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EDITORIAL

Esophageal capsule endoscopy and Barrett's esophagus: Where are we in 2013?☆

Cápsula endoscópica esofágica y esófago de Barrett: ¿dónde estamos en el 2013?

Capsule endoscopy (CE) is the diagnostic technique of choice for the study of small bowel (SB) pathology. Its high diagnostic performance enables the identification of lesions that, even a few years ago, were under-diagnosed or discovered late.

Initial studies in the esophagus showed low cost-effectiveness for capsule endoscopy of the SB,¹ with the exception of the study by Ramírez et al.² with string-capsule endoscopy using the PillCam® SB. Their study demonstrated a high cost-effectiveness, close to 100%, but it was not supported or validated by further studies.

For this reason, esophageal capsule endoscopy (ECE) was designed specifically for the study of that portion of the digestive tract, with 2 lenses and greater image capacity. This capsule (initially the PillCam® ESO1 and later the ESO2) was soon proposed as a useful tool for the study of chronic gastroesophageal reflux disease (GERD) (mainly for the diagnosis and follow-up of Barrett's esophagus [BE]) and in the screening for esophageal varices in portal hypertension.

Different studies carried out with the PillCam® ESO1 and later with the ESO2 in patients with suspected or known GERD and BE have had these main disadvantages: (1) difficulty in complete visualization of the Z line, improved with the right lateral decubitus position; (2) inability to employ local staining techniques (methylene blue or Lugol's solution), unlike upper gastrointestinal (UGI) endoscopy; and (3) the impossibility to take biopsies and thereby know the grade of dysplasia associated with intestinal metaplasia.

The majority of published case series comparing the PillCam® ESO and UGI endoscopy have reported a high specificity and negative predictive value of the capsule for BE screening. However, its sensitivity was considerably

low, it had high interobserver variability, and it was not cost-effective in short BE, making it unrecommendable in these patients.^{3,4}

A later meta-analysis of more than 600 patients with GERD concluded that ECE had moderate sensitivity and specificity for diagnosing BE and that UGI endoscopy should continue to be the gold standard in these patients.⁵

This issue of the *Revista de Gastroenterología de México* has published a study by Domingos et al.⁶ that compares ECE with methylene blue (MB) chromoendoscopy following a regular UGI endoscopy in 21 patients with BE that underwent Nissen fundoplication with follow-up. The authors concluded that ECE appears to be a good method for detecting suspicious esophageal cancer lesions in these patients, even though it had modest results in regard to the precise identification of BE length and pattern.

We find this study interesting because it compares ECE not only with UGI endoscopy, but also with MB chromoendoscopy – a magnification method of greater precision in lesion characterization. This study design has not been published before, unquestionably adding to the study's originality. However, we observed a number of limitations that we feel should be contemplated:

- (1) The final number of patients included in the study ($n = 19$) is low, especially when taking into consideration that only a small percentage of patients with BE develop adenocarcinoma in clinical practice. In addition only one patient presented with lesions suggestive of malignancy. Therefore any conclusions as to the suitability of ECE in this population should be carefully drawn.
- (2) If the primary objective of the study was to identify patients with suspected malignant lesions, then the grade of dysplasia in the biopsy specimens should have been shown, given that this is currently the main indicator for determining the follow-up and time between endoscopies in these patients.

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☆ See paper by Domingos TA, et al. in pages 57-63.

- (3) In the study, the pattern observed through UGI endoscopy with MB chromoendoscopy is regarded as the gold standard, but this technique is not reflected as such in published studies or guidelines. For the sake of greater methodological rigor, the histologic study of the biopsy specimens should have been considered as this standard.
- (4) As mentioned before, only one patient had suspected malignant lesions after UGI endoscopy and chromoendoscopy. However, ECE identified 4 suspicious patients and regarded them as false positives, suggesting a very low specificity and positive predictive value.
- (5) As observed in previous studies, ECE cost-effectiveness for identifying short BE is limited and interobserver concurrence is low.

As the authors commented, further studies on a large number of patients (which would probably be possible only through multicenter studies) are definitely necessary in order to evaluate the true role of ECE in patients presenting with BE. Until then, UGI endoscopy, preferably with magnification techniques and the histologic study of the biopsy specimens, should be regarded as the gold standard technique in these patients.

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Conflict of interest

The authors declare that there is no conflict of interest.

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