Localisation of lower gastrointestinal bleeding with 99mTc red blood cell scan and single photon emission CT (SPECT)

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DESCRIPTION

An elderly man with chronic renal insufficiency presented with recurrent lower gastrointestinal bleeding. He had been admitted with similar symptoms 6 months earlier, and a colonoscopy had revealed a bleeding vascular ectasia, which was clipped successfully. On this admission, he was

initially evaluated with a capsule endoscopy and a colonoscopy. The colonoscopy revealed old clotted blood, diverticulosis, internal haemorrhoids and a small sigmoid polyp (not biopsied). No active bleeding was seen. A 99mTc labelled red blood cell scan was subsequently performed, given its ability to better detect lower bleeding rates (0.1 mL/min)

Figure 1 (A) There is a focus of intense tracer accumulation in the right lower quadrant. (B) Transient faint focal activity seen in the right upper quadrant late in the dynamic imaging.

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Figure 2 (A) On single photon emission CT/CT images, the intense focus localises to the caecum. (B) The faint focus of activity seen in the right upper quadrant localises to the proximal transverse colon.

than angiography (0.5 mL/min) and, in addition, to avoid the nephrotoxicity of a dye load. The nuclear scan localised the bleeding to the right lower quadrant. The patient, although not actively decompensating, continued to have melanotic stools requiring transfusions (4 units total). In our surgical opinion, his work up, especially the nuclear scan, did not provide adequate anatomical detail to proceed to the operating room. The bleeding might be originating from the caecum, the overlying bowel, or even from a redundant sigmoid colon situated in the right lower quadrant. When considering surgery, it is important to localise the bleeding site, as a blind resection can result in increased morbidity and mortality.¹ Hybrid imaging with single photon emission CT (SPECT) can provide this anatomical information with a higher overall accuracy compared to nuclear scan-

ning alone.² In a study by Schillaci *et al*, nuclear scanning with SPECT/CT correctly identified the bleeding site in 12 of 13 patients.³ In addition, it correctly changed the results of six of seven sites identified through nuclear scan alone.² In our case, the bleeding site was localised to the caecum and proximal transverse colon after hybrid scanning with a 99mTc red blood cell scan (figure 1A, B) and SPECT/CT (figure 2A, B). The idea for a repeat colonoscopy was briefly favoured, but abandoned after consulting with the gastroenterology team. The patient had failed clipping and cautery of vascular ectasia in his prior admission and, in addition, a therapeutic colonoscopy would be technically challenging with the clotted blood in the colon. The patient subsequently underwent a laparoscopic right hemicolectomy. He had an uncomplicated recovery with no further gastrointestinal bleeding.

Contributors AU was responsible for the initial draft. AU was responsible for collecting data and images. All the authors contributed to subsequent revisions and approved the final version. RT was the treating physician.

Competing interests None declared.

Patient consent Obtained.

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Learning points

- In stable patients, video endoscopy, colonoscopy, nuclear scanning and angiography can help localise the source of gastrointestinal bleeding. Hybrid scanning with tagged red blood cells and single photon emission CT/CT can provide an anatomical source with great accuracy—non-invasively and with no dye load—if other diagnostic methods fail or are contraindicated.
- This can avoid the burden of subtotal colectomy and ileostomy in non-localised lower gastrointestinal bleeding, and potentially avoid an incorrect segmental resection based on a nuclear scan without adequate anatomical detail.

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