Non-Obstructive Mesenteric Ischemia after Cardiovascular Surgery: Not So Uncommon


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To the Editor:

We read with great interest the article by Dr. Kazui and colleagues in Vol. 18, No.1 (2012) of Annals of Thoracic and Cardiovascular Surgery on two successfully managed cases of non-obstructive mesenteric ischemia (NOMI) after cardiovascular surgery.1

They considered NOMI a rare complication after cardiovascular surgery (with a frequency between 0.1 and 0.87%) and, despite the usefulness of contrast-enhanced multi-detector computed tomography (MDCT) scan in the diagnosis of NOMI, they also reported that selective digital subtraction angiography (DSA) of the mesenteric arteries is still the gold standard for the diagnosis of this devastating condition, by demonstrating the mesenteric vasospasm.1,2

Some authors have already reported the usefulness of MDCT for the diagnosis of NOMI, as a valid diagnostic alternative to catheter angiography, by assessing the morphology and diameter of the superior mesenteric artery (SMA) on multi-planar reconstructed images.3–5

In our case history, composed of a group of 25 subjects (20 males, 5 females, mean age 72.28; range 49–88) with a confirmed diagnosis of NOMI who underwent MDCT between July 2003 and February 2012, this condition was also a complication after cardiovascular surgery in 6 patients (24%). This fact reflects the concept that cases of NOMI are increasingly common due to the ageing of society and to the increase in the number of cardiovascular interventions in elderly patients.

From a diagnostic point of view, also in our case history MDCT is proved to be an equivalent useful modality compared to angiography for the diagnosis of NOMI by interpreting the morphologic appearance and diameter of SMA. In particular, in the early phase of NOMI, CT appearances regarding the abnormal arterial findings are superimposable to angiography, revealing the narrowing of many branches of the SMA, spasm of the intestinal marginal artery, and poor contrast enhancement of veins in the muscular layer as a feature of vasospasm, associated with NOMI. In our patient population, the mean value of the SMA diameter was 4.6 +/- 1.4 mm (range 2.2–7.4 mm), whereas it was 3.4 +/- 1.1 mm, in the study of Woodhams R.3,6 In both studies, a significant difference with controls was found and the average SMA diameter was consistent within the errors. In addition, in line with our experience too, the great advantage of MDCT, in comparison to angiography, is the possibility to also evaluate mesenteric, bowel and peritoneal findings and not only the appearance of the vessels.6–7 In our case history, mesenteric, bowel and peritoneal CT features were observed in all CT examinations, ranging from 7.14% (free air in peritoneal cavity) to 82.14%
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Mesenteric fat stranding and some of these demonstrated significant correlation to the reperfusion event (mesenteric fat stranding, \( p = 0.026 \), bowel wall thickening, \( p = 3.2E-05 \), and high attenuation of the bowel wall on unenhanced CT images, \( p = 2.6E-04 \)), a condition that is more common in NOMI than in the intestinal ischemia from obstructive (arterial or venous) etiology, and that probably should also be explored with magnetic resonance imaging (MRI), avoiding multiple administration of contrast media when diagnostic follow-up of the evolution of this condition over time can be proposed as an alternative to surgery.\(^8\) - \(^10\) MDCT is also the best imaging modality to demonstrate necrotic damage of the bowel wall, limiting surgery to the excision of the irreversibly necrotized intestine (Fig. 1).\(^11\)

Finally, we unequivocally agree with Dr. Kazui and colleagues about the role of angiography for treatment of this condition, with selective infusion of vasodilator drugs and, above all about the clinical lesson of their article, according to the fact that when a patient suffers from a vague abdominal symptoms early after a major cardiovascular operation, even if the blood markers, such as elevation of lactic acid, LDH, and/or CK are absent, NOMI should be considered as one of the presumed causes.

Disclosure Statement

There are no disclosure statements about potential conflicts of interest.

References