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Role Of Multi Detector Computed Tomography In Acute Abdominal Pain

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Abstract: Normal anatomy of the Abdomen, pathology and Radiological findings of abdominal pain is discussed. Acute Abdomen is an emergency disease with acute abdominal pain as the main feature. Through severe diseases in intra-Abdominal, extra pelvic and retroperitoneal tissues and organs, symptoms and clinical signs led by abdominal pain are formed. The aim of this work is to demonstrate the value of the Radiological examination in the diagnosis of Pain or obstructiveabdominal diseases.Radiologically the patients are subjected to go through various examinations viz CXR PA view, USG Abd, X Ray Abdomen(Supine AP, lateral, Standing AP), MDCT Abdomen along with some lab tests.In Plain chest x-ray can see the any Chest infection or level of domes of diaphragm etc. In the plain abdomen supine Radiography can visualised any stone and the fluid levels or any perforation etc. In case the plain erect radiographyof abdomen can see the any fluid level of air to see theobstruction.

Normal X rays still have their greater advantage in clinical findings but are less sensitive. They are still the best studies for normal screening and in the detection of calculi and various obstructions.

Ultrasound playsa significant role in determining the anatomical variants and is considered as the first line imaging modality of choice for emergency abdominal evaluation.

Multi Detector Computed Tomography has become the imaging modality of choice for complicated disease courses and also for some inflammatory processes, not only in adults but also in children. Indications like Pancreatitis, Abscesses, Liver cirrhosis, Flank pain, inflammatory bowel diseases, chronic obstructions etc. are diagnosed well on a MDCT. Computed Tomography has been also considered the ideal first choice for hospitalised patients in whom abdominal infection is suspected.MRI also plays a great role in achieving diagnosis of Pancreatitis and the visualisation of biliary anatomy and calculi.

I. INTRODUCTION

II. The term acute abdomen refers to condition characterized by severe or harsh pain in abdomen which develops in short span of time and commonly it is explained in a group of patients who are extremely unwell and complaint for tenderness in abdomen. Acute abdominal pain can be due to a no. of reasons ranging from insignificant diseases to a life threatening disease. Therefore the diagnosis of acute abdomen can be challenging, because results of physical examination, clinical presentation, and lab tests are often non-specific and non-diagnostic. The use of x-rays has been nowadays of little value with advantage being in the screening of bowel obstruction showing dilated bowel loops with air fluid levels. However, computed tomography is more informative and accurate. For this reason, plain radiography is avoided in these situations unless there is suspicion of perforation or dilatation. Medical imaging has completely revolutionized the approach to the evaluation of abdominal pathologies and has marked the arrival of a new era in medical field. Medical imaging has the unique ability to produce anatomy of the gastrointestinal tract that evaluatesintra-abdominal pathology. In addition,MRCP is a good choice for biliary tract and its complications. More and more advancements made it easier to go to the depth of a tumour, lesion, carcinoma and many more life-threatening complications. USG is best modality for fluid collection;whereas Computed Tomography is best for calcifications.The purpose of my study was to study in detail the source of Abdominal pain, any of the carcinoma, metastasis etc.

III. CT is the most useful imaging modality in acute Abdomen and contrast enhanced CT Abdomen gives more detailed and accurate calculations.The vast majority of intra-abdominal pathologies can be seen on CT.

I. RESEARCH METHODOLOGY

The study was conducted in the radio diagnosis department of JAIN hospital Khanna Ludhiana from December 2022 to June 2023.

This prospective study was done on 120 randomly collected patients who were referred to radiology department with documentation of acute abdomen from Emergency, surgery, medicine, and other departments for USG & CT.

Proper data including findings of USG & CT along with relevant patient details were undertaken and compared with final discharge diagnosis.

Siemens Multidetector 96 slice CT (MDCT) machine was used for all cases. The patient in supine position with arms over the head and the abdomen is centered in the gantry. Non-contrast CT abdomen was done from diaphragm up to the symphysis pubis with breath hold (single). First the images are acquired in pre-contrast phase. Then 1-2ml/kg of water soluble non-ionic contrast IV contrast medium (iohexo) with iodine content of 275-370 mg was given at a rate of 3-4ml/sec through pressure injector. Then, post contrast arterial, venous and delayed phases were taken at 25s, 45s, and 7 min, respectively, by bolus tracking and automatic triggering technology. In necessary cases oral contrast was given an hour before the 30ml ionic contrast medium containing 250 mg I/ml in 1 L of water. All the patients undergoing scan were screened for renal function and iodine contrast allergies.

IV. RESULTS AND DISCUSSION

Data is collected with the patient past history(previous imaging findings),present history including the age , gender ,unique hospital identification

Table 4.1: Descriptive Statics

Age	No. of cases
18-20	08
21-30	22
31-40	35
41-50	55
18-20	08

IV. RESULTS

In our study, majority 61% of the study population were males with male: female ratio of 1.55: 1 and majority (26%) of them presented with the right lower quadrant pain followed by periumblical (24%) and epigastric quadrant (19%). Among organs, the bowel was the most commonly involved organ and vessels were least commonly affected.

V. The most common cause found was acute appendicitis which constituted nearly 26% followed by acute pancreatitis which formed 14% followed by cholecystitis and urolithiasis which formed 10% each.

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