



To Evaluate Clinico-Radiological Findings in Acute Abdomen

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ABSTRACT

Background - Acute abdomen is the commonest presentation of patients to emergency department of any hospital and has always been a topic of debate regarding adequate clinical assessment and the judicious use of diagnostic armamentarium.

Aims and objectives - To study clinical and radiological findings in acute abdomen. We correlated the clinico-radiological findings with operative findings wherever applicable.

Material and methods - This study was undertaken to evaluate the clinical and radiological findings in cases of acute abdomen. 150 patients presenting to emergency and out-patient department of MMIMSR, Mullana with acute abdomen were included in this study. History, thorough physical examination, X-ray abdomen, both erects and supine and ultrasonographical findings were taken.

Results - Mean age was 39.9 years (range 12-90years), having an overall male preponderance (59.33%). Most common aetiology for acute abdomen in this study was of appendicular origin (19.33). Clinical assessment alone clinched the most common diagnosis of appendicitis (22.0%). Positive findings on X-ray Abdomen were seen in 32.66%. Maximum patients were managed conservatively (38%). This study proves that maximum patients can be diagnosed correctly based on simple clinical examination and basic radiological investigations.

Conclusion- Ultrasonography was overall the most helpful diagnostic tool in this study helping in diagnosis of maximum number of patients especially those with biliary and renal aetiology. Maximum patients were managed conservatively with excellent results, proving that sometimes patient observation is more important than immediate surgery, especially in cases of sub-acute intestinal obstruction and appendicular perforation. Overall diagnostic accuracy with simple clinical assessment and minimal radiological imaging studies was very good, proving the century old plain X-ray abdomen to be still useful mainly in evaluating gas shadows.

KEYWORDS : Acute abdomen, clinico-radiological findings; ultrasound; intestine; management

Introduction-

The term acute abdomen refers to signs and symptoms of abdominal pain and tenderness, a clinical presentation that often requires emergency surgical treatment. Clinical examination includes per abdomen examination in detail and systemic examination in brief. Combination of specific clinical signs along with symptoms help in diagnosis of majority of diseases for example abdominal distension, tympanic note over abdomen and high-pitched bowel sounds, coupled with complaints of abdominal pain, vomiting and non-passage of stools, are almost diagnostic of intestinal obstruction.¹ Ultrasonography has superseded X-ray abdomen as the primary imaging tool for acute abdomen over the past decade as it is easy to operate and radiation free, and provides much more details including specific location of inflammatory process and calculi, if present. Any localised collection or abscess

can be visualised easily and USG guided aspiration can be done as a therapeutic measure, if required.²

Material and methods-

Patients admitted to the emergency and surgical wards at MMIMSR, Mullana (Ambala) with acute pain abdomen. Total 150 patients presenting with acute abdominal pain in emergency/surgery out-patient department, was included. All patients presenting with acute abdomen were included in the study. The study excluded paediatric age group (<18 years), traumatic cases (blunt and penetrating), acute abdomen in pregnancy, gynaecological causes of acute abdomen.

Patients will be subjected to detailed history especially with reference to pain, vomiting, constipation, distension of abdomen, fever and

trauma. All patients will undergo ultrasonography of whole abdomen and X-Ray abdomen both in erect and supine positions. Patients will undergo necessary routine blood investigations. Relevant procedures like four quadrant aspiration will be carried out in some cases.

Observations and results -

The youngest patient was of 19 years and the oldest one of age 90 years. The mean age was 39.9 years. The overall male preponderance (59.33%) with maximum male in the age group 21-30 years (23.59%) and maximum females in the age group 41-50 years (34.42%) and overall maximum patients in the age group of 31-40 years (22.0%). The most common symptom is pain abdomen (100%) and the least common being non passage of stools and flatus (13.33%). Patients can present with a vast number of permutation and combination of symptoms in acute abdomen. The different final diagnosis is made in cases of acute abdomen, including operative diagnosis, with the maximum patients having aetiology of appendicular origin (19.33) and the least common being malignancy (5.33%). This shows the vast number of differential diagnosis in acute abdomen. The various diagnosis made on clinical assessment alone with the most common diagnosis being made of appendicitis (22.0%) and the least probable diagnosis was made of pancreatitis. plain skiagram of abdomen with most common diagnosis being intestinal obstruction (18%), followed by intestinal perforation (figure-1). It shows the limited use of plain X-Ray abdomen in other acute abdomen cases. Distribution of diagnosis attributed by ultrasonography abdomen with most common diagnosis being made of cholecystitis/cholelithiasis (16%). This shows relatively low diagnostic ability of ultrasonography in case of intestinal obstruction but an excellent diagnosis in cholelithiasis. The various management strategies for the patients with acute abdomen with the maximum patients being managed conservative (38%), and the least number of procedure done being urolithotomy (3.33%) (Figure-2). This proves that maximum patients when diagnosed promptly can be managed conservatively based on simple clinical examination and basic investigations.

Out of all the 150 patients, 145 were cured with a variable hospital stay and complication. Two patients left against medical advice before any active intervention could be done. One patient with carcinoma gall bladder was referred. Two patients died, one of pancreatitis and second of superior mesenteric artery ischaemia.

Discussion -

Ultrasonography alone has a high rate of false-negative studies for acute cholecystitis. However, a higher rate of accurate diagnosis can be achieved using a triad of positive Murphy sign, elevated neutrophil count and an ultrasound showing cholelithiasis or cholecystitis. For acute cholecystitis, it had 54% sensitivity and 81% specificity. Cholecystitis/ cholelithiasis and intestinal obstruction were the next common aetiological factors amounting for 16.66%, similar incidence of cholelithiasis in acute abdomen is stated by Hamish H et al. ³ In a study by Solis CV, 25 patients in the non-CT group and 18 patients in the CT group were evaluated. There were no differences between the groups at presentation. All patients in the non-CT group underwent surgery, compared with 83% of patients in the CT group. 16 patients in the non-CT and 11 patients in the CT group presented with peritonitis and all underwent surgery regardless of group. For patients undergoing surgery, there were no differences in outcomes between the groups. In patients with pneumoperitoneum on X-ray and peritonitis on physical exam, CT delays surgery without providing any measurable benefit.⁴ Nowadays, multidetector computed tomography (MDCT) is the new imaging technique employed in blunt trauma patients of abdomen and pelvis. It easily detects the solid organ injuries with associated bowel or mesenteric injuries and decreases the morbidity and mortality.^{5,6}

van Randen A et al, did a study to evaluate the added value of plain radiographs on top of clinical assessment in unselected patients presenting with acute abdominal pain. Subsequently, all patients underwent supine abdominal and upright chest radiographs. 1021 patients, 55% female, mean age 47 years (range, 19-94 years), were included. Overall, the clinical diagnosis was correct in 502 (49%) patients. The diagnosis after evaluation of the radiographs was correct in 514 (50%) patients. The added value of plain radiographs is too limited to advocate their routine use in the diagnostic workup of patients with acute abdominal pain, because of only a few diagnoses changed.⁶ Another

comparative study by Prakash S. et al, between plain radiography and ultrasound abdomen in non-traumatic surgical acute abdominal conditions ultrasound yielded an overall sensitivity and specificity of 78.7% and 84.6.6% respectively. The AAS interpretations yielded an overall sensitivity and specificity of 23.4% and 38.40% respectively.⁷

Haroun AA conducted a study to assess the diagnostic yield of B-Mode Ultrasonography compared to unenhanced helical CT scan in detecting urinary stones. Ultrasound helped in identifying the cause of acute flank pain in 62% of cases. Study suggests that, despite its limited value in detecting urinary stones, ultrasonography should be performed as an initial assessment in patients with acute flank pain. ⁸ Ultrasonography diagnosed 17 cases of intestinal obstruction and 20 cases of intestinal perforation accounting for 68% accuracy for intestinal obstruction and over diagnosis for intestinal perforation. Pancreatitis was diagnosed in 90.47% cases. Other diagnosis made on ultrasonography was of liver cyst, inguinal hernia, any growth in alimentary tract. ⁹ Other study showed low mortality (11 %), this might be as most of the patient presented within 72 hrs of onset of symptoms and policy of aggressive resuscitation and minimal intervention.¹⁰

Conclusion -

Ultrasonography was overall the most helpful diagnostic tool in this study helping in diagnosis of maximum number of patients especially those with biliary and renal aetiology. Overall diagnostic accuracy with simple clinical assessment and minimal radiological imaging studies was very good, proving the century old plain X-ray abdomen to be still useful mainly in evaluating gas shadows.

Legends-

Figure-1 - Bar diagram showing distribution of patients according to ultrasonography findings.

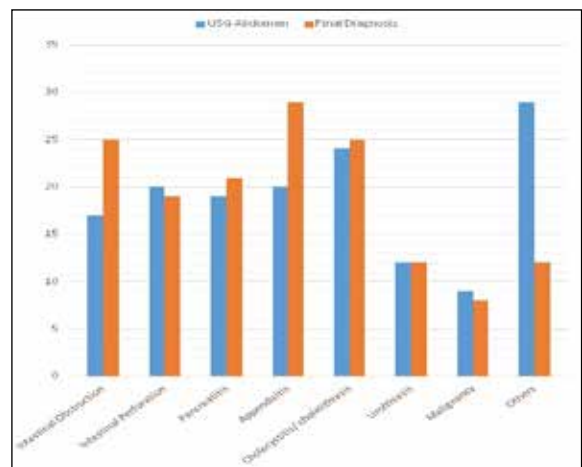
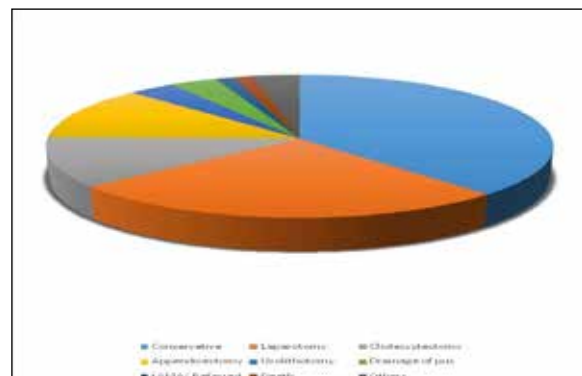


Figure-2 - Pie chart showing distribution of patients according to Mode of Treatment.



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