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Original Article

The role of multi detector computed tomography in diagnosis of mesenteric vascular occlusion

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ABSTRACT

Objective: To assess the role of multislice computed tomography (MSCT) in the diagnosis of mesenteric vascular occlusion.
Patients and methods: This study was performed on 30 patients clinically suspected and radiologically confirmed to have mesenteric vascular occlusion, they were examined with 64 row MSCT and were evaluated for evidence of bowel wall changes and abnormal mesenteric vascular changes.
Results: We found that the most prevalent MSCT findings were bowel wall thickening followed by diminished wall enhancement. MSCT gave an accurate diagnosis of the cause of mesenteric vascular occlusion as proved by the final diagnosis based on surgical exploration, laboratory investigations and clinical follow-up.
Conclusion: MSCT is accurate, fast and non invasive technique which should be used in clinically suspected patients with MVO in order to confirm the diagnosis, identify the aetiology and in addition assessing the bowel loop status for adequate management with good prognosis.

1. Introduction

Mesenteric vascular occlusion (MVO) is considered a complex disease with increasing incidence over the last decade [1]. The mesenteric vascular anatomy should be clear in order to diagnose cases of MVO. Three major arteries arise from the anterior surface of abdominal aorta to supply the splanchnic organs: the coeliac artery (CA), superior mesenteric artery (SMA) and inferior mesenteric artery (IMA) [2]. While venous drainage via the superior and inferior mesenteric veins, which are parallel to the arteries, drain into the portal vein [3].

1.1. Classification of MVO

MVO can be classified into acute or chronic based on the severity of the clinical presentation [4]. The etiology of MVO may be due to arterial or venous occlusion or compromise [5].

The American College of Radiology Appropriateness Criteria advocates computed tomography angiography (CTA) as the first-line imaging modality to evaluate both acute and chronic mesenteric ischemia [3]. In the last few years there was development in CT using fast technique with high spatial resolution, rapid IV contrast injection with adequate timing for arterial and venous phases together with the use of 3D imaging with reconstruction in different planes and various 3D display [6].

Accurate diagnosis of MVO and its associated findings of the affected bowel are essential for proper management to decrease the morbidity and mortality and also to improve the patient's outcome [1].

In the last few years there is advancement in management of MVO which included transabdominal vascular reconstruction, endoscopic techniques and even stenting while some cases managed by follow up with medical treatment and no need for surgery. The choice of which technique that should be used in management depends mainly on the proper CT findings, mainly the aetiology of MVO, wether acute or chronic, arterial or venous and presence or absence of bowel ischemia or perforation [2].

2. Aim of the study

The aim of this study was to assess the role of multislice CT (MSCT) in the diagnosis of mesenteric vascular occlusion.

3. Patients

This study was performed between July 2016 and December 2016 on 30 patients:

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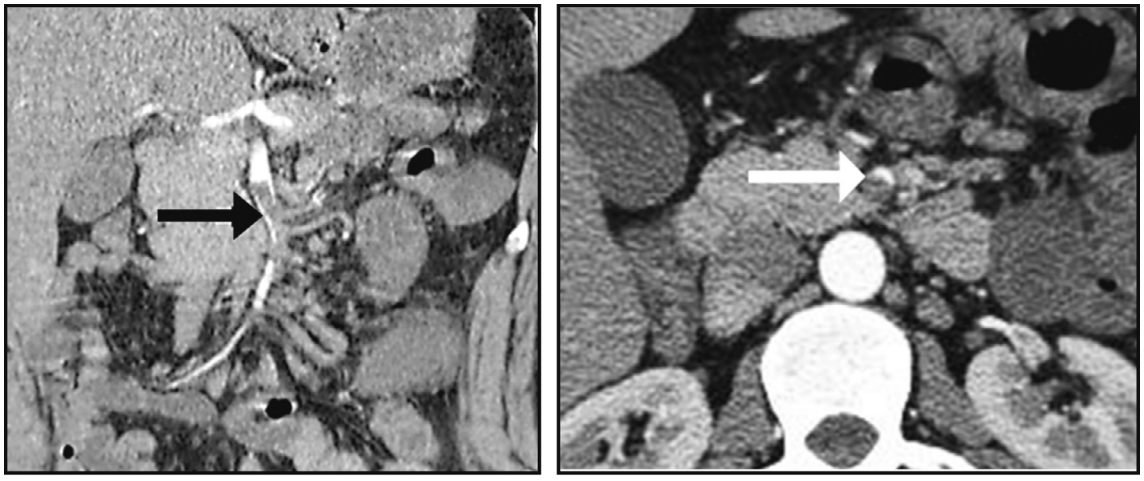
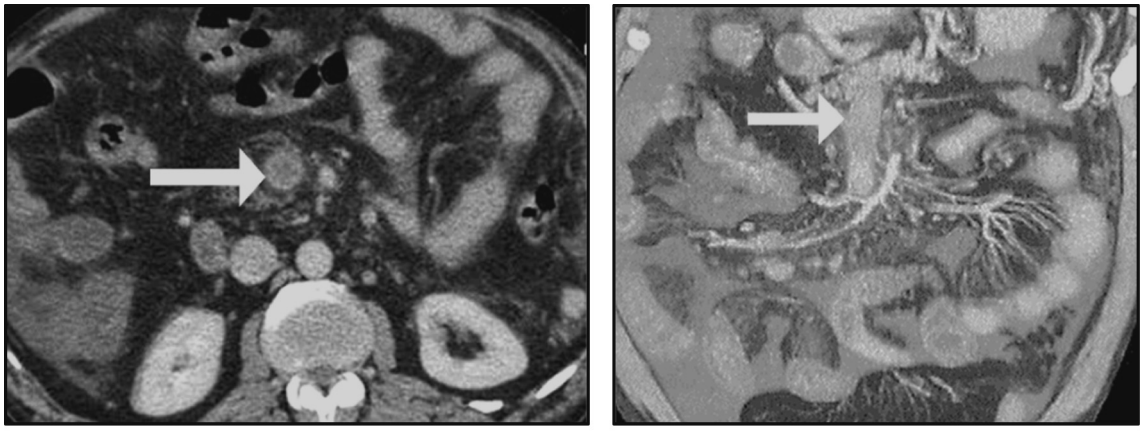


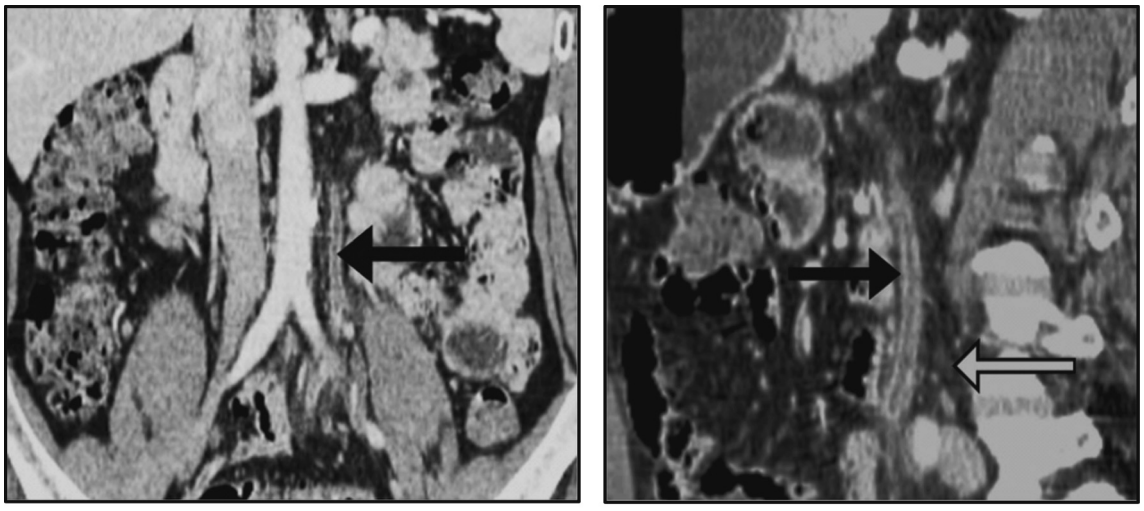
(a) (b)

Fig. 1. 38 years old male patient with history of rheumatic valvular heart disease and mitral valve replacement. MSCT post IV contrast arterial phase (a) coronal (b) axial showed a filling defect in SMA (black arrow in a. white arrow in b representing partial SMA thrombosis.



(a) (b)

Fig. 2. MSCT post IV contrast portal venous phase (PVP) in a 50 years old male patient complained of abdominal pain for five days. (a) axial (b) coronal MIP showed non opacification of a segment of SMV (white arrow in a & b) reflecting acute SMV thrombosis.



(a) (b)

Fig. 3. 50 years old male patient complained of abdominal colics. MSCT PVP (a) coronal (b) sagital showed non opacification of the IMV all through its course with enhancing wall (black arrow in a and b) and surrounding fat stranding (white arrow in b) reflecting presence of acute IMV thrombosis.