Role of Multidetector CT in diagnosis of Acute Mesenteric Ischemia

Essay
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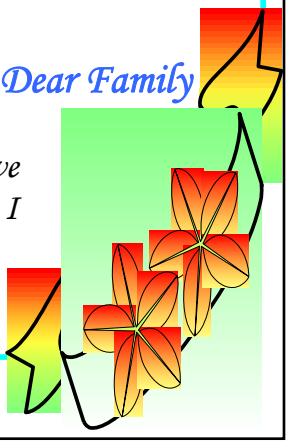

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List of Abbreviations

AMI	Acute mesenteric ischemia
ATCM	Automatic tube current modulation
3D	Three dimension
CA	Celiac artery
CMI	Chronic mesenteric ischemia
CTA	Computed tomography angiogram
CT	Computed tomography
DSA	Digital substarction angiography
GIT	Gastro Intestinal Tract
HU	Housefild
IMA	Inferior mesenteric artery
IMV	Inferior mesenteric vein
MAO	Mesenteric artery occlusion.
MDCT	Multiple detector row computed tomography
MI	Mesenteric ischemia
MIP	Maximum intensity projection
MPR	Multiplaner reformation
MRI	Magnetic resonance imaging
MSCT	Multislice computed tomography
MSHCT	Multislice helical computed tomography
MVO	Mesenteric venous occlusion.
NOMI	Non occlusive mesenteric ischemia
SMA	Superior mesenteric artery
SMV	Superior mesenteric vein
SSD	Shaded surface display
VR	Volume rendering

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INTRODUCTION

Acute mesenteric ischemia is a life-threatening vascular emergency that requires early diagnosis and intervention to adequately restore mesenteric blood flow and to prevent bowel necrosis and patient death. The underlying cause is varied, and the prognosis depends on the precise pathologic findings. Despite the progress in understanding the pathogenesis of mesenteric ischemia and the development of modern treatment modalities, acute mesenteric ischemia remains a diagnostic challenge for clinicians, and the delay in diagnosis contributes to the continued high mortality rate. Early diagnosis and prompt effective treatment are essential to improve the clinical outcome ***(Lock, 2001).***

Ischemic bowel disease represents abroad spectrum of diseases with various clinical and radiologic manifestations, which range from localized transient ischemia to catastrophic necrosis of the gastrointestinal tract. The diagnosis is difficult, both clinically and radiologically. Causes of acute mesenteric ischemia are embolic occlusion of the SMA, usually of cardiac origin (30%-50%), in situ SMA thrombosis in the setting of underlying atherosclerosis (15%-30%) acute thromboembolic occlusion of the celiac artery or the inferior mesenteric artery are usually tolerated and don't cause bowel ischemia, non-occlusive (vasospastic) ischemia (20%-30%), superior mesenteric venous thrombosis (5%-10%), spontaneous dissection (rare) ***(Fleischmann, 2003).***

Multiple detector-row computed tomography angiography (MDCTA) has become a valuable minimally invasive tool for the visualization of normal vascular anatomy and its variants, as well as pathological conditions of the mesenteric vessels ***(Fleischmann, 2003).***

Requiring only peripheral intravenous catheter for delivery of iodinated contrast material, it can be performed quickly and in wide range of patients, including those who are critically ill. Because of rapid technological advances in both scanners and computer work stations, MDCT in many cases has replaced conventional catheter angiography for evaluation of the mesenteric vasculature and bowel ***(Horton, 2007).***

It can accurately diagnose acute intestinal ischemia and is also useful to assess the degrees of ischemia ***(Prokop, 2006).***

As a result, the clinician can confidently send the patient for surgery or interventional therapy if the CT scan is positive for ischemia or can rule out ischemia and pursue another diagnosis if the bowel and blood vessels appear normal on CT ***(Kirkpatrick, 2003).***