MULTIDETECTOR COMPUTED TOMOGRAPHY IN ASSESSMENT OF ACUTE PRESENTATION OF COLORECTAL LESIONS

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Introduction

Acute presentation of colorectal lesions are common in the emergency setting and their timely diagnosis plays an important role to avoid the complications. Imaging is used to differentiate between patients require immediate surgical intervention and patients can be managed conservatively or by surgery on a less urgent basis.

Different diseases of acute pathologies can affect the colon including inflammatory causes which include acute appendicitis, acute diverticulitis, acute inflammatory bowel diseases, typhlitis, pseudomembranous colitis (PMC), stercoral colitis (SC) in addition to the common acute presentation of neoplastic causes include large bowel obstruction (LBO), perforation and appendicitis. Also, other causes are like non neoplastic causes of LBO, acute colorectal bleeding, colonic trauma and foreign body. Computed tomography (CT) is used to evaluate patients presenting to the emergency department because of its speed, higher accuracy and wider availability.

Aim of the work

The aim of the present study was to assess the role of multi-detector computed tomography (MDCT) in the evaluation of various acute presentation of colorectal lesions.

PATIENTS

This prospective study included a total of 48 patients presenting with acute abdomen and clinical suspicion of colorectal lesions. The common affected age group was (40-50) years. They presented to Radiology Department of Our University Hospitals for MDCT evaluation from October 2019 till August 2020.

Methods

Patients included in the study underwent the following:
- Complete history taking, thorough clinical examination and laboratory work up.
- MDCT of the abdomen and pelvis using 64 slice/rotation CT machines (Philips health care Nederland B.V). The acquisition protocol was tailored according to the patient's presentation and suspected diagnosis.

Results

Diagnosis of patients according to CT based diagnosis and final confirmed diagnosis were summarized in (Table). The final diagnosis was confirmed by surgical findings in four patients, pathological findings in 28 cases, clinical response to medical treatment in 12 cases, interventional drainage in two cases and angiography in two cases. Accurate MDCT diagnosis was made in 46 cases. Overall results showed that MDCT had a high sensitivity about 95% in differentiating acute colorectal lesions with a high specificity of about 71.5 %, a high positive predictive value (PPV) of about 95 % and a high negative predictive value (NPV) of about 71.5 %.

Among all examined patients, 32 patients (66.7%) presented with complications at time of diagnosis. There were 15 cases (31.25%) complicated with LBO, 12 cases (25%) complicated with abscess, eight cases (16.66%) complicated with perforation, three cases (6.25%) complicated with acute bleeding per rectum, one case (2.1%) complicated with phlegmon, one case (2.1%) complicated with colonic ischemia and one case (2.1%) complicated with intussusception.
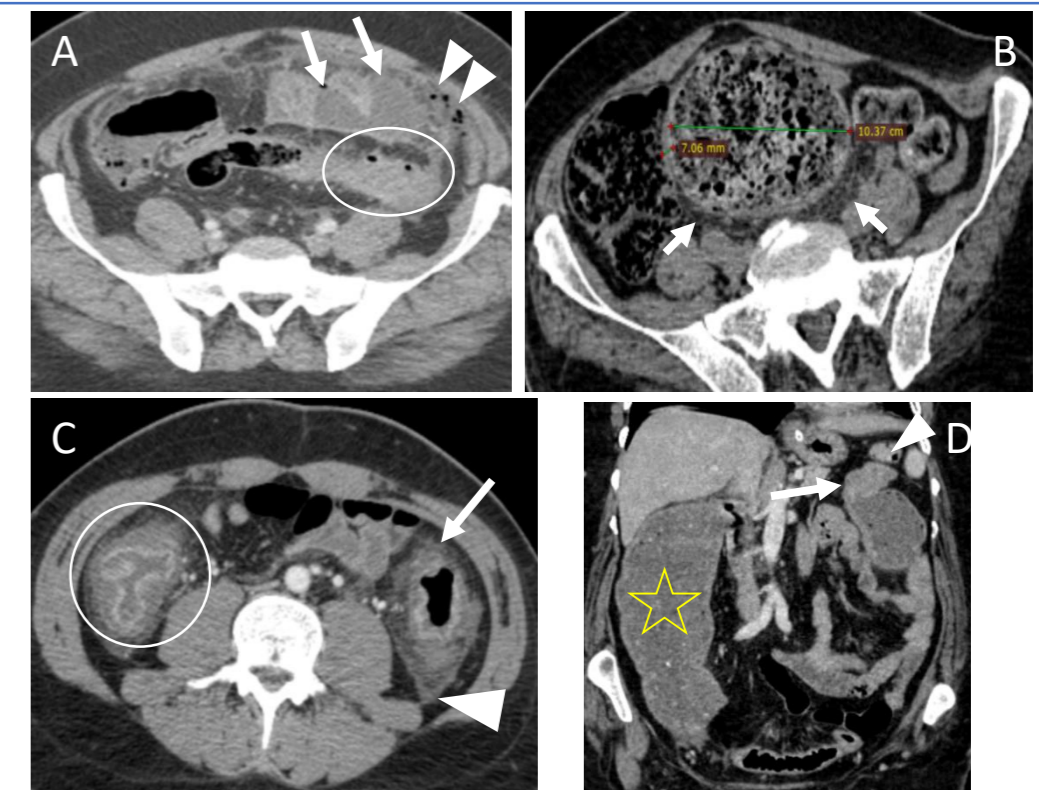

Figure: Various CT findings of acute colorectal lesions. (A) Axial contrast enhanced CT (CECT) showed complicated acute sigmoid diverticulitis with abscess formation (arrows) and pneumoperitoneum (arrowheads). Note the thickened sigmoid colon with diverticula and surrounded by fat stranding (circle). (B) Axial non contrast CT in a case of SC due to faecal impaction showed dilated rectum and sigmoid colon with faecaloma and circumferential segmental thickening of the rectum and sigmoid colon with surrounding fat stranding (arrow). (C) Axial CECT in a case of PMC showed pancolitis noted in the form of nodular thickening and hyperenhancing mucosal lining (circle), fat stranding (arrow) and free fluid collection (arrowhead). (D) coronal CECT in a case of splenic flexure adenocarcinoma complicated with LBO showed suspected enhanced irregular circumferential focal wall thickening noted at splenic flexure (arrow) with proximally dilated colon (asterisk) and distally collapsed colon (arrowhead in D).

Table: Distribution of patients according to radiological and final confirmed diagnosis.

	CT based diagnosis	Percent (%)	final confirmed diagnosis	Percent (%)
Inflammatory	29	60.41%	31	64.58%
Appendicitis	15	31.25%	16	33.30%
Diverticulitis	7	14.58%	8	16.67%
Crohn's	1	2.10%	1	2.10%
PMC	1	2.10%	1	2.10%
Typhlitis	2	4.20%	2	4.20%
Stercoral colitis	3	6.25%	3	6.25%
Neoplastic	9	18.75	7	14.58
Angiodysplasia	2	4.20%	2	4.20%
Others	8	16.66%	8	16.66%
Volvulus	3	6.25%	3	6.25%
Hernia	2	4.20%	2	4.20%
Extracolonic mass	1	2.10%	1	2.10%
Iatrogenic perforation	1	2.10%	1	2.10%
Foreign body	1	2.10%	1	2.10%

Conclusions

Colorectal emergencies demonstrate characteristic imaging findings which should be known to every radiologist that help for accurate diagnosis and prompt management. Detailed medical history and proper clinical examination is the first of approaching presented patients guides the radiologist while interpreting the CT scans. Modulation and optimization of the CT protocols according to the clinical setting is a major privilege of CT and should be routinely considered. MDCT can be considered a robust method in the differential diagnosis of acute colorectal lesions allowing a fast and accurate differential diagnosis to decide on the management which is mandatory to limit morbidity and mortality.