

# Review: Capsule endoscopy has high yield for small bowel findings in obscure gastrointestinal bleeding

Triester SL, Leighton JA, Leontiadis GI, et al. A meta-analysis of the yield of capsule endoscopy compared to other diagnostic modalities in patients with obscure gastrointestinal bleeding. *Am J Gastroenterol*. 2005;100:2407-18.

**Clinical impact ratings:** GIM/FP/GP ★★★★★☆ Hospitalists ★★★★★☆ Gastroenterology ★★★★★☆

## QUESTION

How does capsule endoscopy compare with other diagnostic modalities in the investigation of patients with obscure gastrointestinal bleeding (OGIB)?

## METHODS

**Data sources:** MEDLINE, EMBASE/Excerpta Medica, and Cochrane Central Database of Controlled Trials (to April 2005); reference lists of relevant studies; abstracts of proceedings of Digestive Disease Week and meetings of the American College of Gastroenterology and International Conference on Capsule Endoscopy; and contact with the capsule manufacturer.

**Study selection and assessment:** Studies that prospectively compared capsule endoscopy yield for small bowel findings with  $\geq 1$  other diagnostic modality in patients with OGIB. {Quality assessment included blinded interpretation of test results}\*

**Outcomes:** Small bowel findings and clinically important findings that definitely (e.g., lesion with active bleeding) or probably were the source of OGIB.

## MAIN RESULTS

20 studies ( $n = 537$ ) met the selection criteria. 14 studies compared capsule endoscopy with push enteroscopy ( $n = 396$ ); 3 with small bowel barium radiography ( $n = 88$ );

and 1 each with intraoperative endoscopy ( $n = 42$ ), mesenteric angiography ( $n = 17$ ), computed tomography enteroclysis ( $n = 8$ ), and small bowel magnetic resonance imaging ( $n = 14$ ). The yield was higher for capsule endoscopy than for push enteroscopy or small bowel barium radiography (Table). The incremental yield (IY) did not differ between capsule endoscopy and mesenteric angiography, intraoperative endoscopy, or computed tomography enteroclysis ( $P \geq 0.08$ ). The yield was higher for capsule endoscopy than for small bowel magnetic resonance imaging (IY 36%, 95% CI 10 to 62). Compared with push enteroscopy, capsule endoscopy had a higher yield for identifying certain types of

lesions: vascular (IY 16%, CI 9 to 23), inflammatory (IY 9%, CI 5 to 13), and neoplastic (IY 3%, CI 0 to 6).

## CONCLUSION

Capsule endoscopy is superior to push enteroscopy and small bowel barium radiography for identifying diagnostic abnormalities in patients with obscure gastrointestinal bleeding.

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\*Information provided by author.

## Capsule endoscopy (CE) vs other modalities for small bowel findings in patients with obscure gastrointestinal bleeding†

Comparisons	Outcomes	Number of studies	Yield		IY (95% CI)	NNT <sup>‡</sup>
			CE	Comparison test		
CE vs push enteroscopy‡	All findings	14	63%	28%	35% (26 to 43)	3 (2 to 4)
	Clinically important findings	13	56%	26%	30% (21 to 38)	3 (2 to 4)
CE vs small bowel barium radiography§	All findings	3	67%	8%	59% (48 to 70)	2 (1 to 3)
	Clinically important findings	3	42%	6%	36% (25 to 48)	3 (2 to 4)

†IY = incremental yield; NNT<sup>‡</sup> = number needed to test. CI defined in Glossary.

‡A random-effects model was used.

§A fixed-effects model was used.

## COMMENTARY

The meta-analysis by Triester and colleagues shows that capsule endoscopy is clearly superior to push enteroscopy and small bowel barium radiography for identifying diagnostic abnormalities in patients with OGIB. This was also true for “clinically important findings,” defined as lesions definitely or probably the source of bleeding, as determined by the authors of each included study. This is not surprising, as capsule endoscopy has a farther reach and thus will detect lesions farther in the small intestine than push enteroscopy, and small bowel radiography will not detect superficial lesions of the small intestine, the most common sources of OGIB.

Little difference, however, existed between capsule endoscopy and push enteroscopy in detecting tumors, arguably the most important lesion causing OGIB. A diagnostic test is only as good as the management to which it leads. In the opinion of this reviewer, a definitive therapeutic procedure (e.g., surgery) is necessary for OGIB only if a tumor is present or iron therapy is unable to maintain the blood count at a normal level. Said another way, if a tumor is reasonably ruled out, the cause of OGIB does not matter as long as iron therapy is effective.

For example, if a person has small intestinal bleeding from nonsteroidal antiinflammatory drugs, nothing needs to be done if iron keeps the hematocrit at an acceptable level. My algorithm for the management of OGIB is as follows: Rule out a tumor using enteroclysis, treat the patient with iron supplements, and do capsule endoscopy only if the patient is symptomatic or iron therapy fails to maintain a normal red blood cell count. If capsule endoscopy is ultimately done and a lesion is found, definitive therapy can then be rendered. My main reason for limiting the use of capsule endoscopy is that it is time-consuming and expensive, and may be trapped by an obstructing lesion of the bowel. In 1 study, capsule retention occurred in 5/100 patients as a result of unsuspected bowel stenosis (1).

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## Reference

1. Pennazio M, Santucci R, Rondonotti E, et al. Outcome of patients with obscure gastrointestinal bleeding after capsule endoscopy: report of 100 consecutive cases. *Gastroenterology*. 2004;126:643-53.