

Capsule Endoscopy: Impact on Patient Management

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Abstract: Capsule endoscopy (CE) is an emerging technology in the diagnosis of a variety of gastrointestinal (GI) disorders. However, for CE to play a significant role in the care of GI disease, changes in patient management and positive patient outcomes must be seen. The objective of this study was to determine the impact of CE findings in the management of patients referred for CE. The study was a retrospective chart review of all patients who underwent CE at the University of South Alabama College of Medicine from April 2002 to May 2005. Demographic data was collected, as well as indications for CE. Findings included active bleeding (some within reach of a therapeutic endoscope), masses or polyps potentially missed by prior evaluation, and ulcers or lesions that would require a change in medical or surgical management (eg, the discontinuation of medications such as nonsteroidal anti-inflammatory drugs [NSAIDs] or a change in inflammatory bowel disease [IBD] treatment regimen, based on evidence of active disease from CE). A total of 210 cases were reviewed in this study. Overall, CE findings would lead to a change in patient management in 81 of 210 patients (38.6%). When the sample was restricted to the 93 patients with obscure-occult bleeding, 34 patients (36.6%) would have a change in patient management. Of the 79 obscure-overt bleeding patients, 33 patients (41.8%) would experience a change in patient management. Of the 36 patients who had CE for known or suspected IBD, 13 patients (36%) would have a patient management change based on capsule findings. This study demonstrates that CE meets a reasonable criteria for clinical utility in its ability to change patient management. In our study, 36–41.8% of patients with suspected small-bowel disorders would experience a change in patient management as a result of CE. Also of importance is the ability of CE to provide information that reassures patients and eliminates the need for further testing.

Keywords

Capsule endoscopy, patient management, obscure bleeding

Wireless video capsule endoscopy (CE) is a new technology that allows for complete, noninvasive endoscopic imaging of the small intestine. Although commonly used for obscure gastrointestinal (GI) bleeding, the role of CE in other conditions affecting the small bowel, such as inflammatory bowel disease (IBD) and celiac disease, is expanding.¹⁻³ Although

CE has proven to be a superior modality for the imaging of the small bowel in comparison to other modalities, data on whether CE changes patient management or outcomes are limited.⁴⁻⁵ For CE to play a significant role in the diagnosis of GI diseases, changes in patient management and positive patient outcomes must be seen. The purpose of this study was to determine whether CE findings would affect patient management.

Methods

A retrospective chart review was conducted on all CEs performed at the University of South Alabama College of Medicine from April 2002 to May 2005. The subjects included patients from the university's clinic, as well as patients referred from gastroenterologists outside of the university. Demographic data were collected for each patient, as well as indications for each procedure. The findings from each CE were recorded. Every chart was reviewed for patient management changes that occurred because of CE findings. In cases where that information was not available, the CE findings were reviewed to determine whether a change in patient management would occur. Findings that would lead to a change in patient management include active bleeding (some within reach of a therapeutic endoscope), masses or polyps potentially missed by prior evaluation, and ulcers or lesions that would require a change in medical or surgical management (eg, the discontinuation of medications such as nonsteroidal anti-inflammatory drugs [NSAIDs] or a change in IBD treatment regimen, based on active disease detected by CE).

Results

A total of 210 CE reports were reviewed. One CE was repeated in a male patient due to delayed passage secondary to an esophageal stricture. There were 75 men (36% of the patients) and 134 women (64% of the patients) included overall. The mean patient age was 58 years (± 17.9). Arteriovenous malformations were the most common finding, comprising 49.5% of the findings. Active bleeding was present in 40 patients (19%). Other prominent findings and the frequency of their occurrence, respectively, included: GI erosions (26%), ulcers from any site (9.5%), polyps from the small or large bowel (7.6%), and mass or mass-like lesions from any site (6.7%). Overall, changes in patient management based on CE findings occurred, or would have occurred, in approximately 38.6% of the patients. Table 1 lists the patient management changes based on indication.

Table 1. Changes in Patient Management Based on Indications and Findings of Capsule Endoscopy

Indication/Diagnosis	Significant Finding
Obscure-occult bleeding	34/93 (36.6%)
Obscure-overt bleeding	33/79 (41.8%)
Inflammatory bowel disease	13/36 (36%)
Total	81/210 (38.6%)

Discussion

CE is increasingly considered an essential component of the diagnostic workup of obscure GI bleeding, whereas its role in other GI diseases, such as inflammatory bowel disease and celiac disease, is expanding. Many studies have demonstrated the superiority of CE as an imaging modality of the small intestine; however, there are not as much data on CE and its effects on patient management and positive outcomes.⁶⁻⁸ If CE is to play a significant role in the diagnosis of GI disorders, it must contribute to changes in patient management and positive outcomes in a meaningful way. Although CE is a relatively new technology, there are several studies examining patient management and outcomes. Pennazi and associates examined 100 consecutive patients who underwent CE for obscure GI bleeding. The mean follow-up was 18 months. CE led to treatments resolving the bleeding in 86.9% of the patients who underwent the procedure while actively bleeding.⁹ Most of the other data on changes in management and outcomes based on capsule management range from 18 to 50%.¹⁰ In a study comparing CE to push enteroscopy, CE led to a change in patient management in 25 of 38 patients.¹¹

In our study, arteriovenous malformations were the most common finding, and active bleeding was found in approximately 19% of cases. Changes in patient management occurred in approximately 38.6% of patients. This finding is consistent with prior studies. There were, however, several limitations to our study. Only charts were reviewed because the study was retrospective. No patients were contacted, and no information was gathered on actual patient outcomes.

It is difficult to accurately define a change in patient management, which may include repeat endoscopy, changes in medications such as the discontinuation of NSAIDs, or simply reassurance to the physician and patient and, thus, cessation of further diagnostic testing.¹²

With this study, we provide a preliminary construct to attempt to standardize management changes that can occur as a result of CE findings.

Conclusion

CE can have an impact on patient management in the appropriate clinical setting. Although it has a prominent role in the diagnostic workup of obscure GI bleeding, its role in other small-bowel disorders is evolving. Further prospective data are needed to assess the impact of CE on patient management and outcomes.

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