

Role of Diagnostic Laparoscopy in Acute Abdomen



Medical Science

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ABSTRACT

Background

Acute abdomen is not acute a disease in itself but a description of a complex of symptoms combined with severe abdominal pain developed within a time frame of less than 24 hours. In patients with acute abdominal pain, early laparoscopy is an accurate means of both making a definitive diagnosis and avoiding a delay in the diagnosis.

Material and Methods:

The study was performed in Department of General Surgery in our institute from April 2011 to June 2013. A pre-designed and pre-tested proforma was used to collect baseline data which was entered into MS Office- Excel 2007 and analysis was done in Epi info version 3.7.1.

Results and conclusion

The fact that laparoscopy has gained widespread acceptance in acute abdomen as a diagnostic and therapeutic tool is clearly underlined by the present study which shows a definitive diagnosis of 100% with diagnostic laparoscopy and a successful therapeutic intervention in 90% of the patients subjected to diagnostic laparoscopy.

INTRODUCTION

Acute abdomen is not a disease itself but a description of a complex of symptoms combined with severe abdominal pain developed within a time frame of less than 24 hours (1). It refers to signs & symptoms of abdominal pain & tenderness, a clinical presentation that often requires emergency surgical therapy.

All strategies for the management of acute abdomen require focussed and intelligent use of efficient diagnostic procedures. Despite new x-ray techniques, or scans, and ultrasound, the diagnosis of acute abdomen can be difficult at times. Diagnostic laparoscopy (DL) may be a key to solving the diagnostic dilemma of nonspecific acute abdomen. Furthermore, it allows not only direct inspection of the abdominal cavity but also surgical intervention, if needed.(2)

MATERIALS & METHODS

The study was performed in Department of General Surgery in our institute from April 2011 to June 2013. A pre-designed and pre-tested proforma was used to collect baseline data by house to house visits. Informed consent was also taken before the initiation of survey. Data was entered into MS Office- Excel 2007 and analysis was done in Epi info version 3.7.1.

INCLUSION CRITERIA

Patients included are based on the following criteria :

Those presenting with **abdominal emergencies** with a **history of unresolved persistent intra -abdominal pain or mass** with/without **nausea / vomiting, fever** more than 38° C and/or **leukocytosis** above 10,000 cells/mL, **Guarding** and **Tenderness** on physical examination, patients with **acute gall bladder disease**, patients with **severe blunt abdominal trauma**, **Ultrasound showing an appendix of 7mm or more in antero-posterior diameter** or presence of an appendicolith, a **thick-walled, noncompressible luminal structure**, **elevated enzymes** and also those in whom other **diagnostic techniques have failed** such that **laboratory tests are indecisive**, **sonography or computed tomography (CT) is inconclusive**, **sonography and CT are discordant**.

EXCLUSION CRITERIA

Patients were excluded if they were in **shock on admission**, with **massive bleeding**, **hemodynamic instability**,

severe cardiac disease, **severe portal hypertension**. Also ultrasound suggestive of **abscess, or perforation or Ruptured appendix** because the facility of emergency laparoscopic surgery in our department was not available. This group of patients was operated by open method and not included in our study.

Patients with following conditions were *also* excluded : History of cirrhosis and coagulation disorders ,Generalised peritonitis ,Absolute contraindication to laparoscopic surgery (large ventral hernia, history of laparotomy, ascites with abdominal distension), Contraindication to General Anesthesia (Severe cardiac or Pulmonary disease), Inability to give informed consent due to mental disability, Pregnancy

RESULT

A prospective study was carried out in the general surgery department at Civil Hospital Ahmedabad. 50 patients diagnosed to have acute abdominal pain were included for diagnostic laparoscopy & their various parameters were studied. The results of the study are analyzed as below.

TABLE :1 Age and Sex comparison of cases of acute abdomen under study

Age	Sex(M/F)	
	Male	Female
15-30 yrs	8	7
30-45 yrs	7	11
45-60 yrs	4	9
>60 yrs	0	4
Total	19	31

Table 1 clearly show that more females(62%) presented with acute abdominal pain as compared to males (38%)

- In females presenting with acute abdomen it was more commonly observed in the reproductive age group 15-45 years (36%)

TABLE:2 Symptoms in patients presenting with acute abdomen

Symptoms	Number	%Total
Pain	50	100
Vomiting	36	72
Fever	14	28
Distension	18	36
Constipation	12	24
Diarrhea	2	4

From Table 2 we observe that

- Pain was the presenting symptom in all 50 patients (100%)
- Vomiting was the next most common symptom presenting in 72% of the patients
- The frequency of patients presenting with distension was 36%
- Constipation and fever were present in 30% and 28% of the patients respectively.
- Diarrhea was the least common presenting symptom seen only in 4% of the patients.

TABLE:3 Presenting signs in patients with acute abdomen

Sign	Number	%Total
Tenderness	49	98
Guarding	6	12
Rigidity	7	14

Table 3 shows that

- Tenderness was present in nearly all the cases (98%)
- Guarding was present in 12% of the cases
- Rigidity was present in 14% of the cases.

TABLE:4 Histopathological findings in patients undergoing diagnostic laparoscopy for acute abdomen

Histopathological report	Number	% Total
Acute appendicitis	20	40
Cholecystitis	16	32
Tuberculosis	7	14
Non specific inflammation	5	10
Ovarian cyst	2	4

Table 7: Comparison with other studies

No	Study	Definitive diagnosis by DL	Therapeutic laparoscopic intervention	Conversion rate to open laparotomy	Most common pathology	Post operative death
1	Golash V. et al.(3)	90%	83%	7%	Peritonitis(13.63%) of which appendicitis was 61.1%	One(0.075%)
2	Salky B.A. et al(4)	98%	44%	18%	Not reported	None
3	Taylor et al(5)	100%	31.5%	None	Appendicitis(57.89%)	None
4	Ahmed T.A. et al(6)	92%	81%	8%	Appendicitis(38.2%)	None
5	Mehta S.G. et al(7)	92%	64%	19%	Appendicitis(32%)	None
6	Present study	100%	90%	None	Appendicitis(40%)	None

The above table shows that

- The most common pathology encountered was acute appendicitis occurring in 40% patients
- Cholecystitis followed close at second with frequency in 32% of the patients
- Tuberculosis and non specific inflammation were other less commonly encountered entities occurring in 14% and 10 % respectively.
- The least common was ovarian cyst encountered in 4% of the patients

TABLE :5 Analysis of therapeutic laparoscopic procedures in patients with acute abdomen

Therapeutic Laparoscopic Procedures	Number	% Total
Adhesiolysis	7	14
Appendectomy	19	38
Cholecystectomy	13	26
Repair of perforation with drainage of fluid and lavage	4	8
Ovarian Cystectomy	2	4

From the above table we observe that

- Most common entity encountered was appendicitis(38%) which was treated by appendectomy .
- Cholecystectomy was the next most common therapeutic intervention undertaken. (26%)

TABLE :6 Post operative Stay (in days)

Post-op stay (days)	No. of patients	% of total
0 to 2	23	46
2 to 3	8	16
3 to 4	8	16
4 to 5	8	16
5 to 6	2	4
6 to 7	1	2

From the above table we observe that

- 46% of the cases in which we had performed diagnostic laparoscopy were discharged after 2 days.
- Only 2% required a stay upto 7 days as a consequence of surgical complication.

The above comparative analysis clearly shows that

- The present study achieved a 100% definitive diagnosis with diagnostic laparoscopy which compared favourably with other studies showing similar rates ranging from 92-100%
- In the present study 90% patients submitted to diagnostic laparoscopy underwent therapeutic laparoscopic intervention which compares favourably with the studies of Golash et al(83%) and Ahmed et al(81%)
- The conversion rate to open laparotomy in present study was nil which compares favourably with the study of Taylor et al.
- The most common pathology causing acute abdomen encountered in the present study was appendicitis for which therapeutic appendicectomy was undertaken successfully. This compares favourably with the other studies in which also the most common cause of acute abdomen was appendicitis.
- The mortality rate in the present study was nil which again compares favourably with other studies.

Discussion

As seen from the analysis of the present study and its comparison with other studies, the ability to improve surgical decision-making in the acute abdomen using selective laparoscopy is now established. diagnostic laparoscopy also is effective in preventing unnecessary laparotomy.

As in the present study, an initial patient assessment using a structured proforma appears to be one of the most significant factors in the improvement of diagnostic accuracy and their combination with a policy of early selective laparoscopy has been shown to be beneficial as shown clearly by a definitive diagnosis of 100% with diagnostic laparoscopy.

The fact that laparoscopy has gained widespread acceptance in acute abdomen as a diagnostic and therapeutic tool is clearly underlined by the present study which shows a successful therapeutic intervention in 90% of the patients subjected to diagnostic laparoscopy.

It is cost effective and safe with less postoperative morbidity and mortality as shown by a post operative stay of 0-2 days in maximum number of patients(46% of total) which has a favourable impact on cutting hospital and patient costs and no patient mortality.

The most common cause of acute abdomen as diagnosed and treated by laparoscopy remains appendicitis as evidenced by the present study(40% patients) and is in accordance with other studies cited.

After using diagnostic laparoscopy in management of acute abdomen, this study came to the conclusion that diagnostic laparoscopy is helpful in diagnosis of acute abdominal conditions and the necessary therapeutic interventions. It also reduces the chances of unnecessary laparotomy. By exact diagnosis, diagnostic laparoscopy reduces scar size, complications related to surgery, operative time and hospital stay and thus it reduces morbidity and mortality. Diagnostic laparoscopy is the gold standard in management of acute abdomen as it is easy, less time consuming, cosmetically favorable and definitive with lesser complications and lesser morbidity and mortality.

By appropriate training, enough experience, enough patience and proper selection of the patients, diagnostic laparoscopy is the best diagnostic test available at present for conditions causing acute abdomen.

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