



The “paper-thin wall” appearance in acute mesenteric ischemia

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The “paper-thin wall” describes a CT depiction of the small and large bowel that can be seen in acute mesenteric ischemia [1]. This appearance is generated by an extreme thinning of the bowel wall, caused by volume loss of intestinal tissue, vasculature, and muscular tone, resembling a “sheet of paper” (Fig. 1) [2].

Acute mesenteric ischemia can occur from arterial embolic or thrombotic obstruction (60–70%), or mesenteric venous thrombosis (5–10%), or can have a non-occlusive etiology (10–20%) [2]. Normal bowel wall thickness ranges from 3 to 5 mm depending on the degree of bowel distention [1]. In acute mesenteric ischemia, contrast-enhanced CT can reveal luminal dilatation with air-fluid levels, thrombus in the mesenteric arteries or veins, abnormal enhancement of bowel wall, and an attenuated bowel wall with a “paper-thin wall” appearance (Fig. 2) [1, 3]. While a useful clue, the paper-thin wall is a less sensitive sign of acute mesenteric ischemia [3]. Indeed, this appearance can be typically found in the setting of acute arterial occlusive mesenteric ischemia or transmural infarction [3]. However, arterial ischemia bowel wall can also be thickened, due to hematoma, edema, or inflammation [3]. In cases of reversible mesenteric arterial ischemia, or occlusions of mesenteric veins, or non-occlusive mesenteric ischemia, abnormal mural thickening (up to 15 mm) of the small bowel or colon is the most frequently



Fig. 1 A sheet of paper

observed CT finding, due to intramural hemorrhage, edema, and/or superinfection [1, 3]. The ischemic bowel segment attenuation is variable: on unenhanced CT images, hypoattenuation of the bowel wall indicates bowel wall edema; on contrast-enhanced CT, an absent or diminished bowel mural enhancement is a specific finding of ischemia, while

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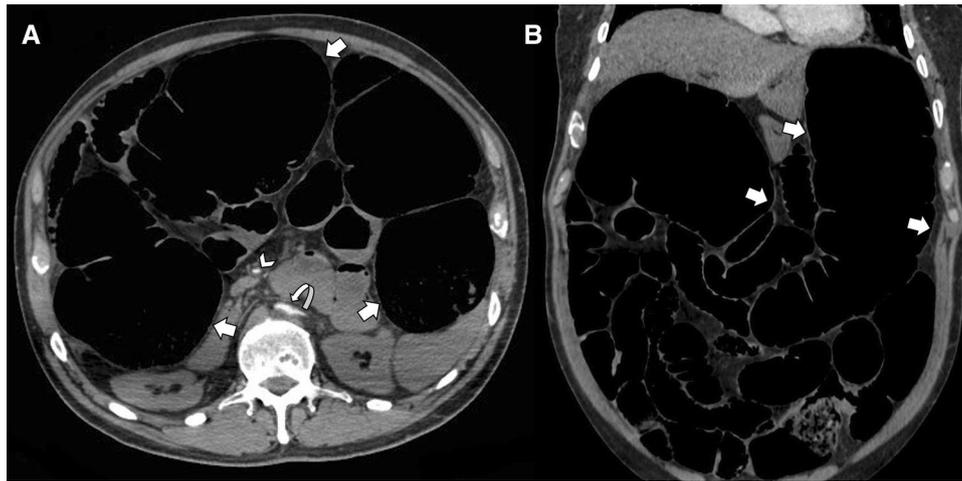


Fig. 2 Acute mesenteric ischemia in a 59-year-old man. **a** Axial contrast-enhanced CT image shows extremely dilated and gas-filled bowel loops, with thinning of small and large bowel wall (arrows), producing the characteristic “paper-thin wall” appearance. The diameter of abdominal aorta is significantly decreased (curved arrow) due

to hypovolemic shock. The superior mesenteric artery is filiform and contracted (arrowhead). Note the lack of perfusion of solid organs. **b** The “paper-thin wall” appearance is better visualized on coronal reformatted contrast-enhanced CT image (arrows)

reperfusion after bowel ischemia can cause hyperenhancement of bowel wall [1, 3].

Compliance with ethical standards

Conflict of interest The authors declare that they have no conflict of interest.

Research involving human and animal participants This article does not contain any studies with human participants or animals performed by any of the authors.

Informed consent Statement of informed consent was not applicable since the manuscript does not contain any patient data.

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