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Original Research Article

A study of the role of diagnostic laparoscopy in 25 cases of acute abdomen

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ABSTRACT

Background: Acute abdomen is associated with patient discomfort and diagnostic challenges. Diagnostic laparoscopy is a tool which can help in providing diagnosis and treatment. This study is aimed to use laparoscopy as diagnostic and therapeutic procedure. It can avoid unnecessary open procedure, provide early discharge, and decrease patient discomfort.
Methods: A case study of 25 cases of acute abdomen was done. All cases were initially evaluated with ultrasonography abdomen and abdominal X-ray and diagnostic laparoscopy was done. Therapeutic procedures were done according to pathology encountered. All patients were followed up 1 year from discharge
Results: A total 25 cases were used; appendicectomy was done in 12 patients, adhesiolysis in 3 patients, peptic perforation repair done in 3 patients. Drainage of fluid done in 1 patient. Omental biopsy was taken in 1 patient. Marsupialisation of left ovary done in 1 patient. 8% cases required open surgery. Open right hemicolectomy and resection anastomosis, open enteric perforation repair was done in 1 patient each. 52% cases were discharged within 2 days. 10% patient required stay for 6 days.
Conclusions: Diagnostic laparoscopy can be used in acute abdomen. It avoids unnecessary laparotomy and helps in diagnosis in which radiological findings are equivocal. Post-operative recovery is fast in compare to open procedure

Keywords: Acute abdomen, Diagnostic laparoscopy, Enteric perforation repair, Laparoscopic appendicectomy, Laparoscopic adhenolysis, Omental biopsy, Peptic perforation repair, Resection anastomosis

INTRODUCTION

The term acute abdomen refers to signs and symptoms of abdominal pain and tenderness, a clinical presentation that often requires emergency surgical management.

Diagnostic laparoscopy allows a surgeon to directly view the types of abnormal abdominal contents that could be the cause of pain and which would not be otherwise diagnosed and it can exclude other causes of pain. On the other hand, unnecessary laparotomy is painful, increases hospital stay, increases hospital cost and is associated with morbidity of 5% to 22%.[1] Diagnostic laparoscopy is a valuable technique for determining the cause of acute or chronic abdominal pain.

This study is aimed to assess diagnostic as well as therapeutic efficacy of laparoscopy in management of acute abdomen. Laparoscopy has a significant diagnostic and therapeutic role in patients with acute abdomen.

Therapeutic procedure like laparoscopic appendicectomy, laparoscopic adhesinolysis, laparoscopic peptic perforation repair, laparoscopic enteric perforation repair, laparoscopic drainage of free fluid and lavage, laparoscopic assisted resection

anastomosis and many other therapeutic procedures can be performed simultaneously.

METHODS

From 2013 to 2016, 25 patients underwent diagnostic laparoscopic operations for acute abdomen. The patients were investigated with ultrasonography, abdominal x ray and CT scan abdomen. This is a report of our experience in diagnostic laparoscopy to evaluate its indications and its possible benefits. The clinical characteristics of patients, the type of surgery, and the follow-up observation were analyzed based on medical records. The follow-up observation period was from the day of the first visit to the most recent visit to our outpatient clinic. As clinical characteristics, the gender of the patients, age, major symptoms, the duration of pain prior to admission, body temperature at the time of admission, heartbeat, the number of leukocytes, and associated chronic diseases were assessed.

This is a report of our experience in diagnostic laparoscopy to evaluate its indications and its possible benefits.

RESULTS

Acute abdomen is equally distributed among both the sexes. More common in reproductive age group from 15 to 45 years. More than 90% belong to this group.

Table 1: Comparison of age and sex among patients with acute abdomen.

Age	Sex	
	Male	Female
<15 years	1	0
15-30	7	8
30-45	1	4
45-60	2	1
>60	1	0
Total	12	13

Table 2: Illustration of various symptoms of acute abdomen.

Symptoms	Number	Percentage Total
Pain	24	96
Vomiting	16	64
Fever	13	52
Distension	08	32
Constipation	06	24
Diarrhoea	01	4

Pain was present in all patients 96%. Vomiting was the next positive symptom considering it was present in nearly 64% of cases. Patients frequently complained of abdominal distension in nearly 32%. Fever and constipation was also present in some cases. Diarrhoea was recorded in few

Table 3: Different laparoscopic modalities of treatment for acute abdomen.

	Number	Percentage of total	Average operative time (minutes)
Laparoscopic appendicectomy	12	48	48
Laparoscopic adhesionolysis	3	12	70
Laparoscopic drainage of free fluid and lavage	1	4	30
Laparoscopic omental biopsy	1	4	30
Marsupialisation of left ovarian cyst	1	4	90
Laparoscopic appendicectomy and Meckel's diverticulectomy	1	4	80
Laparoscopic peptic perforation repair	3	12	130
Laparoscopy assisted apendicectomy and enteric perforation repair	1	4	60
Laparoscopy assisted resection anastomosis and right hemicolectomy	1	4	120
Single incision laparoscopic appendicectomy	1	4	60
Total	25	100	

The most common entity encountered was acute appendicitis. It was sometimes accompanied by drainage of free fluid. Laparoscopic peptic perforation repair done in 12% of cases. There is only 8% of cases in which laparoscopic surgeries were converted to open in whom in 4% of cases laparoscopic assisted lower midline appendicectomy and enteric perforation repair done. In 4% of cases laparoscopy assisted resection anastomosis and right hemicolectomy done. Now after laparoscopic diagnosis of acute appendicitis with the same incision single incision laparoscopic appendicectomy done. Adhesionolysis was also done in considerable number of

patients. Average time to perform laparoscopic appendicectomy was 48 minutes.

Table 4: Post-operative stays among operative patients.

Post-operative stays (days)	Number of patients	% of total
0-2	13	52
2-3	3	12
3-4	4	16
4-5	2	8
5-6	1	4
>6	1	4

In 52% cases in which we had performed diagnostic laparoscopy were discharged within 2 days. Only few required stay upto 6 days as they were laparoscopic assisted open surgeries.

Table 5: Requirement of analgesia among operative patients.

Requirement of analgesia (days)	Number of patients	% of total
Single dose	5	20
1	8	32
2	5	20
3	3	12
4	2	8
5	2	8

20% of patients in which we had performed diagnostic laparoscopy were required only single dose analgesia. 40% of patients required analgesia for 1 day and only 10% of patients required analgesia for 5 days in was laparoscopic assisted open surgery done.

DISCUSSION

Acute abdomen is equally distributed among both the sexes.[2] More common in reproductive age group from 15 to 45 years.[3] More than 90% belong to this group. Pain was the most common symptom. Pain was present in all patients 96%. Vomiting was the next positive symptom.[4] Patients frequently complained of abdominal distension. Fever and constipation was also present in some cases. Diarrhoea was recorded in few.[5] Abdominal tenderness is present in almost all cases of acute abdomen. Abdominal guarding was present and rigidity was there in most cases. The most common entity encountered was acute appendicitis.[6] It was sometimes accompanied by drainage of free fluid. Laparoscopic peptic perforation repair done in 12% of cases.[7] Only 8% of cases in which laparoscopic surgeries were converted to open in whom in 4% of cases laparoscopic assisted lower midline appendicectomy and enteric perforation repair done.[8] Laparoscopy assisted resection anastomosis and right hemicolectomy were other options.[9] Now after laparoscopic diagnosis of acute appendicitis with the same incision single incision laparoscopic appendicectomy done.[10] Adhesionolysis was also done in considerable number of patients.[11] Next to laparoscopic appendicectomy, adhesinolysis and peptic perforation repair were also done in considerable number of patient. In few of cases no pathology found and only drainage of free fluid and lavage done. Most of patient in which we had perform diagnostic laparoscopy were discharge within 2 days. Only a few cases required stay up to 6 days in whom laparoscopy assisted open surgery done.[12] 20% of cases in which we have performed diagnostic laparoscopy were required only single dose analgesia. 40% of cases required analgesia for 1 day and only 10% of cases required analgesia for 5 days in whom laparoscopy assisted open surgery done.[13] Average time of performing only diagnostic laparoscopy is 15 minute and average time of performing laparoscopic appendicectomy was 48 minutes.[14]

CONCLUSION

Diagnostic Laparoscopy offers a superior overview of the abdominal cavity with minimal trauma to the patient. If further surgery is needed, it may take the form of either laparoscopic procedure or to open surgery. The incision for open surgery being guided by laparoscopic finding. The complications associated to laparoscopy are few and can be minimized further by using mini laparotomy technique. Diagnostic laparoscopy has advantage of therapeutic intervention like laparoscopic appendicectomy, laparoscopic adhesinolysis, laparoscopic peptic perforation repair performed simultaneously with minimal need of investigation and high diagnostic and therapeutic accuracy. Conditions amenable to therapeutic laparoscopy include appendicitis, perforated peptic ulcer, diverticulitis, small bowel obstruction, acute cholecystitis, diaphragmatic rupture and splenic or hepatic injury. Diagnostic laparoscopy reduces overall hospital stay, post-operative complications including pain, early return to work, avoids ugly scar. Hence cost effective with same result comparison to open.

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