

Study of Diseases in Patients with Non-Traumatic Acute Abdomen

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Abstract:

Objectives:

1. To identify the spectrum of diseases leading to acute abdomen presenting to General surgery department.
2. Sensitivity , specificity , positive predictive value and negative predictive value of different investigations results.
3. Diagnostic accuracy of acute abdomen confirmed by operative findings.
4. Rate of negative laparotomy.
5. Age and sex incidence ratio.

Methods: All patients attending to the surgical OPD and Emergency , accident Department (casualty) with clinical features suggestive of non traumatic acute abdomen within the study period. Detailed clinical findings and investigations were included. At that time the pre operative diagnosis is made which is recorded and subsequently the per operative findings also recorded after surgery.

Study Design: This is a Prospective observational study conducted in the General Surgery Department, Siddhartha Medical College , Govt. General hospital, Vijayawada, AP,INDIA.

Results: In the present study 100 patients were included. All these patients underwent emergency laparotomy with the provisional diagnosis of acute abdomen. 66% of the patients were male, 34% female , 58% of patients were between 13-30 years of age, 10% more than 50 years of age and 32% of patients were above 39 years. Maximum number of patients were in age group of 20-29 years. The most common cause of acute abdomen comprised of acute appendicitis-60% and followed by hollow viscus perforation with peritonitis – 26%, and bowel obstruction – 14%

All the patients were subjected to total leucocytes counts and differential counts, urine analysis, serum amylase, plain x ray abdomen. Selected patients were subjected to USG Abdomen, CT. 78% patients showed raised total leucocytes count, 92% with raised DC, Plain xray abdomen was positive in 43%, USG was performed in 84% patients, and 62% had positive findings, CT was done in 26% pt, 22 reported positive findings. Among the 60 patient diagnosed s acute appendicitis , 7 turned out to be negative, 2 pt present with abdominal TB Where no obstruction were found. The percentage of negative laparotomy in the study group was 14%.

Conclusion: The most common cause of acute abdomen in the study was acute appendicitis, affecting young population, this was followed by Hollow viscus perforation with peritonitis and bowel obstruction. Diagnostic accuracy was 77%, highest diagnostic accuracy was seen with bowel obstruction (85%), lowest with HVP with peritonitis-65%. The clinical and per operative diagnostic difference was significant ($p=0.003712$). Over all negative laparotomy rate was 14%, highest negative laparotomy with acute peritonitis, while the least with acute appendicitis.

Key Words: Non traumatic acute abdomen, laparotomy, Appendicectomy, Laparotomy, Hollow viscus perforation with peritonitis, Bowel obstruction.

I. Introduction

The term acute abdominal pain generally refers to previously undiagnosed pain that arises suddenly and is of less than 7 day's (usually less than 48 hour's) duration. The correct interpretation of abdominal pain is one of the most challenging demand to any Surgeon. Since proper therapy often requires urgent action, the luxury of the leisurely approach suitable for the study of other conditions is frequently denied. The complexity of situation is enhanced by the various types of intra and extra abdominal pathology that contributes to the complaint of abdominal pain.

Abdominal pain that persists for 6 hours or longer is usually caused by disorders of surgical significance. The primary goals in the management of patients with acute abdominal pain are (1) to establish a differential diagnosis and a plan for confirming the diagnosis through appropriate imaging studies, (2) to determine whether operative intervention is necessary, and (3) to prepare the patient for operation in a manner that minimizes perioperative morbidity and mortality.

The proper management of patients with acute abdominal pain requires a timely decision about the need for surgical operation. This decision requires evaluation of the patient's history and physical findings, laboratory data, and imaging tests. Many diseases, some of which do not require surgical treatment, produce abdominal pain, so the evaluation of patients with abdominal pain must be methodical and careful. All patients with abdominal pain should undergo evaluation to establish a diagnosis so that timely treatment can minimize morbidity and mortality.

Correct pre-operative diagnosis of acute abdomen with limited resources is very crucial to minimize the morbidity and mortality in the developing countries like ours, where the facilities for diagnosis are limited and not economical, the clinical skills play a pivotal role in the diagnosis and management of acute abdomen. Thus, surgeons in developing countries need to improve diagnostic acumen and decision-making in the management of acute abdomen.

II. Aims And Objectives

Aim: To compare the pre-operative diagnosis based on clinical examination and investigation with the operative diagnosis in non –traumatic acute abdomen.

Objectives:

1. Sensitivity, specificity, positivity predictive value and negative predictive value of different investigations
2. Diagnostic accuracy of acute abdomen confirmed by operative findings
3. Rate of negative Laparotomy
4. Age and Sex incidenceratio

III. Patients And Methods

1.The Prospective observational study conducted in the Department of General Surgery, consisted of 100 patients. All the patients attending of accident and emergency Department (casualty) with clinical features suggestive of non – traumatic acute abdomen. A well designed proforma had been used that recorded all the detailed history, including present complaint, past history ,drug and treatment history, other relevant history.

2 A detailed clinical findings and investigationsresults were also included . At that time the preoperative diagnosis is made which is recorded and subsequently the per operative findings also recorded afterperforming surgery.

Inclusion Criteria

1. All the patients with clinical diagnosis of acute abdomen
2. Patients with no history of recent trauma
3. Patients requiring surgery for acute abdomen
4. Age group from above 13 years

Exclusion Criteria

Traumatic acute abdomen will be excluded from the study.

Study Area and Period

This study was conducted in the Department of General surgery, Siddhartha medical college, Vijayawada, during the period of 12 months.

IV. Observations And Results

In the present study 100 patients were included. All the patients underwent emergency laparotomy with the provisional diagnosis of acute abdomen. 66% of the patients were male and 34 % were female (2:1).58% of the patient were of 13-30 years , 10% were of more than 50 years of age and 32% were above 39 years of age, maximum number of patients (35%) were in age group 20-29 years. And 60% of the total patients of acute abdomen comprised of acute appendicitis, 26% peritonitis due to hollow viscus perforation, and 14% of the causes were due to bowel obstruction.

All the patients were subjected to Total Leucocytes count, Differential count, urine analysis, serum Amylase and Plain x-ray abdomen. Selected patients were subjected to abdominal ultrasonography and computed tomography of abdomen.

Total Leucocyte count was found rose in 78% of patients and differential leucocyte count in 92%, Urine analysis showed abnormality in 22% of patients. Serum amylase was significant in 30% and plain x ray abdomen was positive in 43%

Abdominal ultrasonography was performed in 84% and 62% of reports were positive findings, Computed tomography of abdomen was done in only 26% out of whom 22 reported with positive findings comprising 84% of the patients.

Among the 60 patients diagnosed as acute appendicitis , 7 turned out to be negative which were later diagnosed as urinary tract infection, pelvic inflammatory disease and non specific abdominal pain , ovarian cyst and normal appendix. In 5 patients with acute pancreatitis, psoas abscess, bilateral basal pneumonia, presented with features of peritonitis where laparotomy was not actually necessary. Two patients with abdominal tuberculosis who presented with features of bowel obstruction where no sites of obstruction were found, laparotomy was not necessary. The percentage of negative laparotomies in the study was 14% .

Table – showing sex distribution

SEX	FREQUENCY	PERCENT
MALE	66	66%
FEMALE	34	34%
TOTAL	100	100%

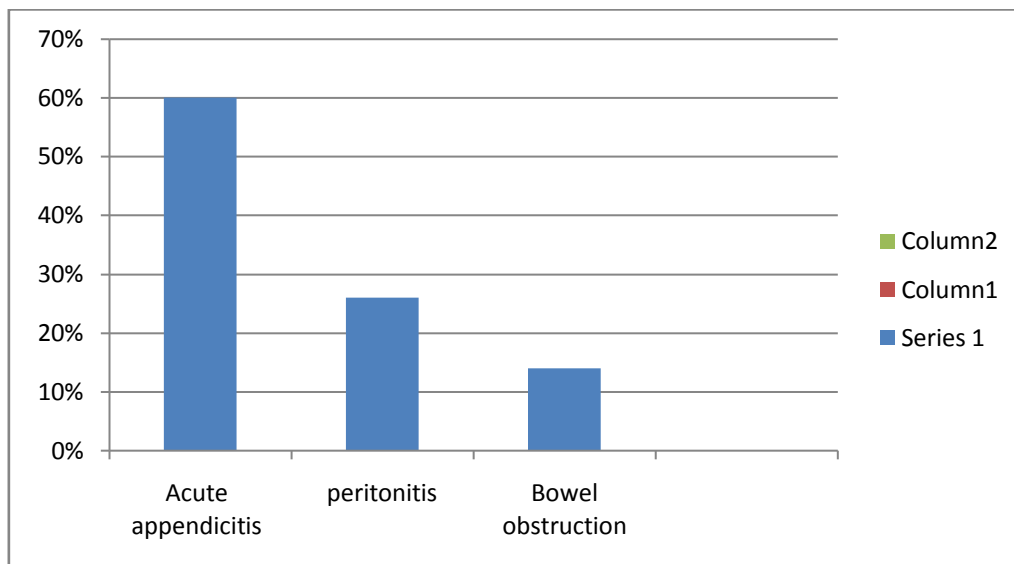


Fig 1: percent distribution of acute abdomen by aetiology

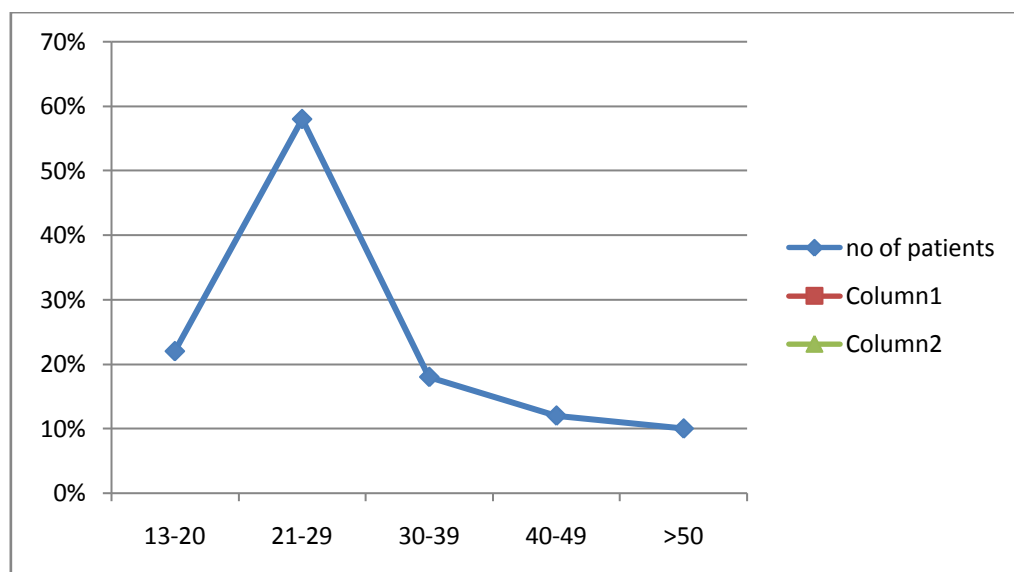


Figure 2 - Distribution of acute abdomen by ages

Table 1: Investigations performed to diagnose causes of acute abdomen

Investigations	Positive findings	Percentage value
Total leucocytes count(100)	78	78 %
Differential count (100)	92	92%
Urine analysis	22	22%
Serum amylase (100)	30	30%
Plain x ray abdomen 1(00)	43	43%
Ultrasonography (840	52	62%
CT SCAN (26)	22	84%

Table 2 : Total number of negative laparotomy

	Negative laparotomy	Percentage value	p- value
Appendicitis	7	11.6%	0.0018203
Peritonitis	5	19.2%	0.033281
Obstruction	2	14.3%	0.3297645
Total	14	14%	0.0010062

Table 3 : Total number of cases with correct preoperative diagnosis

Pre operative diagnosis	Correct diagnosis	Percentage value
Acute appendicitis (60)	48	80%
Acute peritonitis (26)	17	65%
Intestinal obstruction (14)	12	85%
Total	77	77%

Table 4 : p –value showing the significance of different etiology with acute abdomen

	Mean	Sd. deviation	p-value
Acute appendicitis	1.40	0.492	0.0049
Peritonitis	1.74	0.441	0.0044
Intestinal obstruction	1.86	0.349	0.065

V. Discussion

The quest for improvement in the management of acute abdominal pain has been stimulated by many factors, amongst which are an increasing public awareness and indeed criticism of the management of medical and surgical conditions. Acute surgical emergencies constitute 50% of all general surgical admission and 50% of them are for acute abdomen, 50% of which require surgical intervention. If diagnosis is in doubt it is advised to operate for exploration rather than wait and watch. But this policy will definitely raise the unnecessary laparotomy rate and morbidity.

Out of 100 patients included in this study, 64% were male, highest incidence was seen in 20-29 years (32%). Acute Appendicitis was the commonest cause of acute abdomen in this study, which comprised 60% of total patients, Viscus perforation peritonitis comprises 26% and acute intestinal obstruction accounts only 14% of acute abdomen.

Dombal Ft et al 96 and Datubo- Burwn-di et al studies shows acute appendicitis was the commonest cause constitute 17-51% of acute abdomen, intestinal obstruction 15-24% ,Viscus perforation 8-12%.

Ajjaz A Memon et al series shows most common non traumatic acute abdomen is acute appendicitis(35%), second most common is intestinal obstruction-(28.5%),third common is intestinal perforation-(23.3%).

Total leucocyte count was sensitive in evaluating patients of acute appendicitis and peritonitis but their positive predictive value , negative predictive value and specificity were quite low. They were not helpful in evaluating patients with bowel obstruction.

Owens Bj et al ,Levis FR et al 99, Dr.A.K.Sarma et al, Patrick –jeevan et al series shows that Total Leucocytes count was non specific and relatively insensitive while differential count indicating a left shift increased the sensitivity.

Stuart Gield et al and S.Peterson- brown et al studies shows x ray abdomen has actual indication in less than 5% of patients with acute abdomen and can change the diagnosis and management of acute abdomen in upto 6%.In our study it was performed in all 100 patients and in 43% patients there were positive findings. It had high sensitivity in evaluating the patients with bowel obstruction, but not helpful in patients with acute appendicitis.Out of 84 patients in 52 it showed some abnormality (62%) by ultrasonography, it had high specificity, positive predictive value and negative predictive value in evaluating acute appendicitis, whereas it was not helpful in evaluating in intestinal obstruction.

In 77% of patients pre-operative diagnosis was same as operative findings, which shows that the difference was statistically significant ($p=0.0003712$). Diagnostic accuracy was highest with bowel obstruction (85%) with no significant difference ($p=0.35$), acute appendicitis had same preoperative and operative diagnosis in 80% of patients which was also statistically significant ($P=0.04000$).

Driscoll – PA et al 87 study shows though negative laparotomy rate of as low as 7% to as high as 22% is mentioned in various study, in our study overall negative laparotomy rate was 14%. Highest rate of negative laparotomy was observed in acute peritonitis and intestinal obstruction and lowest in acute appendicitis.

VI. Conclusions

Diagnostic accuracy was 77%. Highest diagnostic accuracy was seen with bowel obstruction (85%), and lowest with peritonitis due to hollow viscus perforation (65%). Thus clinical and per-operative diagnostic difference was statistically significant ($p=0.003712$). Overall negative laparotomy rate was 14%. Highest negative laparotomy rate was with acute peritonitis (19.2%) while least with acute appendicitis (11.6%). Total leucocytes count and differential leucocytes count were most sensitive in evaluating patients with acute appendicitis and peritonitis, plain x ray abdomen high sensitive in bowel obstruction and peritonitis as well. USG abdomen had high specificity as well as positive and negative predictive value in acute appendicitis. Acute appendicitis was the commonest cause (60%) of patients presenting to Emergency and Casualty as acute abdomen.

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