Co-existence of eosinophilic esophagitis and Barrett's esophagus : a possible association?

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To the Editor,

A 37-year-old female with no relevant previous medical history was referred to Gastroenterology consultation because of long-history of heartburn and dysphagia. She described frequent episodes of heartburn and dysphagia for solids and liquids since childhood and there was history of some episodes of food impaction. Esophagogastroduodenoscopy revealed reflux esophagitis and a circumferential segment of salmon-colored mucosa at distal esophagus from 27 to 34 cm from incisors, suggestive of Barrett's esophagus (BE). This diagnosis was confirmed in biopsies of distal esophagus, which revealed intestinal metaplasia, focal papillomatosis and intra-epithelial eosinophilia with 80 eosinophils/high-power field (HPF). Clinical and endoscopic findings were consistent with gastroesophageal reflux disease (GERD) and pantoprazole twice daily was started, with symptom improvement. After one year, esophagogastroduodenoscopy was repeated. In addition to the segment of BE previously identified from 27 to 34 cm from incisors (Figure 1A), concentric rings and longitudinal furrows were identified proximally from 20 to 27 cm (Figure 1B). Biopsies of distal esophagus expectedly demonstrated intestinal metaplasia without dysplasia (Figure 2A), whereas biopsies of proximal esophagus were remarkable for intra-epithelial eosinophilia with 15 eosinophils/HPF (despite treatment with pantoprazole) associated with acanthosis, spongiosis and basal cell hyperplasia (Figure 2B). These findings were consistent with simultaneous occurrence of eosinophilic esophagitis (EoE) and BE. Esophageal manometry did not reveal motor abnormalities. Despite symptomatic improvement with pantoprazole, occasional episodes of food impaction still occurred, most with spontaneous resolution. There was one, however, which required endoscopic resolution. Therapy with fluticasone was started with no more episodes of food impaction for several months.

Coexistence of BE and EoE was firstly reported in 2007 in an adult patient (1) and, since then, only three more cases in children were reported (2, 3). Interestingly, a retrospective study involving 200 adult patients with BE where biopsies of squamous mucosa had been performed revealed a prevalence of high esophageal eosinophil counts (> 15 eosinophils/HPF) of 7% (4).

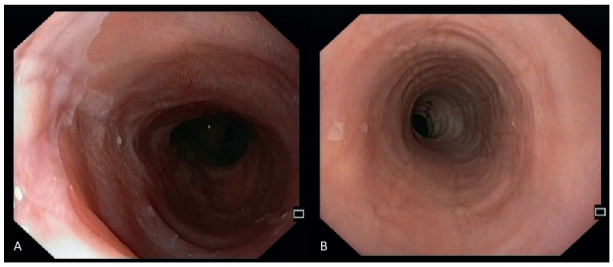

Figure 1. — Esophagogastroduodenoscopy findings. A. A circumferential segment of salmon-colored mucosa suggestive of Barrett's esophagus can be seen at distal esophagus, extending from 27 to 34 cm from incisors. B. Concentric rings and longitudinal furrows may be seen from 20 to 27 cm from incisors, raising the hypothesis of eosinophilic esophagitis.

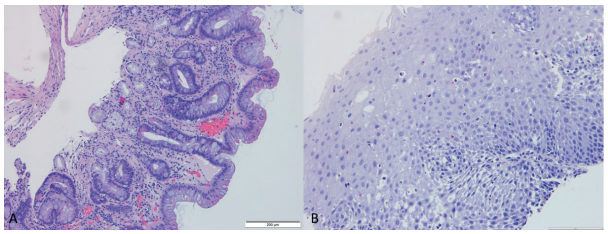

Figure 2. — Histopathological findings. A. Biopsies of distal esophagus revealed intestinal metaplasia without dysplasia, establishing diagnosis of Barrett's esophagus. B. Biopsies of proximal esophagus revealed intra-epithelial eosinophilia with 15 eosinophils/HPF associated with acanthosis, spongiosis and basal cell hyperplasia, consistent with eosinophilic esophagitis.

Although at least 15 eosinophils/HPF are required to diagnose EoE, controversy remains regarding the exact cut-off and a recent study demonstrated high variability in eosinophilic peak counts (5). This suggests that perhaps a lower diagnostic cut-off could be used and the prevalence of eosinophil counts consistent with EoE among patients with BE could therefore be even higher.

Nevertheless, there are contradictory findings. In a retrospective study involving 233.662 patients

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with esophageal biopsies, the observed prevalence of simultaneous occurrence of these two conditions (0.17%) was only one-third of expected if they occurred independently (6). A retrospective observational study involving Japanese subjects also demonstrated an inverse association between BE and EoE (7).

This unusual, possibly fortuitous, association between BE and EoE is difficult to be explained as cause-and-effect. It is likely that GERD could be the pathophysiologic link between these conditions. In fact, not only BE results from chronic exposure of esophageal epithelium to gastric acid but also GERD is associated with increased eosinophils in the mucosa and the pathophysiology of EoE is related to cytokine production in response to reflux (4). This intriguing association could have clinical relevance, with EoE possibly representing a marker of increased risk for BE which could contribute to more effective surveillance and earlier detection of this premalignant lesion.

Disclosures

The authors have no potential financial, professional or personal conflicts of interest.

References

1. WOLFSEN HC, HEMMINGER LL, ACHEM SR. Eosinophilic esophagitis and Barrett's esophagus with dysplasia. *Clin. Gastroenterol. Hepatol.*, 2007, **5**(12) : A18.
2. FRANCALANCI P, DE ANGELIS P, MINNEI F, DIOMEDI CAMASSEI F, TORRONI F, DALL'OGLIO L, *et al*. Eosinophilic esophagitis and Barrett's esophagus : an occasional association or an overlap disease? Esophageal 'double trouble' in two children. *Digestion*, 2008, **77**(1) : 16-9.
3. TAN L, GIFFORD AJ, CLARKSON CM, HENRY GM, KRISHNAN U. Barrett's esophagus and eosinophilic esophagitis in a young pediatric patient with esophageal atresia. *J. Ped. Surg. Case Reports*, 2015, **3** : 272-5.
4. RAVI K, KATZKA DA, SMYRK TC, PRASAD GA, ROMERO Y, FRANCIS DL, *et al*. Prevalence of esophageal eosinophils in patients with Barrett's esophagus. *Am. J. Gastroenterol.*, 2011, **106**(5) : 851-7.
5. VANSTAPEL A, VANUYTSEL T, DE HERTOGH G. Eosinophilic peak counts in eosinophilic esophagitis : a retrospective study. *Acta Gastroenterol. Belg*., 2019, **82**(2) : 243-250.
6. SABOORIAN MH, GENTA RM, MARCUS PB, LINDBERG GM, NEUMANN WL. Inverse association of esophageal eosinophilia and Barrett esophagus. *J. Clin. Gastroenterol.*, 2012, **46**(9) : 752-7.
7. TAKASHIMA S, TANAKA F, OTANI K, HOSOMI S, NAGAMI Y, KAMATA N, *et al*. Barrett's esophagus is negatively associated with eosinophilic esophagitis in Japanese subjects. *Esophagus*, 2019, **16**(2) : 168-73.