EDITOR'S QUIZ: GI SNAPSHOT

Occult gastrointestinal bleeding: two eyes are better than one

INTRODUCTION

A 55-year-old woman was referred for investigation of an incidental iron deficiency anaemia (haemoglobin 97 g/L; ferritin 10 ug/L and mean cell volume 71.3 fL). The patient had no gastrointestinal symptoms. Upper gastrointestinal endoscopy was normal, with no evidence of coeliac disease on duodenal biopsies. Colonoscopy showed diverticulosis.

A capsule endoscopy was then performed, using a new generation dual camera capsule (Mirocam MC2000, Intromedic, Seoul, Korea). This utilises a charge coupled device camera at each end of the capsule, with software that allows the images from each camera to be viewed individually or in combination. Each camera records at three frames per second, and each has a 170° field of view. Compared with a single camera capsule endoscope, dual camera devices generate twice the coverage area of the small bowel, with faster frame acquisition rates.[1]

Small bowel images from capsule camera 1 were entirely normal (figure 1). A small bowel abnormality was identified only by camera 2 (figure 2). The lesion was not seen on a retrospective review of the 'normal' camera 1 images, and was not identified on a contrast computerised tomography of the abdomen. Small bowel MRI was arranged to characterise it further (figure 3).

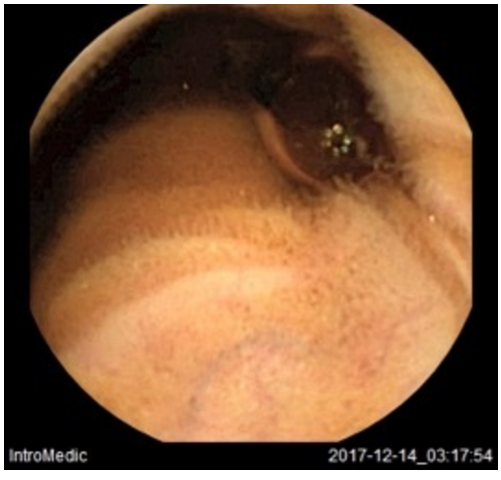

Figure 1 Small bowel recording from capsule camera 1. No lesion was identified.

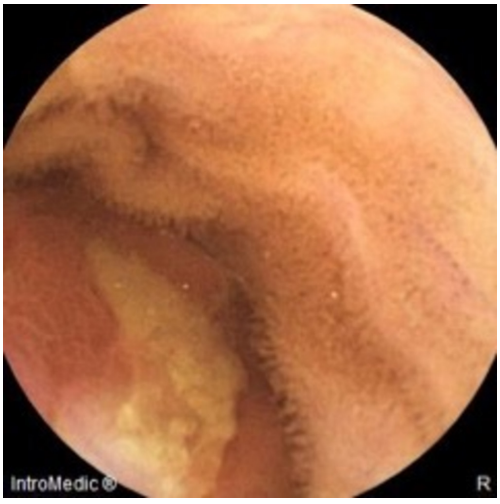

Figure 2 Small bowel recording from capsule camera 2. A polypoid lesion with surface ulceration is identified.

QUESTION

What is the diagnosis, and why was it not easily identified?

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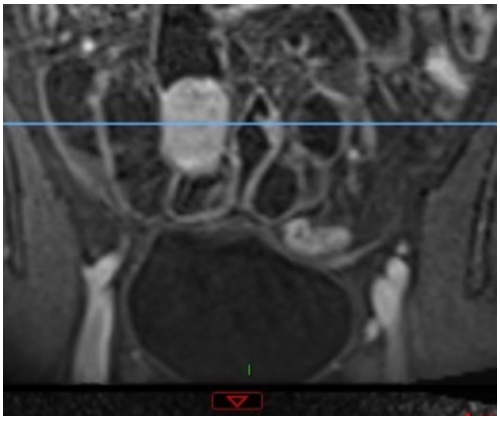

Figure 3 Coronal small bowel MRI with fat-saturated T1 sequence, postcontrast enhancement. A 4.5 cm luminal mass enhances homogenously, with no local nodal enlargement or mesenteric fat infiltration.

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ANSWER

The patient underwent laparoscopic small bowel resection with primary anastomosis. A 5 cm mass with surface ulcerations was identified in the proximal ileum. Microscopic examination confirmed a spindle cell tumour with mild nuclear pleomorphism (figure 4). No mitoses were identified in more than 50 high power fields examined. Immunostaining showed strong, diffuse CD117, DOG1 and SMA expression, with Ki-67 proliferation activity of 5%. This was consistent with a small bowel gastrointestinal stromal tumour. The estimated risk of tumour recurrence was less than 10%, and the patient began a programme of radiological surveillance.

Single camera capsule endoscopy has a significant false negative rate for tumours, particularly for those in the proximal small bowel.[2] Almost 13% of these examinations may give false reassurance,[2] and clinically significant lesions may remain undetectable even on retrospective review when the ultimate diagnosis is known.[3] Indeed, relying on a negative capsule endoscopy report has been described as one of the top 10 mistakes in capsule endoscopy.[4]

Dual camera capsules may improve the sensitivity of this technology,[1 5] although no studies have directly compared the MC2000 device to other systems. Some single camera capsules do have frame rates approximating the combined capture of dual cameras, but the orientation of that single camera will ultimately determine whether or not a lesion is identified.

To our knowledge, this is one of the largest lesions identified by dual camera—but not single camera—capsule endoscopy. Wider introduction of dual camera technology may ultimately prove cost effective, if two eyes reduce the need for a second look.

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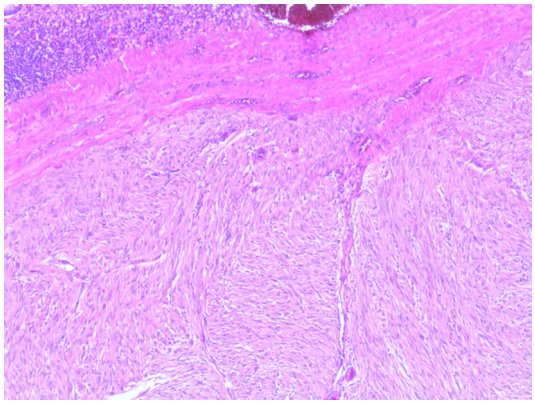

Figure 4 Well-circumscribed, cellular spindle cell tumour with regular nuclei, showing minimal nuclear pleomorphism, arranged in interlacing fascicles (H&E; ×40 magnification).

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