

## Original Research Article

# Diagnostic laparoscopy in acute abdominal pain

Ravichandran Subramaniam\*

Department of General Surgery, Melmaruvathur Adhiparasakthi Institute of Medical Science and Research, Melmaruvathur, Tamil Nadu, India

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**\*Correspondence:**

Dr. Ravichandran Subramaniam,  
E-mail: [drksravichandranms@yahoo.com](mailto:drksravichandranms@yahoo.com)

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### ABSTRACT

**Background:** Acute Abdominal pain is an important surgical problem in all age groups. Early diagnosis is needed to rule out life threatening conditions. Diagnostic laparoscopy is a modern useful tool in giving proper treatment for all needed individuals. The aim of the present endeavor is to study the use of laparoscope in patients with acute pain over the abdomen, to diagnose and confirm conditions like acute appendicitis, appendicular abscess, duodenal perforation, ileal perforation. Ovarian torsion, mass formation, etc. where clinical and imaging studies are inconclusive.

**Methods:** This study was conducted in the tertiary care hospital and the Department of General Surgery, Melmaruvathur Adhiparasakthi Institute of Medical Science and Research, Melmaruvathur. The period of study was from June 2017 to May 2018. All patients coming to the hospital with acute abdominal pain in the age group of ten years to seventy years were included in this study.

**Results:** Majority of the patients had the findings relevant to the correct clinical diagnosis. However significant number of patients had unexpected findings and so the diagnosis was changed, and treatment also changed. Total 100 patients were included in this prospective study. 79 patients were found to have acute appendicitis. Duodenal perforation seen in 7 patients. Jejunal perforation seen in 2 patients. Mesenteric ischemia seen in 1 patient. Acute cholecystitis seen in 3 patients. Gall bladder perforation seen in 1 patient. Ectopic pregnancy was seen in 2 patients. Ovarian torsion seen in 3 patients. Ileocecal tuberculosis seen in 1 patient. No abnormality seen in 1 patient.

**Conclusions:** The best approach in abdominal pain is to do diagnostic laparoscopy and proceed, rather than going for open laparotomy. Diagnostic laparoscopy gives all benefits of minimal invasive surgery. Not much of pain, shorter period of hospitalization, small scars, low infection rates and most importantly, accurate diagnosis and the correct treatment of most of the intra-abdominal conditions are the gifted things.

**Keywords:** Appendectomy, Appendicitis, Bowel perforation, Cholecystitis, Diagnostic laparoscopy

### INTRODUCTION

Abdominal pain is a common problem among everyone, more so in children and female. Abdominal pain may be a simple thing or it may be a dangerous and life threatening one. Abdomen is a Pandora's box. It is very difficult to come to a correct diagnosis. Acute appendicitis, perforation, ovarian torsion, ectopic

pregnancy and rupture are some of the common abdominal emergencies which require immediate surgery. In this era of increasing medical litigations, the surgeon has to be very careful about his patient. It is mandatory to come to a correct diagnosis and to treat accordingly.

Diagnostic laparoscopy gives many advantages in the management of many intra abdominal conditions where the correct diagnosis could not establish clinically or even

with the help of imaging studies (acute appendicitis, pelvic inflammatory disease, hollow viscus perforation, bowel ischemia, etc.).<sup>1,2</sup>

In most of the patients, the clinical signs and symptoms are masked by the treatments given by the different physicians at different hospitals at different points of time. Different radiologists giving different reports of imaging studies and advising to correlate clinically. In these circumstances, diagnostic laparoscopy alone helps to solve the issue.

Diagnostic laparoscopy reduces the number of negative laparotomies in acute abdomen and prevents severe peritonitis which may occur as a result of delay in diagnosis.<sup>2,3</sup>

Diagnostic laparoscopy plays an important role in the evaluation of abdominal pain in young children. It has been studied and documented in many journals.<sup>4,5</sup>

Mesenteric ischemia and the subsequent bowel gangrene can better be controlled and managed reasonably if early diagnostic laparoscopy is advocated. Even in clear cut cases of acute appendicitis, Laparoscopic appendisectomy is the standard treatment.<sup>6</sup>

In cases of peritonitis of unknown origin, diagnostic laparoscopy must be done before coming to an appropriate diagnosis.<sup>7</sup>

## METHODS

This study was conducted in the tertiary care hospital and the Department of General Surgery, Melmaruvathur Adhiparasakthi Institute of Medical Science and Research, Melmaruvathur. The study period was from June 2017 to May 2018. Patients in the age group 10-70 years and both male and female with acute Abdominal pain and suspected surgical causes were subjected to diagnostic laparoscopy, after proper consent and proper pre operative workup.

### Exclusion criteria

Patients with suspicion of malignancy, severe co morbid illness, pulmonary and cardiac disorders, were excluded from the study. Patients with age less than 10 and more than 70 are were also excluded from the study. All lesions which were diagnosed, were managed as per the standard protocol. For all patients, Post operative pain, Reintroduction of diet, hospital stay, pre operative and post operative complications were properly carried out. All patients were followed up for up to 3 months.

### Procedure

Diagnostic laparoscopy was performed with proper care. Ryle's tube used to decompress the stomach and Foleys catheter to empty the urinary bladder. Antibiotics were

started pre operatively and continued according to the findings. Pneumoperitoneum was created by using direct access method. Intra - abdominal pressure was kept initially 12 to 14 mmHg which was reduced to 10 mmHg after insertion of all trocars. First 10 mm trocar was put in supra umbilical position. 30 degree telescope (Stryker, USA) was used and further trocars, 10 mm, 5 mm were inserted depending on the case. In some cases, 10 mm trocar was used in left iliac fossa.

Conversion to midline laparotomy was done in twenty-two cases. All patients were treated with appropriate surgical procedures.

## RESULTS

Author have included 100 patients in the present study. Author did diagnostic laparoscopy for all the one hundred patients. Out of one hundred patients, 42 were male and 58 were female. Appendicitis was the most common diagnosis in current study (79%). 32 male and 47 females were diagnosed to have acute appendicitis in current diagnostic laparoscopy. Laparoscopic appendisectomy was done for all these 79 patients.

**Table 1: Outcomes of diagnostic laparoscopy.**

Diagnosis	Total, no. of males	Total no. of females	Total no of patients
Acute appendicitis	32	47	79 (79%)
Duodenal perforation	5	2	7 (07%)
Ileal perforation	2	0	2 (02%)
Mesenteric ischemia	1	0	1 (01%)
Acute cholecystitis	1	2	3 (03%)
Gall bladder perforation	0	1	1 (01%)
Ectopic pregnancy	0	2	2 (02%)
Ovarian cyst	0	3	3 (03%)
Ileocecal tuberculosis	1	0	1 (01%)
No abnormality	0	1	1 (01%)
Total no of patients	42	58	100

The second common finding was perforated peritonitis. It was 9% in present study. Out of hundred patients with acute abdominal pain, 7 patients had duodenal perforation and 2 patients had ileal perforation. Perforation was common in males. Third common finding was cholecystitis. It was 3%. Out of hundred patients with diagnostic laparoscopy, 3 patients with acute abdominal pain turned out to be acute cholecystitis. One more patient was found to have gall bladder perforation. Other findings were 3 patients with ovarian cyst and torsion (3%). They had their pain attributed to ovarian lesions. Unusual cases of mesenteric ischemia, ectopic pregnancy,

ileocecal tuberculosis were also diagnosed with diagnostic laparoscopy. Author had one patient with mesenteric ischemia and two patients with Ectopic pregnancy. These patients were converted to open laparotomy and appropriate surgery was done. One patient was found to be having ileocecal tuberculosis on diagnostic laparoscopy. His clinical findings were very similar to acute appendicitis. His total blood count was elevated. He was having fever. He was having typical MC Burney point tenderness. He had no history of cough. He had no history of weight loss. He had no history of contact with tuberculosis patients. He had no cervical lymph nodes enlargement. His chest x-ray was normal. If diagnostic laparoscopy had not been done, we might have missed the diagnosis.

## DISCUSSION

Abdominal pain is the most important thing in majority of surgical patients. Intensity of the pain and pain threshold differs from patient to patient. Increasing number of medico legal litigations force the surgeons to arrive at the correct diagnosis and prompt treatment.

Acid peptic disease is the common cause of abdominal pain and other related symptoms. Many people think that the abdominal pain is because of acidity and try their own medication which are available over the counter. This not only masks the signs and symptoms of abdominal emergencies but also increase the chances of wrong diagnosis and inappropriate treatment by the physician.

Ultimately when the patient is referred to the surgeon, the surgeon may be in a dilemma. Even the latest investigations like computerized tomographic scan with contrast study may not help much. diagnostic laparoscopy alone will be useful and use of laparoscopy is well established in the management of acute as well as chronic abdominal pain.<sup>4-7</sup>

In present study, 12 patients were really very sick. The vital signs were not good. The physician advised conservative line of management. The anaesthesia happened be a high risk one. But even in these cases., We have done the best by early diagnostic laparoscopy.. and saved the lives. Early laparoscopy has been advocated as a routine procedure for acute Abdominal pain.<sup>6-8</sup> In present study, out of 100 patients with acute Abdominal pain , 79 patients had appendicular pathology, 1 patients had normal looking appendix with no other abdominal findings and remaining 20 patients had non appendicular pathology.

Laparoscopic appendesectomy was done in 79 patients having acute appendicitis.. 32 male and 47 female patients were diagnosed as having appendicitis. However, only 52 patients had the clinical findings of appendicitis on pre operative examination. In many cases the per operative findings were different from the CT or imaging studies. Laparoscopic appendisectomy was done in all 79

patients. It has been accepted that laproscopic appendisectomy is the best choice in most cases of appendicitis.<sup>9,10</sup>

Unusual diagnosis of duodenal perforation was seen in seven patients. It was to be noted that. radiologically there was no gas under diaphragm in three of these patients. These patients were not having the typical guarding or rigidity. Perforation closure was done for these patients. It is not uncommon to think about ileal perforation and enteric fever. In present series, ileal perforation was seen in two patients. However, these patients had no clinical evidence of enteric fever.

Author had one patient, treated at different places for one week for abdominal pain. He was referred to us for further evaluation. His imaging studies were normal. Blood investigations were within normal limits. Author proceeded with early diagnostic laparoscopy. And this patient with severe abdominal pain turned out to be a case of mesenteric ischemia. Timely intervention saved his life.

In present study three patients who were clinically diagnosed as acute gastritis. But on diagnostic laparoscopy, they were found to have acute cholecystitis. Author proceeded with laparoscopic cholecystectomy.

Twenty eight years old married female admitted in casualty with pain lower abdomen, 6 weeks amenorrhoea, no PV bleeding. UPT was negative, USG abdomen and pelvis were normal. After workup diagnostic laparoscopy was done. Right tubal pregnancy was found. Right sided salpingectomy was done with prior consent. It has been accepted that diagnostic laparoscopy is a better choice in female patients and children.<sup>10-12</sup>

Thirty years female with right iliac fossa pain convinced by local practitioner that she is having appendicitis was worked up. Diagnostic laparoscopy was done. Appendix was normal in appearance. Right sided 5 cm twisted ovarian cyst was the diagnosis. Patient was treated accordingly.

Forty years multiparous female admitted in casualty with recurrent lower abdominal pain, regular menses. USG whole abdomen and pelvis was normal. After workup diagnostic laparoscopy was done. Appendix was normal in appearance. Right sided simple ovarian cyst 2 cm in size was found which was punctured with diathermy. It is pertinent to note, that diagnostic laparoscopy is the best thing to do in female patients and children to come to the correct diagnosis and prompt treatment.<sup>13,14</sup>

Twenty six yrs old male admitted with H/O recurrent abdominal pain. USG abdomen and pelvis were normal. CECT was inconclusive. After workup diagnostic laparoscopy was done. Appendix was normal in appearance with ileocaecal thickening and mesenteric lymph node enlargement. Biopsy from ileocaecal

junction and mesenteric lymph node was taken, sent for HPE. HPE revealed, tuberculosis, patient was put on ATT. Thirty five years old male admitted in casualty with abdominal pain and guarding. O/E tenderness right iliac fossa. Bowel sounds were present. Workup was done. USG whole abdomen and pelvis was normal. Diagnostic laparoscopy was done. Appendix was normal in appearance. Ileal perforation was seen with soiling of peritoneal cavity. Case converted to open laparotomy and perforation closure was done.

There were Forty five years old male admitted in casualty with 4-5 days severe pain right iliac fossa, duration two day, not passing flatus, O/E rigid abdomen no bowel sounds, no obvious distension of abdomen. Workup was done. USG whole abdomen and pelvis revealed free fluid in peritoneal cavity, X-ray abdomen AP erect showed gas under right dome of diaphragm. We suspected perforated peritonitis. On laparoscopy, appendix was normal in appearance. Duodenum was found to be perforated. We converted it to laparotomy. Thirty two yrs old male was admitted in casualty with suspected acute appendicitis. Workup was done. USG abdomen was normal. On diagnostic laparoscopy appendicular mass was seen. Careful bowel inspection revealed multiple adhesion. A drain was kept and the patient was treated with due care. It is worth mentioning here. Author are seeing a change in the management of appendicitis.<sup>15</sup>

## CONCLUSION

Diagnostic laparoscopy followed by appropriate surgery should be should be standard approach for acute Abdominal emergencies. irrespective of its anatomical and pathological types. It is method of choice in children, young women and obese patients. It reduces rate of wrong treatments. Thorough exploration of peritoneal cavity in possible with laparoscope. Small incision and small scar, minimal complaints like wound infection, postoperative adhesions, incisional hernia, less chance of infertility are the added advantages. Diagnostic laparoscopy has a sensitivity and specificity of 100%.

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