



COMPARATIVE STUDY OF CLINICAL RADIOLOGICAL FINDINGS WITH OPERATIVE FINDINGS IN ACUTE ABDOMEN IN A TERTIARY CARE HOSPITAL

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ABSTRACT

The term acute abdomen refers to signs and symptoms of abdominal pain and tenderness that often requires emergency surgical therapy. The objective of the present study is to assess the association between clinical, radiological, and operative findings in the acute abdomen and to assess the effectiveness of imaging in diagnosing acute abdominal conditions. **Methods:** A total of 100 cases of acute abdomen who underwent laparotomy in a tertiary care hospital was analyzed prospectively regarding clinical features and also assessed the diagnostic utility of radiological investigations like plain abdominal radiographs, ultrasonography and computed tomography. **Results:** Appendicitis was the most common cause of acute abdomen followed by pre-pyloric perforation and intestinal obstruction. Abdominal pain was the most common symptom. Tenderness was the most common sign. The present study shows appendicitis and perforation peritonitis are common among males and the common age group is 13-40yrs; prepyloric perforation is the most common type of perforation, obstruction is common among males with the predominant age group 40-60yrs, a most common cause for obstruction is adhesions, ultrasound is helpful in diagnosing appendicitis and the diagnostic accuracy is 93.3%, an x-ray is helpful in diagnosing perforation and obstruction with diagnostic accuracy being 92.1% P value =0.003 significant. **Conclusions:** Clinical examination is an essential part, Accurate clinical examination helps in correct diagnosis. Radiological tests aid the clinical diagnosis. Accurate clinical diagnosis with accurate radiological findings helps to prevent a negative laparotomy

KEYWORDS : Acute appendicitis, pre-pyloric perforation, intestinal obstruction

INTRODUCTION

The term "Acute abdomen" denotes an episode of severe abdominal pain, which may require urgent surgical intervention. Patient with acute abdomen comprises the largest group of patients presenting as general surgical Emergency. Pre-operative diagnosis of acute abdomen with limited facilities is very crucial to minimize the morbidity and mortality in developing countries like ours, where the facilities of diagnosis are limited and clinical acumen plays 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 the acute abdomen. While some patients have serious abdominal pathology, a significant group of those patients has no specific cause for the pain. Correct pre-operative diagnosis of acute abdomen remains challenging despite proper history taking and clinical examination, as well as advancement in new imaging techniques like ultrasound imaging, computed tomography, and laparoscopy. In this study, attempts had been made to compare the pre-operative diagnosis with radiological and operative findings so as to guide the Surgeons to manage the cases of acute abdomen.

Appendicitis was the most common cause of acute abdomen in this study. In this study, there was a correlation between clinical and radiological findings in 42/45 cases which turned out to be appendicitis on operating. Plain abdominal X-rays should become a routine investigation in the acute abdomen. The present study aimed to assess acute abdomen, and the effectiveness of radiological investigations in diagnosing acute abdominal conditions.

MATERIALS AND METHODS :

Sample size: 100 patients /2 years

Study design: Prospective Observational Study

Source of the Data: Patients attending OPD and Emergency OPD of Osmania general hospital, Hyderabad

Investigations required: Surgical Profile, Xray Erect

abdomen, Ultrasound abdomen (as and when required)

Inclusion criteria: Acute abdomen of non-traumatic origin undergoing surgery.

Data from 100 patients who underwent laparotomy for non-traumatic acute abdomen in the age group 13-80 were collected. The patients were examined clinically and were then subjected to the required radiological investigations.

The correlation was studied between the pre-operative diagnosis –clinically and radiologically and the operative findings. The accuracy of ultrasound to diagnose appendicitis and of x-ray to diagnose obstruction and perforation was studied.

Descriptive statistics were used to analyze the data and obtain the percentages. The statistical analysis was done using statistical software.

RESULTS :

The incidence of operated cases of the nontraumatic acute abdomen was higher among males 67% as compared to females 33%.

Appendicitis was of maximum occurrence among all the cases, with 37 cases prevalent in age groups 13-40 years. The occurrence of cases of perforation was 29% with the maximum incidence in the age group 13-40 years and for cases of obstruction, 22% with the maximum incidence in age groups 41-60. The operated cases of perforation and obstruction showed male preponderance 24/29 and 16/22 respectively.

The diagnostic accuracy of ultrasound in acute appendicitis was in 42/45 cases in which clinical findings correlated with the radiological findings and these findings in turn correlated with the operative findings.

Three cases were misdiagnosed, one case was diagnosed clinically and radiologically as appendicitis which on the operation was found to be a normal appendix, therefore

operated unnecessarily. Two other cases were misdiagnosed clinically but on ultrasound, no appendicitis, and on opening appendix is inflamed

In total cases of 31 were suspected of perforation and x-rays were done, among them 27 were diagnosed correctly, 4 were misdiagnosed, 1 case of sigmoid perforation was not seen on x-ray was opened on a clinical basis, 2 cases were misdiagnosed clinically, an x-ray was normal, and on opening no pathology, 1 case was suspected clinically and on x-ray, pneumo was present, on opening, there is no perforation In total cases of 24 were suspected of obstruction and x-rays were done, among them 21 were diagnosed correctly, 3 were misdiagnosed, and 2 cases were suspected clinically x-ray was normal and operative findings were normal, 1 case was pseudoobstruction on x-ray was positive but operative findings were normal.

Diagnostic accuracy of X-ray in diagnosing obstruction and perforation cases is 87.1% and 87.5% respectively, and of ultrasound in diagnosing cases of appendicitis was 93.33 %. There were 6 cases of negative laparotomy, two suspected cases of appendicitis, two suspected of obstruction, and two suspected cases of perforation which were opened on a clinical basis.

The clinical accuracy rate was 95/100 cases that are 95%, 1 case of mesenteric lymphadenopathy, 1 case of appendicular mass and 1 case of pseudo-obstruction, 2 suspected cases of perforation were misdiagnosed clinically There was an absence of correlation between clinical and radiological findings in six cases, two cases of appendicitis, one case of mesenteric lymphadenopathy, two cases of perforation, and two cases of obstruction.3

Table 1 Diagnostic accuracy

Diagnostic Accuracy	Ultrasound	Xray in perforation	Xray in obstruction
Correct diagnosis	45	27	21
Misdiagnosed	03	03	04

Table 2 Absence of correlation between clinical, radiological and operative findings

Type of case	Absence of correlation between clinical, radiological and operative findings
Appendicitis	2
Perforation	2
Obstruction	2

DISCUSSION

Acute abdominal pain constitutes a significant percentage of emergency admissions worldwide and comprises the largest group (non-traumatic) of people presenting as a general surgical emergency

The decision on whether the patient requires emergency or elective surgical procedures was based on clinical presentation and diagnosis.

It is always advantageous to do an early surgery than a late surgery. There are many causes of acute abdomen. They can be medical or gynecological or surgical. Identifying the surgical cause accurately by clinical and radiological means with prompt management is very essential.

The following factors help identify the high-risk patient with an acute surgical abdomen:

- (1) pain for less than 48 hours; (2) pain followed by vomiting;
- (3) guarding and rebound tenderness on physical examination; (4) advanced age; (5) a prior surgical procedure.

In the present study 45 cases of appendicitis, 36 cases are acute appendicitis, 7 cases of appendicular perforation, 1 case of appendicular mass The diagnostic accuracy of ultrasound in diagnosing acute appendicitis is 93.33% (42/45) in the study.

In the study 22 cases of obstruction, AGE wise: predominant age group is 40-60 yrs, 13-40yrs-6 cases:40-60yrs-9 cases, >60 yrs-7 cases SEX wise: males are predominant in the study, 16 cases were males, 6 cases were females The diagnostic accuracy of xray in diagnosing obstruction is 87.5% and perforation peritonitis is therefore 87.1% % in this study.

The negative laparotomy rate in this study was 12.2% . In the current study negative laparotomy rate was very less than 3/100 patients that are 3%. This could possibly be due to Gandhi Hospital being a tertiary care hospital with clinical examination performed by multiple surgeons and X-ray, Ultrasound, and other investigations performed before deciding to operate on the case, the decision being taken by the highly experienced surgeons.

Early exploration in doubtful cases will always be associated with a possibility of a negative laparotomy –that is one in which no explanation for the patient's symptoms is found or one in which symptoms are explained but the condition does not require an operation

Summary

- The total cases of acute abdomen in the study are 100
- The majority of them are males 67%, females 33%
- The total number of cases of acute appendicitis is 45, Majority of them are males 24/45(53%)
- Total cases of perforation peritonitis are 29, with male preponderance 24/29(82%)
- The total number of cases of obstruction is 22, with the majority of them males 16/22(72%)
- 42/45 cases of appendicitis were diagnosed accurately, with diagnostic accuracy (93.33%)
- Among 29 cases of perforation peritonitis, the majority are pre-pyloric 17(58%), 5 pyloric, 2 ileal, 2 caecal, 1 duodenal, 1 gastric, 1 sigmoid
- Among 22 cases of obstruction, the most common cause of obstruction is adhesions 10(45%), other causes are mesenteric ischemia 3(13%), perforated appendix 3(13%), sigmoid volvulus 1(4%), ruptured liver abscess 1(4%), malignancy(rectosigmoid growth)1(4%), hernias 3(13%)
- sensitivity of ultrasound in diagnosing appendicitis –97% specificity of ultrasound in diagnosing appendicitis 100% p-value =0.003, significant
- sensitivity of x-ray in diagnosing perforation 95% specificity of x-ray in diagnosing perforation -67% p-value =0.03, significant
- sensitivity of x-ray in diagnosing obstruction-95% specificity of x-ray in diagnosing obstruction- 100% p value=0.02, significant

CONCLUSION:

Clinical examination is an essential part, Accurate clinical examination helps in correct diagnosis. Radiological tests aid the clinical diagnosis. Accurate clinical diagnosis with accurate radiological findings helps to prevent a negative laparotomy. This decision requires an evaluation of the patient's history and physical findings, laboratory data, and imaging tests

The present study shows appendicitis and perforation peritonitis are common among males and the common age group is 13-40yrs; prepyloric perforation is the most common type of perforation, obstruction is common among males with the predominant age group 40-60yrs, a most common cause for obstruction is adhesions, ultrasound is helpful in

diagnosing appendicitis and the diagnostic accuracy is 93.3%, an x-ray is helpful in diagnosing perforation and obstruction with diagnostic accuracy being 92.1%

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