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Diagnostic imaging of acute abdominal pain in adults attending KVG Medical College and Hospital, Sullia

[1] Dr. Kumara Swamy S, [*2] Dr. Gowtham Gowda AG, [3] Dr. Aishwarya KC
[1] Professor of Radiology, KVG Medical College and Hospital, Sullia, Karnataka, India
[2] Assistant Professor of Radiology, KVG Medical College and Hospital, Sullia, Karnataka, India (Corresponding Author)
[3] Associate Professor, KVG Medical College and Hospital, Sullia, Karnataka, India

Abstract
Acute abdominal pain is a common condition that can range from benign to life-threatening. The history of the patient, physical examination, and laboratory tests can identify an underlying problem in the patient. If the condition is not resolved, imaging is indicated. The American college of radiology has established clinical guidelines appropriate criteria by the location of abdominal pain to assist the physician to choose a suitable imaging technique. A low dose Computer tomography was used to evaluate lower quadrant pain in this diagnosis. Three patients were prepared for the study and diverticulosis, and small bowel obstructions were identified as the cause of acute abdominal pain.

Keywords: abdominal pain, diagnostic, radiology, computer tomography

Introduction
Abdominal pain is a common condition that forces patients to visit emergency rooms. Some patients experience benign and self-eliminating symptoms while other faces acute abdomen which is caused by a severe intra-abdominal pathology that requires emergency interventions. It is critical to undertake a quick work up to evaluate such patients to determine the most likely cause of their symptoms and to establish the most likely cause and determine whether new operative interventions are needed. An appropriate therapy can then be initiated while optimizing the clinical status of the patient. It is necessary to obtain the history of such a patient, physically examine them and undertake laboratory and radiology studies. Biliary disease, appendicitis, intestinal obstruction, and diverticulitis are the most causes of acute abdominal pain in adults. Numerous non-surgical causes of abdominal pain are metabolic, cardiovascular and toxic in origin which should be considered in evaluating the patient (Hendrickson, Naparst, 2003; Jastaniah & Salih, 2014; Tisdale *et al.*, 2007; VanRanden *et al.*, 2009) [4, 5, 9, 10]

Literature Review
The location of the pain in addition to the patient's history, physical examination and clinical judgment constitute a differential diagnosis and evaluates the type of imaging if any is needed. A differential diagnosis such a condition encompasses gastrointestinal, vascular, gynecologic, musculoskeletal and urologic diseases. The American College of Radiology formulated a nine-point scoring criterion that was based on the site and cause of the pain to determine an appropriate imaging modality. The use of imaging modalities like ultrasound, plain radiography, and computer tomography has gained recognition in the recent past (Hardy, Butler & Crandall, 2013; Jastaniah & Salih, 2014; Tisdale *et al.*, 2007; VanRanden *et al.*, 2009) [5, 9, 10, 3].

The clinician should develop a diagnostic work up to differentiate between the causes of acute abdominal pain. Imaging helps in determining the diagnosis and guides in the treatment of the affected patient. American College of Radiology considers contrast material-enhanced CT of the pelvis and abdomen as the most appropriate examination for non-localized abdominal pain. Conventional radiography is performed on the patient who is experiencing acute abdominal pain. The following table demonstrates the condition according to the location abdomen (Hardy, Butler & Crandall, 2013; Jastaniah & Salih, 2014) [5, 3].

Table 1

Right	Top center	Left
• Gallstones • Stomach ulcers • Pancreatitis	• Stomach ulcers • Heartburn/ indigestion • Pancreatitis • Epigastric hernia	• Stomach ulcers • Duodenal ulcer • Biliary colic • Pancreatitis
• Kidney stones • Urine infection • Constipation	• Pancreatitis • Early appendicitis • Stomach ulcers	• Kidney stones • Diverticular disease • Constipation

• Lumbar hernia	• Inflammatory bowels • Small bowel • Umbilical hernia	• Inflammatory bowel disease
• Appendicitis • Constipation • Pelvic pain (Gynae) • Groin pain (an inguinal hernia)	• Urine infection • Appendicitis • Diverticular disease • Inflammatory Bowel • Pelvic pain (gynae)	• Diverticular disease • Pelvic pain (Gynae) • Groin pain (inguinal Hernia)

Methods

Three Patients admitted in the emergency department were examined using a multi-slice scanner while the contrast was administrated through automatic power injector. There were no inclusion criteria for the patients selected, but those who had acute abdominal pain and wanted to have CT abdomen examination were included. The patients were prepared and several CT protocols conducted to determine the nature of the condition that is leading to the acute abdominal pain. The possible diagnosis, the experience of the radiographer and clinical adjustments defined imaging protocols. Slice collimation, oral or IV material and pitch were adjusted for each patient. Similarly, there was the concern for a limited, focused scan in contrast to a complete abdominal examination. All the patients were prepared including fasting for three hours (Bagi, Almutairi & Alsolamy, 2016; Kamin, 2003; Maglinte *et al.*, 2003) [1, 2, 6].

Results

Signs of fever, pain, and leukocytosis are attributable to patients with diverticulosis which happens in the left lower quadrant. Similarly, inflammation and abnormality within the pericolic fat are observable in the CT of diverticulitis the CT image showed around paracolic outpunching in the middle of the parabolic inflammation. Additionally, there were CT findings of transition zones that exist between decompressed bowels indicative of small bowel obstruction. The absence of a hernia, inflammatory thickening or mass is indicative of adhesion (Hendrickson, Naparst, 2003; Hendrickson, Naparst, 2003; Stoker, 2009) [4, 8].

Discussion

Different CT protocols and patient preparation were carried out to establish the nature of diseases that can that are likely to lead to acute abdominal pain. The imaging protocols depended on the experience of the radiographer, clinical adjustment, and possible diagnosis. Ultrasound and CT have essential roles in the diagnosis of acute appendicitis. However, CT is more accurate and therefore was preferred choice. A CT scan was conducted from the diaphragm to the pubic area to determine the presence of small bowel obstruction (Maglinte, 2005; Jastaniah & Salih, 2014; Tisdale *et al.*, 2007; VanRanden *et al.*, 2009) [7, 5, 9, 10].

Findings

The coronal scan proved to be confident and diagnostic for small bowel obstruction. The CT was able to obtain the causes of obstruction. The outcome was compared to other CT scans, and the results support previous reports. From the examination, the coronal plane was an essential addition to the transverse plane (Tisdale *et al.*, 2007; VanRanden *et al.*, 2009) [9, 10].

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Conclusions

Radiology can be used to detect urgent conditions in patients who are facing acute abdominal pain. To optimize the CT examination and maximise the accuracy of diagnosis, proper techniques and protocols were essential. CT scanning has gained widespread use as an imaging technique for acute abdominal pain.

Reference

1. Bagi MA, Almutairi B, Alsolamy S. Imaging of non-traumatic acute abdominal pain in adults presenting to the emergency department. Saudi Medical Journal. 2016; 37(3):324-327. doi:10.15537/smj.2016.3.13068
2. Kamin RA, Nowicki TA, Courtney DS, Powers RD. Pearls and pitfalls in the emergency department evaluation of abdominal pain. Emerg Med Clin North Am. 2003; 21(1):61-72.
3. Hardy A, Butler B, Crandall M. The Evaluation of the Acute Abdomen. Common Problems in Acute Care Surgery, 19-31. doi:10.1007/978-1-4614-6123-4_2, 2013.
4. Hendrickson M, Naparst TR. Abdominal surgical emergencies in the elderly. Emerg Med Clin North Am. 2003; 21(4):937-69.
5. Jastaniah SD, Salih AM. Helical Computed Tomography in Evaluation of Selected Cases of Acute Abdomen. Advances in Computed Tomography, Published Online, 2014; 3:31-38.
6. Maglinte DD, Heitkamp DE, Howard TJ, Kelvin FM, Lappas JC. Current Concepts in Imaging of Small Bowel Obstruction. Radiologic Clinics of North America, http://dx.doi.org/10.1016/S0033-8389(02)00114-8, 2003; 41:263-283.
7. Maglinte DD, Kelvin FM, Sandrasegaran K *et al.* Radiology of Small Bowel Obstruction: Contemporary Approach and Controversies. Abdominal Imaging, http://dx.doi.org/10.1007/s00261-004-0211-6, 2005;

30:160-178.
8. Stoker J, Randen AV, Laméris W, Boermeester MA. Imaging Patients with Acute Abdominal Pain. Radiology. doi:10.1148/radiol.2531090302, 2009; 253(1):31-46.
9. Tisdale BE, Siemens DR, Lysack J, Nolan RL, wilson JW. Correlation of CT scan versus Plain Radiography for Measuring Urinary Stone Dimensions. The Canadian Journal of Urology, 2007; 14:3489-3492.
10. VanRanden A, Laméris W, Luitse JS *et al.* The Role of Plain Radiographs in Patients with Acute Abdominal Pain at the ED. American Journal of Emergency Medicine, 2009; 29:582-589.