Summary

One of the goals of modern medicine is to achieve an accurate and early diagnosis, as well as determine optimal treatment and achieve reduced mortality in patients with mesenteric ischemia. This is often difficult, however, because of the variable clinical and radiologic-pathologic manifestations of the condition. Therefore, a strongly clinical-radiologic approach must be pursued in the detection, diagnosis, and treatment of this often fatal disease. Indeed, understanding of bowel ischemia and its various causes and pathogenesis and detailed information about the clinical setting of each patient are often important factors in the establishment of an accurate CT diagnosis**.**

Traditional angiography is the diagnostic gold standard but is invasive and costly. CT is readily available and noninvasive but has shown variable success in diagnosing this disease. The faster scanning time of MSCT greatly facilitates the use of CT angiography (CTA) in the clinical setting**.** Due to several distinct advantages over conventional angiography (including minimal invasiveness, lower cost, and lower ionizing radiation exposure for patients and staff), MSCTA has replaced diagnostic conventional angiography in several clinical situations. The recent introduction of MSCT scanners has significantly improved CT angiographic applications, especially in the evaluation of the mesenteric vasculature. Thin-slice collimation protocols associated with powerful postprocessing procedures allow the display of mesenteric circulation with excellent detail **.**

MDCT angiography is an established non-invasive imaging modality to evaluate the mesenteric vasculature. Mesenteric MSCTA is a useful tool for visualizing normal vascular anatomy, its variants and Vascular pathology **.** It has an important role in diagnostic algorithms for assessment of suspected acute and chronic mesenteric ischemia.

The diagnostic accuracy of MSCT for the prospective diagnosis of acute bowel ischemia was analyzed by Weisner et al., and found that the prospective sensitivity and specificity for the diagnosis of acute bowel ischemia were 79.17 and 98.51%. MSCT reaches a similarly high sensitivity in diagnosing acute bowel as angiography. Furthermore, it has the advantage of being helpful in most of its clinical differential diagnoses and of being less invasive with the consecutive possibility of being used earlier in the diagnostic process with all the resulting positive effects on the patients prognosis. Therefore, nowadays MSCT should probably be used as the first step imaging modality of choice in patients with suspected acute bowel ischemia **.**

The development of MSCT technology has overcome past limitations. First, the faster scanning speed increases volume coverage during a single breath-hold and improves the exploitation of contrast medium. Second, the better spatial resolution results in nearly isotropic voxels allowing reconstruction of high-resolution three-dimensional images with different algorithms. Volume rendering is capable of displaying the visceral vasculature from any external vantage point. Compared to conventional angiography, MSCTA not only delineates vessels but also depicts the anatomical relationship to adjacent structures and allows the evaluation of perfused organs. MSCTA also has become an emerging tool for the pre- and postinterventional assessment of vascular anatomy.

The MSCTA holds great promise for the early detection necessary for successful treatment of acute mesenteric ischemia**.** This can be more challenging with advanced generation MSCT scanners.

Conclusion

Mesenteric ischemia is a complicated disorder whose prevalence is increasing as the population ages. It is often difficult to diagnose, both clinically and radiologically.

In the past, computed tomography (CT) has allowed only limited success in the early detection of ischemia. However, with the introduction of MSCT, another step forward has been made. MSCT represents an exciting advance in CT technology. It not only allows routine studies to be performed much faster than with single-detector CT scanners, but also makes available new applications, especially in the field of CT angiography. The increased speed and narrower collimation of multi–detector row CT, coupled with the use of water as an oral contrast agent, improves visualization of the bowel wall and mesenteric vasculature. MSCT with 3D reformatting should be perform in all patients with suspected acute or chronic mesenteric ischemia. MSCT with 3D reformatting may improve the ability to make an early diagnosis and identify the cause of disease in patients with suspected acute or chronic mesenteric ischemia. In many cases, CT has eliminated the need for additional imaging studies such as Doppler US or angiography.

Further investigation is necessary to determine the scope of the utility of MSCT in this clinical setting. However, future studies will have to show how much the higher speed, thin collimation and resolution, as well as the possibility of multiplanar reconstructions and three-dimensional reformatting available with multi–detector row CT, will increase the value of CT for patients with bowel ischemia.