

## Ringed esophagus sign on barium esophagogastroduodenoscopy

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### Quiz

A 35 year-old male patient with history of atopy was referred to the general surgery consultation with non-specific esophageal discomfort and occasional food impaction, especially with meat. Symptoms were discontinuous and had started approximately two years earlier. A barium esophagogastroduodenoscopy (EGD) was ordered on suspicion of achalasia (Fig. 1). What is the most likely diagnosis according to the imaging findings?

### Answer to the quiz

After careful observation of the EGD images, radiologists reviewed previous laboratory tests, and peripheral eosinophilia (10.36%=850 cells/ $\mu$ L) was detected in a blood test performed 3 months earlier. The diagnosis of eosinophilic esophagitis was suggested, and upper endoscopy (UE) was recommended for biopsy taking, which was performed a few weeks later (Fig. 2A).

The biopsy samples confirmed the diagnosis of eosinophilic esophagitis (Fig. 2B), and the patient was put on treatment with omeprazole, fluticasone and hypoallergenic diet, which led to symptomatic relief.

Eosinophilic esophagitis (EE) is an uncommon inflammatory condition of the esophagus secondary to exposure to food allergens. EE predominantly affects young (20-40 years old) males with history of atopy and peripheral eosinophilia (1). Presenting symptoms include esophageal dysfunction, dysphagia and food impaction, which may lead to misdiagnosis of other esophageal conditions such as achalasia. UE may show suggestive features of EE, including cotton-like exudates, mucosal edema, and esophageal rings (esophageal *trachealization*). However, histological demonstration of 15 or more eosinophils per high power field is required to make the diagnosis of EE, although the exact number remains controversial (2).

The use of EGD is gaining increasing importance as initial or complementary exam when EE is suspected. The detection of ring-like folds (1-2 mm) grouped in the distal esophagus, giving the appearance of a “ringed esophagus” is very characteristic of EE, especially in the presence of strictures. Of note, EGD showed higher sensitivity than UE in the demonstration of esophageal rings, whilst UE was better for the assessment of mucosal

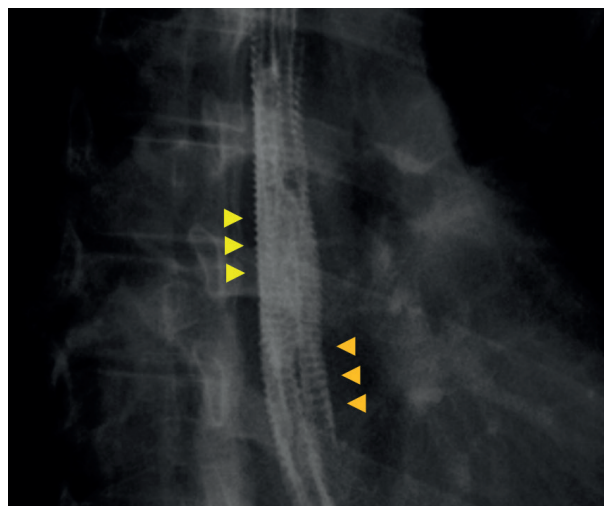


Figure 1. — *Barium esophagogastroduodenoscopy (double contrast)*. Multiple transverse folds displaying a ring-like appearance (arrowheads), predominantly in the middle and distal thirds of the esophagus (“ringed esophagus”).

changes and strictures. In any case, both techniques showed similar sensitivity in the detection of the remodelling consequences of EE (3).

In conclusion, barium EGD can show distinctive features of EE, and thus it is a very useful complementary exam in the differential diagnosis of esophageal conditions. The presence of multiple contiguous strictures displaying the typical “ringed esophagus” appearance should prompt the performance of UE for obtaining biopsies and histologically confirm the diagnosis.

### Conflict of interest

The authors declare that they have no conflicts of interest to disclose

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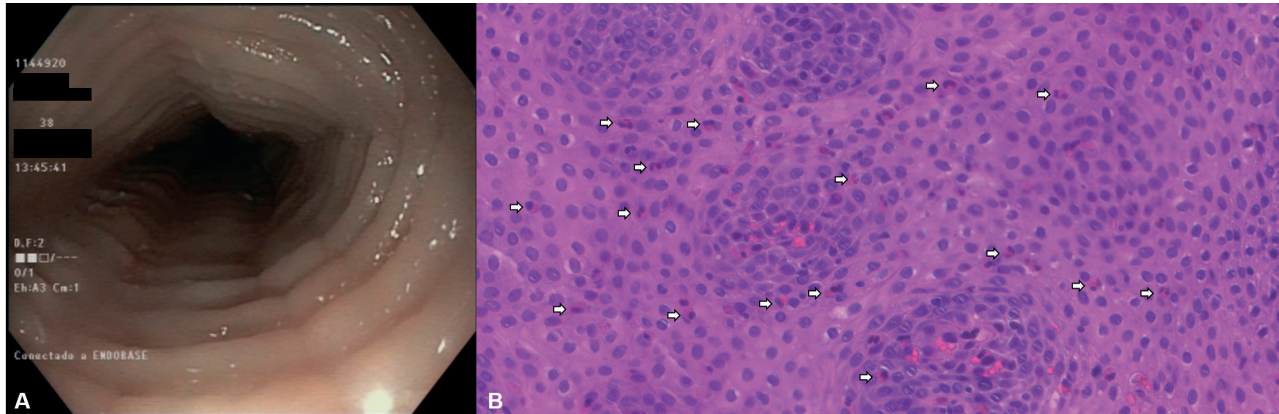


Figure 2. — A. *Upper endoscopy (distal esophagus)*. Linear, ring-like mucosal folds at the esophageal wall (“trachealization of the esophagus”), suggestive of eosinophilic esophagitis. B. *Esophageal biopsy specimen (40x)*. A marked infiltrate of eosinophils is demonstrated in the epithelium (arrows).

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