International Journal of Research in Medical Sciences
Lal V et al. Int J Res Med Sci. 2015 Jan;3(1):36-40
www.msjonline.org
pISSN 2320-6071 | eISSN 2320-6012

DOI: 10.5455/2320-6012.ijrms20150107

Research Article

Study to evaluate the role of laparoscopy in chronic abdominal pain

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Received: 11 October 2014, **Revised:** 26 October 2014
Accepted: 30 November 2014

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ABSTRACT

Background: Patients with chronic abdominal pain can undergo numerous diagnostic tests with little change in their pain. This study was under taken to assess the efficacy of performing diagnostic and therapeutic laparoscopy in patients with chronic abdominal pain for longer than 12 weeks.
Methods: All patients undergoing laparoscopy for chronic abdominal pain were included in the study for a period of 1 year from Nov. 2011 to Oct. 2012. The patient's demographic data, length of time with pain, diagnostic studies, intraoperative findings, interventions and follow-up were determined.
Results: A total of 25 patients (19 women and 6 men) with an average age of 34.64 years underwent diagnostic laparoscopy for the evaluation and treatment of chronic abdominal pain. The average length of time with pain was 32.96 weeks (range 12-96). 2 cases required conversion to an open procedure and no complications occurred. Findings included abdominal Koch's in 9, appendicitis in 8, cholecystitis in 1, cirrhosis in 1; ovarian cyst in 1, bilateral fimbrial cyst in 1 and 4 patients had no obvious pathology. 82.6% of patients had pain relief at the time of follow up.
Conclusion: Laparoscopy has a diagnostic and therapeutic role in patients with chronic pain abdomen.

Keywords: Chronic abdominal pain, Diagnostic laparoscopy, Abdominal Koch's, Abdominal tuberculosis

INTRODUCTION

Chronic abdominal pain can be diagnostic challenge. These difficult patients are frequently seen by many different physicians and are myriad of test without identifying the aetiology of pain. Surgical consultation often occurs late after other modalities have failed to provide resolution of their symptomatology. Chronic abdominal pain is a significant clinical problem that often leads to repeated laparotomies.

The introduction of laparoscopic surgery and recent in laparoscopy have been increasingly recognised as a procedure that offers precise visual assessment of intra-abdominal condition for diagnosis and prompt intervention. Laparoscopy has a significant diagnostic and therapeutic role in patient with chronic abdominal pain. In case of diagnostic uncertainty, laparoscopy may help to avoid unnecessary laparotomies, provide accurate diagnosis and helps to plan surgical treatment. The main function of laparoscopic evaluation is to detect the presence or absence of intra-abdominal organic lesion.

Laparoscopy is the only method of visualising the pathological anatomy of abdominal cavity in clinical practice.

Laparoscopy allows surgeons to see and treat many abdominal changes that could not be diagnosed otherwise. Hence, diagnostic laparoscopy should be considered for patients suffering from chronic abdominal pain, as it is minimally invasive, safe, efficacious and

effective diagnostic modality and can be performed rapidly, safely with minimal sequel.

METHODS

This study was conducted in the surgery department of Padmashree DR D Y Patil hospital, Nerul, Navi Mumbai. This study included 25 patients presenting with history of abdominal pain for 3 or more months who were admitted in surgical wards between Nov 2011 to Oct 2012. Detailed history was recorded from patients and thorough clinical examination was performed. The findings were recorded in the proforma.

The recorded data included demographics, length of time; it had been presented, location of pain, patient's abdominal examination and diagnostic studies performed. Intraoperative findings and operative interventions undertaken were also identified.

HB%, TC, DC, ESR, Urine microscopy was the basic investigations done for all patients. RBS, BUN, and S. creatinine, chest X-ray, ECG and stool for ova, cyst and occult blood were done when indicated. Commonly performed imaging studies included plain abdominal radiographs, ultrasounds studies. Barium studies, upper gastrointestinal and lower gastrointestinal endoscopy were done when indicated. The surgical methods employed were as per etiology. All patients gave informed consent.

Inclusion criteria

Patients with history of abdominal pain for 3 months or more, if physical examination and diagnostic tests are unrevealing. Patients with previous history of abdominal operation are included.

Exclusion criteria

i. Age under 18 years

ii. Oncological patients.

iii. Pregnant women.

iv. Patients with coagulation defects.

v. Patients with critical illness.

vi. Medically unfit for surgery.

All surgeries were done under general anaesthesia, all patients were catheterised and Ryle's tube was put. After pneumoperitoneum with Veress needle at the rate of 1-2.5 L/min so that end point of intra-abdominal pressure should not exceed 10-12 mmHg, 10 mm umbilical trocar and two 5 mm lateral trocars were put. The laparoscopy was started by a diagnostic inspection of liver, gallbladder, and anterior surface of stomach, large bowel, small bowel, appendix, gynecological organs and peritoneal surfaces.

After laparoscopy, 5 mm trocars were removed under visual control, the air was released from intra-abdominal space and 10 mm trocar was removed.

All 5 mm wounds were closed in one layer with absorbable sutures and 10 mm umbilical wound with non-absorbable suture.

RESULTS

This study of 25 cases of chronic abdominal pain showed peak incidence in 3rd decade. In our study youngest patient was 19 years and oldest was 60 years. The mean age of presentation was 34.64 (Table 1).

Table 1: Age distribution of patients with chronic abdominal pain.

Age group (years)	Number of cases	Percentage (%)
19-30	10	40
30-40	09	36
40-50	04	16
50-60	02	08
60-70	00	00
Total	25	100

This study of 25 cases of chronic abdominal pain showed peak incidence in female (76%) (Table 2).

Table 2: Sex distribution.

Sex	Number of cases	Percentage (%)
Male	06	24
Female	19	76

The peak incidence of duration of pain was between 12 to 30 weeks. The average duration of pain was 32.96 weeks (Table 3).

Table 3: Duration of pain before laparoscopy.

Duration (weeks)	Nos. of cases	Percentage (%)
12-30	19	76
30-50	01	04
50-70	01	04
70-90	01	04
90-110	03	12

The below Table 4 depicting the present study shows most of the patients presented with lower abdominal pain (52%), diffuse abdominal pain (40%) and eight percent with upper abdominal pain.

Table 4: Location of pain.

Location	No. of cases	Percentage (%)
Upper abdomen	02	8
Lower abdomen	13	52
Diffuse abdomen	10	40

The Table 5 shows 8 patients (32%) with chronic abdominal pain had previous history of abdominal operation. All of them are with history of tubectomy, none of them had intra-abdominal adhesion.

Out of which, 3 patients had abdominal tuberculosis, 2 patients had appendicitis, B/L fimbrial cyst in 1, cirrhosis in 1 and one patient had acalculus cholecystitis.

Table 5: Previous history of abdominal operation.

History of operation	No. of cases	Percentage (%)
Present	08	32
Absent	17	68

Treatment

From the below Table 6 it is evident that most common findings were abdominal tuberculosis (36%) which was found in 9 cases. All patients proven with omental biopsy, then treated with CAT 1 anti-tubercular drugs.

The second common cause was appendicitis which was found in 8 (32%) cases. At laparoscopy no abdominal and pelvic abnormality was noted except that appendix appeared abnormal.

These abnormalities some were thickened and adherent to adjacent structure. Some curved and felt rigid. HPE s/o chronic appendicitis.

One patient had B/L fimbrial cyst, laparoscopy was converted to open. Fimbrial cyst excision with right oophorectomy done.

One patient had ovarian cyst, laparoscopy aspiration done. One patient had cirrhosis of liver, managed conservatively.

One patient had thickened gall bladder wall, laparoscopic cholecystectomy done.

In four patients no abnormality was found and kept on observation.

In 21 patients with chronic abdominal pain pathological findings on laparoscopy were present, giving a diagnostic accuracy of 84%.

In 4 patients (16%) no abnormal findings were present.

Table 6: Findings at laparoscopy and treatment adopted.

Operative findings	Treatment	No. of cases	%
Tuberculosis	Cat 1 ATT	09	36
Appendicitis	Appendectomy	08	32
Fimbrial cyst	B/L cyst excision	01	4
Cirrhosis of liver	Symptomatic	01	4
Ovarian cyst	Aspiration	01	4
Acalculus cholecystitis	Cholecyctectomy	01	4
Normal study	Observation	04	16

Follow up

Patients were followed up at regular intervals of one month. Two 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. Our study had limitation of shorter follow up ranging from 3-9 months.

Outcome

Out of 23 cases who came for regular follow up, 19 patient had resolution of pain (82.6%), 4 patients (17.4%) had no change in pain (Table 7).

Table 7: Effect of laparoscopic intervention on chronic abdominal pain.

Outcome	No. of cases	Percentage (%)
Resolution of pain	19	82.6
No change in pain	4	17.4
Total	23	100

Nine patients were treated with anti-tubercular drugs following confirmation by histopathological report. Seven patients had resolution of pain (88.9%) and in another 2 patients (11.1%) there was no change (Table 8).

Table 8: Outcome of abdomen tuberculosis.

Change of pain	Nos. of cases	Percentage (%)
Pain resolution	7	88.9
No change	2	11.1
Total	9	100

Eight patients underwent appendectomy, in one patient laparoscopy converted to open appendectomy; one patient was lost from follow-up. Six (85.7%) patients had complete resolution of pain and pain persisted in one patient (14.3%).

Patient with fimbrial cyst and cholecystitis pain resolved. Patient with ovarian cyst did not come for follow up. In 4 patients found no abnormality, 3 patients had

resolution. In patient pain was persisted. In one patient with cirrhosis of liver, pain was persisted. No complication occurred during procedure and post operatively (Table 9).

Table 9: Effect of appendectomy on chronic abdominal pain.

Change of pain	No. of cases	Percentage (%)
Resolution of pain	6	85.7
No change	1	14.3
Total	7	100

DISCUSSION

Chronic abdominal pain is a common problem, dealt with by a variety of medical specialists. Even after an extensive work up in some patients, no pathological condition is found by non-invasive investigation and the pain is often attributed to unsubstantiated diagnosis.

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. Laparoscopy may be useful to establish a histological diagnosis of intra-abdominal tuberculosis 5. Deep parenchymal organs, process of the retroperitoneal space, and the inner surface of the hollow organs cannot always be noticed using laparoscopy. Another limitation of laparoscopy is that it does not allow the surgeon to palpate organs. Before laparoscopy is performed in chronic abdominal pain, pre-operative imaging studies have to be undertaken. As in our material, most of the patients have been studied by endoscopies and ultrasound before laparoscopy. 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. Therefore the placebo effect of laparoscopy may explain at least partly the patient`s pain relief.

In our present study 25 patients were admitted in surgical wards with chronic abdominal pain.

In our study 21 (84%) patient had pathological findings identified at the time of laparoscopy.

Karl Miller et al.[1] reported that laparoscopy provided diagnoses in 89.8% of patients. These results compare favorably with our series.

Table 10: Comparison of diagnostic efficiency of laparoscopy in various studies.

Study	Diagnosis (%)	No. of cases
Raymond P. et al.[2]	85.7	70
Karl Miller et al.[1]	89.8	59
Present study	84	25

In our study, 21 (84%) patients had a definitive therapeutic procedure performed. In our study, most common findings were abdominal tuberculosis. In study by Prafull Arya and Gaur[3] most common findings was intestinal and peritoneal tuberculosis. This correlates with our study.

Second common cause was appendicitis. Our study again correlates with Prafull Arya and Gaur.[3]

Abdominal tuberculosis is a common disease in India, as was seen in present study. Laparoscopy has a great deal to offer an early diagnosis of abdominal tuberculosis and treatment.[3]

Krishnan P et al.,[5] reported that in patients suspected to have abdominal tuberculosis without evidence of extra abdominal disease, early laparoscopy may be useful to establish a histological diagnosis with acceptably low morbidity (8%).

Rai S and Thomas M,[6] reported abdominal tuberculosis in 23 (92%) patients of the 25 patients in whom laparoscopy was performed.

In our study, common finding in abdominal tuberculosis are peritoneal or visceral tubercles, varying from 2 mm to 1 cm. Ascites and small bowel adhesions also seen. For the tubercular peritonitis laparoscopy is of special practical benefit in under privileged area where high end investigations are not available.

Our study reported improvement or resolution of symptoms in patients with abdominal tuberculosis in 88.9%.

Table 11: Effectiveness of appendectomy in alleviating pain in patient with chronic abdominal pain.

Study	Success rate (%)
Fayez et al.[7]	95
Raymond et al.[2]	74
Present study	85.7

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.,[7] records of chronic abdominal pain undergoing appendectomy were reviewed 92% of patients appendices had abnormal histological findings and the 95% of patients had resolution of pain.

Raymond et al.,[2] reported improvement of pain in 74% of patients with chronic right lower abdominal pain.

In our study 85.7% patient who underwent appendectomy for chronic abdominal pain had resolution of pain.

In our study 4 (16%) patients did not have any pathological findings on laparoscopy. Three of these patients had resolution of pain after procedure which suggestive of placebo effect.

Table 12: Comparison of therapeutic efficiency of laparoscopy in various studies.

Study	Therapeutic efficiency (%)
Raymond et al.[2]	>70
Pajnen et al.[4]	>70
Present study	82.6

In our study 82.6% of patients had pain relief. Raymond et al.[2] reported that more than 70% patients had long term pain relief.

Pajnen et al.,[4] reported that laparoscopy alleviates the symptoms in more than 70% of patients. This correlate well with our study and it should be considered if other diagnostic tests are negative.

CONCLUSION

Chronic abdominal pain of unknown origin represents a significant problem in surgical patients. In some cases, even battery of investigation does not reveal the cause of pain. Due to improvement in instrumentation and greater experience in the laparoscopy, the procedure no longer limited to visualization.

This study showed that laparoscopy is an effective approach in the management of patients with chronic abdominal pain.

Abdominal tuberculosis is common disease in India. Laparoscopy has a great deal to offer in early diagnosis of abdominal tuberculosis. Treatment with anti-tubercular drugs provided pain relief.

Other etiologies of pain like appendicitis, cholecystitis, ovarian cyst, cirrhosis of liver can be diagnosed and addressed.

Advantages of diagnostic laparoscopy are that it is safe, efficacious and therapeutic procedure can be performed at same time.

Nevertheless, patient selection and appropriate operative technique are essential for rewarding outcome.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the institutional ethics committee

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DOI: 10.5455/2320-6012.ijrms20150107
Cite this article as: Lal V, Deolekar S, Shaikh TP, Narayan P. Study to evaluate the role of laparoscopy in chronic abdominal pain. Int J Res Med Sci 2015;3:36-40.