 19 (19%) patients had pain in abdomen for 12-18 months and 18-36 months respectively. 30 (30%) patients had abdominal pain for >36 months. This is consistent with the studies of Lingala et al, Baria et al, Kumar et al and Raymond et al.^{20,21,23,24}

Lingala et al study on diagnostic laparoscopy in chronic abdominal pain observed 52.38% of the patients gave a history of pain abdomen of duration between 18 to 36 months.²³ Baria et al study evaluating the use of the laparoscope in the diagnosis and management of patients with chronic abdominal pain observed mean duration of pain was seven months with the range of duration from three to eleven months.²⁰

Kumar et al study assessing the diagnostic and therapeutic role of laparoscopy in patients with unexplained chronic abdominal pain found mean duration of pain was 9.5 ± 2.4 months. After 2 months of follow up

40 patients had complete relief from pain while 46 patients had decrease in pain score. Rest 14 patients showed no improvement in pain.²¹ Raymond et al reported improvement of pain in 74% of patients with chronic right lower abdominal pain.²⁴

The most common laparoscopy findings were appendicitis (30%) followed by Koch's abdomen (25%), adhesions (25%), sub-acute intestinal obstruction (SAIO) (7%), chronic cholecystitis (5%) and hernia (2%). (6%) patients had normal findings. This finding was consistent with the studies of Ahmad et al, Lingala et al, Baria et al, Kumar et al and Parray et al.²⁰⁻²⁵

Ahmad et al study assessing the role of laparoscopy in undiagnosed abdominal pain observed laparoscopic showed inflamed appendix, appendicular fecoliths, enlarged mesenteric lymph nodes, salpingitis, omentum at deep ring, adhesions in pelvis, fluid in cul-de-sac and ovarian cyst, diverticulitis. Final diagnosis was made in 75 (85.2%) patients. In 13 patients (14.7%) no diagnosis was established.²⁵

Lingala R study observed most common finding was post-operative adhesions, in 51.1% of patients. Most of the patients were females and had a past history of abdominal surgery, tubectomy in most cases. Adhesiolysis was done in all these patients. The next most common finding at laparoscopy was a normal study (13%). These patients were just observed and followed up. Recurrent appendicitis was operative diagnosis in 11.9% of the patients.²³

Baria et al study observed out the 50 patients with chronic abdominal pain, a definitive diagnosis was established in 45 patients (90%), while no identifiable cause could be reached in five patients (10%). Most common laparoscopic findings were appendicular pathology (40.7%).²⁰ Other findings included ovarian cysts (16.7%), adhesions (14.8%), gall bladder pathology (7.4%), ileo-caecal mass (7.4%), mesenteric lymphadenopathy (5.6%), strictures (5.6%) and jejunal diverticulum (1.8%). Twenty-two patients showed appendiceal pathology; and their pathology revealed evidence of chronic

appendicitis. Other pathological diagnoses such as chronic acalculus cholecystitis, and multiple enlarged mesenteric lymph nodes were found.

Kumar et al study reported most common laparoscopic findings were adhesions (30%). Other findings included pelvic inflammatory disease (25%), abdominal tuberculosis (12%), chronic appendicitis (8%), mesenteric lymphadenitis (5%) and diverticulosis (2%).²¹

Parray et al prospective observational study observed on diagnostic laparoscopy the commonest indication was ascites of undetermined etiology (42.9%), followed by chronic abdominal pain (25.7%), diffuse liver disease (11.4%), acute abdominal pain (SAIO, cholecystitis, acute appendicitis, PID, endometriosis) (5.7%), abdominal tuberculosis (4.3%), focal liver disease (2.9%), bleeding per rectum (2.9%), abdominal malignancy (2.9%) and primary infertility (1.4%).²³ The post diagnostic laparoscopy outcome were abdominal malignancy 22 (31.4%) followed by abdominal tuberculosis 16 (22.9%), diffuse liver disease 6 (8.6%), focal liver disease 6 (8.6%), PID 4 (5.7%), SAIO 4 (5.7%), post-operative pelvic adhesions 3 (4.3%), Meckel's diverticulum 2 (2.9%), abdominal plus pulmonary tuberculosis 1 (1.4%), endometriosis 1 (1.4%), ovarian cyst 1 (1.4%), pseudomyxoma peritonei 1 (1.4%), chronic appendicitis 1 (1.4%) and inconclusive 2 (2.9%).

All 30 patients diagnosed with appendicitis underwent laparoscopic appendectomy. In all 25 patients diagnosed with Koch's abdomen, laparoscopic biopsy was performed and positive patients were treated with anti-tubercular drugs by standard protocols. All patients with adhesions were treated by adhesiolysis. Patients with sub-acute intestinal obstruction were treated by band release (4 patients) and by adhesiolysis (3 patients). 5 patients which were diagnosed to have chronic cholecystitis were treated by laparoscopic cystectomy. 2 patient of hernia was treated by trans-abdominal pre-peritoneal hernia repair. The post-operative pain relief was assessed by visual analog scale (VAS) score (Table 7). The mean VAS score at presentation was 6.88 ± 0.58 . The VAS score reduced significantly at 1 month (5.42 ± 0.54) and 3 months (4.29 ± 0.53). There was significant improvement in VAS score at follow-up as per ANOVA test ($p < 0.05$). Similar observations were noted in the studies of Kumar et al, Ahmad et al and Baria et al.^{20,21,25}

Conclusion

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. The therapeutic value of diagnostic laparoscopy is also accepted, wellappreciated, and it cannot be underestimated.

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Received: 15-09-2020 || Revised: 05-10-2020 || Accepted: 26-10-2020