

SCOPE OF LAPROSCOPIC SURGERY IN MANAGEMENT OF NON SPECIFIC LOWER ABDOMINAL PAIN (NSLAP)

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Abstract:

Objective: The aim was to determine the scope of laparoscopy in the management of nonspecific lower abdominal pain (NSLAP).

Background: NSLAP constitutes a good proportion of surgical admissions, both in emergency and elective settings with considerable diagnostic dilemma.

Patients and Methods: All patients who presented with pain abdomen with no immediate identifiable cause and were labeled as NSLAP after clinical assessment and investigations and subjected to laparoscopy to make a definitive diagnosis and correction of pathology were included in the study.

Results: A total of 88 patients were included in the study. There were 59 (67%) females and 29 (33%) males. The mean age was 26 years (range 18–58 year). The common mode of admission was out-patient department. All patients presented with NSLAP in lower abdomen. Diagnosis was established in 75 (85.2%) patients. In 13 (14.7%) no pathology was found. The most common diagnosis was pathology of appendix in 29 (32.9%) patients followed by pelvic pathology in 18 (20.4%) and abdominal tuberculosis in 14 (15.9%) patients. Most 37 (42%) of the patients stayed in the hospital for 24 h. There was no readmission and no major postoperative complications.

Conclusions: Laparoscopy has a definitive role in the diagnostic dilemma associated with NSLAP. It has at the same time role in treatment of the condition; hence laparoscopy has a diagnostic and a therapeutic implication in management of lower abdominal Pain (NSLAP).

Keywords: Abdomen, laparoscopy, nonspecific lower abdominal pain (NSLAP).

Introduction

Abdominal pain is a common complaint with which patients present to accident and emergency department.¹ Nearly one-quarter of patients has vague abdominal pain.² In chronic abdominal pain, more than 38% of the patients have no specific

etiological diagnosis made at the end of the diagnostic workup.^{3,4} Many organic and functional diseases can cause abdominal pain. Relatively young patients, especially females, with nonspecific lower abdominal pain (NSLAP) constitute a significant proportion of emergency general surgical admissions. Many of these patients have

persistent symptoms and are difficult to discharge, undergo multiple, often costly investigations and have repeated admissions. Most cases of NSLAP mimic acute or chronic appendicitis. Most patients with NSLAP are referred as possible cases of acute appendicitis, frequently with right iliac fossa (RIF) pain and tenderness. A number of these may erroneously undergo operation for suspected appendicitis and indeed, in one study, NSLAP was eventually diagnosed in 33% of 135 patients are undergoing the appendectomy.¹ These patients may undergo unnecessary appendectomy and may recur with symptoms even after surgery. A definitive diagnosis is not always possible, however, with noninvasive imaging tests including contrast radiology, computed tomography (CT), magnetic resonance imaging (MRI), and ultrasonography.⁵ In addition, minimally invasive procedures like paracentesis, endoscopy fail to fetch a diagnosis as well at times. Laparoscopy is a method in which the peritoneal cavity can be visualized without making large surgical incisions. It has a diagnostic as well as a therapeutic potential. The diagnostic potential of laparoscopy has changed the management of many surgical diseases where conventional modalities of diagnosis are not helpful.⁶ Diagnostic laparoscopy has a place in the algorithm to fetch diagnosis in many disease processes. Incorporation of diagnostic laparoscopy along with biopsy, may improve the management of NSLAPs, by making a definite diagnosis, access for immediate treatment, reducing hospital stay and readmission rates and eventually having cost benefits.^{7,8} It is a safe and effective tool and can establish the etiology and allows for appropriate interventions in such cases.⁹ Even malignancies as rarest cause of NSLAP have been documented, with some relationship with irritable bowel syndrome also in research. Normal diagnostic laparoscopy may allow the surgeon to discharge. Patients early after giving symptomatic treatment. This study was conducted to highlight the role of laparoscopy in undiagnosed lower abdominal pains.

Patients and Methods

This study was conducted in Postgraduate Department of Surgery in R L Jalappa Hospital and Research Centre Kolar, for a period of 2 years June 2017 to May 2019. All patients of either sex and all ages, who presented with vague lower abdominal pain, new onset or chronic, admitted through emergency or outpatient department in whom history, clinical examination and routine diagnostic investigations failed to make a definite diagnosis, were included. After

taking detailed history and clinical examination, relevant blood investigations, X-ray abdomen and ultrasound and CT scan were performed. 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 (techniques when indicated). Therapeutic intervention was performed depending on the underlying pathology with open laparotomy or laparoscopic. A proforma was used to keep a record of all the patients in terms of history, clinical examination, investigations and laparoscopic findings. The time for hospital stay was considered as time from admission until discharge. A preanesthetic check-up was done in all the patients to assess ASA category of patient and to rule out any contraindications to laparoscopy. A single antibiotic for prophylaxis was given preoperatively after a test dose. Patients were informed about the possibility of conversion of laparoscopic surgery to an open procedure depending on preoperative findings and consent was taken.

Pneumoperitoneum was created using a veress needle in the periumbilical region, camera port was introduced through periumbilical incision, followed by insertion of additional ports where therapeutic intervention was required. The findings on laparoscopy were recorded. Biopsy specimen, if obtained, was sent for histopathology to confirm the diagnosis. Outcome measures included diagnosis made, duration of surgery, duration of hospital stay and postoperative complications. Data were analyzed using Statistical Package for the Social Sciences Version 15. Descriptive statistics such as frequency, percentage, mean etc. were calculated.

Results

The common mode of admission was through the outpatient department ($n = 68-78.4\%$). The common clinical presentations were vague abdominal pain in the lower abdomen in 25 (28.4%) patients, with right lower abdominal pain in 21 (23.8%) and 19 (21.5%) with central pain radiating to right lower abdomen as shown in Table 1.

In 38 (43.1%) patients abdominal ultrasound was normal. The most common finding noted on ultrasound abdomen and pelvis was distended bowel loops in RIF. Benign hypertrophy of the prostate was reported in two patients.

Ultrasound pelvis in 51 of 59 females was normal. In the remaining patients minimal free fluid in cul-de-sac was reported. All subjects underwent CT scanning, out of which, 63 (52.5%) 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. Twenty-four subjects out of 88 cases (27.2%) had altogether new findings, while 64 (72.7%) cases had findings similar to the sonological findings. Twenty-five out of these 64 had new findings along with the previous findings. Therefore, 49 out of the 88 subjects had new findings. After diagnostic laparoscopy, tissue diagnosis was achieved in 75 of the 88 subjects (85%).

Laparoscopic results showed inflamed appendix, appendicular fecaliths, enlarged mesenteric lymph nodes, salpingitis, omentum at deep inguinal ring, adhesions in pelvis, fluid in cul-de-sac and ovarian cyst, diverticulitis as indicated in Table 2.

Final diagnosis was made in 75 (85.2%) patients. In 13 patients (14.7%) no diagnosis was established. All laparoscopic findings were confirmed by histopathology. Inflamed appendix was the most common diagnosis made in 15 (17%) patients with rest of diagnoses tabulated in Table 3.

The maximum duration of laparoscopic surgery was 108 min. Among the postoperative complications 7 (7.9%) patients developed wound infection, 6 (6.8%) had fever and chest infection, 4 (4.5%) with fever alone. Follow-up was done on weekly basis for 2 months, then on monthly basis for 4 months. No major complications were noted and four patients came back with complaints of recurrent pain who were subjected to further investigations like CT, MRI, and magnetic resonance cholangiopancreatography to ascertain a diagnosis.

Table 1: Clinical presentations

Site of abdominal pain	Number of patients	Percentage
Pain in lower abdomen (RIF, hypogastrium, LIF)	25	28.4
Pain in RIF	21	23.8
Pain in periumbilical/central abdomen	19	21.5
Pain in hypogastrium	6	6.8
Pain in LIF	6	6.8

Pain in right lumbar region	5	5.6
Pain in RIF and hypogastrium	3	3.4
Pain in left lumbar region	3	3.4
Total	88	100

Table 2: Laparoscopic findings

Laparoscopic findings	Number of patients	Percentage
Inflamed appendix	15	17
Adhesions/bands (postoperative/cong.)	11	12.5
Appendicular faecoliths	9	10.2
Enlarged mesenteric lymph nodes	9	10.2
Salpingitis with fluid in cul-de-sac	7	7.9
Ovarian cysts	6	6.8
Caesating mesenteric nodes with ileal adhesions	6	6.8
Fibrous/kinked appendix	5	5.6
Strictured terminal ileum with lymph nodes	3	3.4
Omentum/viscus in deep ring	3	3.4
Meckel's diverticulitis	1	1.1
Fimbrial cyst	1	1.1
Worm in appendix	1	
No pathology found	13	14.7
Total	88	100

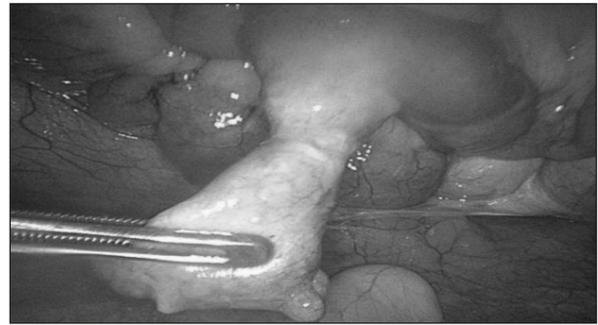
RIF – Right iliac fossa; LIF – Left iliac fossa

Table 3: Final diagnosis

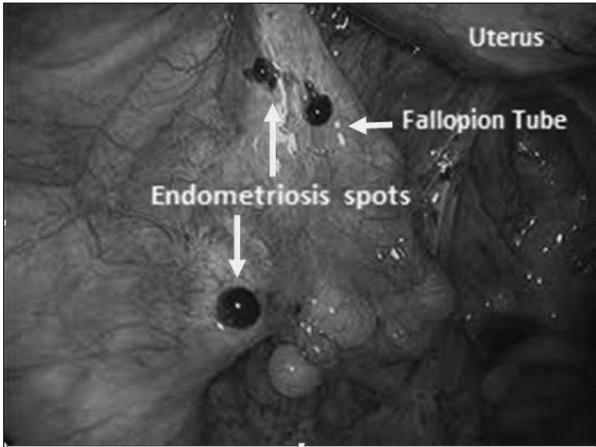
Final diagnosis	Number of patients	Percentage
Appendicular pathology	29	32.9
Pelvic pathology	18	20.4
Abdominal tuberculosis	14	15.9
Mesenteric adenitis	4	4.5
Postoperative adhesions	3	3.4
Early inguinal hernia	3	3.4
Congenital bands	2	2.2
Lymphoma	1	1.1
Meckel's diverticulitis	1	1.1



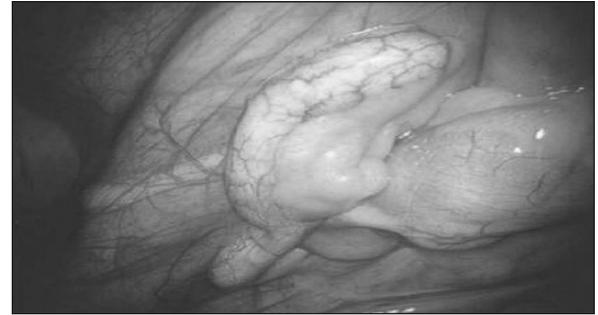
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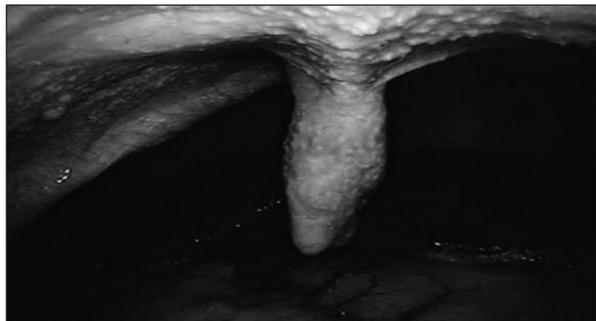
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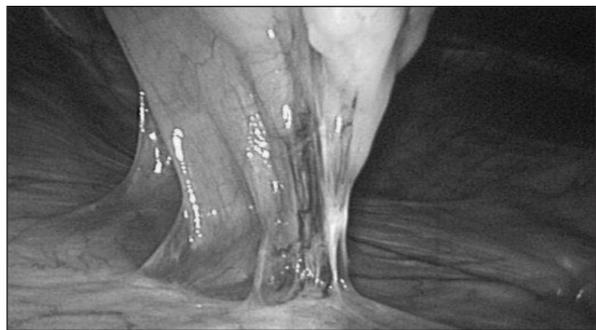
MESENTERIC ADENOPATHY



NORMAL STUDY



PERITONEAL TUBERCULOSIS



ADHESIONS

Discussion

Nonspecific lower abdominal pain is a diagnostic dilemma. In many cases despite all the routine laboratory investigations and ultrasonography, cases remain undiagnosed. The problem posed by patients with NSLAP is considerable. It accounts for an estimated 13–40% of all emergency surgical admissions.¹ The abdominal disease is obscure, and patients usually undergo a battery of investigations and even exploratory laparotomy for definitive diagnosis. It can all be unyielding for the surgeon as well as patient. In such conditions, diagnostic laparoscopy is a better choice. It can directly visualize the abdominal cavity, provide adequate material for histopathological assessment, and in good hands is an excellent therapeutic tool with cosmetic acceptable scars.

Literature review reveals various outcomes of laparoscopy in patients of undiagnosed vague abdominal pain to support its use in recurrent vague abdominal pain. Some studies clearly support the role of laparoscopy in such diagnostically challenging situations and have shown a good accuracy in fetching a diagnosis in NSLAPs.^{10,11} Some other studies were not as supportive.¹² The overall success in our study was 87.3% which validates use of this diagnostic modality. A study by Lippert *et al.* showed that diagnostic difficulties are more in young females with lower abdominal pain and inconsistent features of appendicitis.¹³ Diagnostic

laparoscopy seems to be a better option to evaluate vague lower abdominal pain in this gender class. This is similar to the study carried by Ou and Rowbotham in which diagnostic laparoscopy provided a definitive diagnosis in 76 of the 77 cases (98.7%).¹⁴ In our study, more than half (59 out of 88) of patients were females. This strengthens the observation that nonspecific lower abdominal pain was a common diagnostic problem in this group. In our study laparoscopy provided a definitive diagnosis in 51 (86.4%) out of 59 female patients. In a similar study appendix as pathology was found in 73% cases, whereas in another study it was found in 39% patients.^{15,16} These were higher when compared to our study in which appendicular pathology was found in 32.9% ($n=29$) our study. The appendicular pathology was appendicitis in majority of cases with pelvic position of appendix common along with subcecal and retrocecal appendix. Females with findings of pelvic pathology and pelvic inflammatory disease (PID) were the second most common diagnosis reached with 18 (20.4%) and abdominal tuberculosis was found in 14 (15.9%) patients in a study which is similar to our results.¹⁷ Three male patients in the present study presented with a complaint of right groin pain that radiated to RIF. On diagnostic laparoscopy, findings were of omentum protruding into deep ring in one patient and small bowel along with omentum in two others. Transabdominal preperitoneal hernia repair was done in all the three patients with no postoperative complications. Our results were in concordance to a study revealing similar results.⁴ Early laparoscopy also has the benefit that a number of therapeutic options are available.¹⁸ In this study, diagnostic laparoscopy became therapeutic. Ovarian cysts can be drained and treated with immediate relief of symptoms.¹⁹ Purulent fluid collections secondary to PID or diverticulitis can be drained. Early recognition of PID enables early treatment that is important if complications such as infertility are to be minimized. Patients with an inflamed appendix can be removed safely and effectively laparoscopically. Laparoscopic adhesiolysis is possible.²⁰

In our study, there were some minor postoperative complications noted including wound infection and fever while the laparoscopy failed to make any diagnosis in 13 patients, which were put on follow-up for further assessment to fetch a diagnosis. Five were unmarried females of child bearing age, three were male of age group <12 years, whereas the other females had a history of cesarean section with normal barium studies. All of these patients attended the follow-up clinic for 6 weeks and were being evaluated with other modalities during follow-up.

Conclusions

Laparoscopy provided diagnosis in a large number of patients. It is a good tool for diagnosis and therapeutic surgery. It may be considered as first line operative investigation for undiagnosed recurrent nonspecific lower abdominal pain with no specific etiology.

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