

## Primary eosinophilic esophagitis

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**SUMMARY.** Eosinophilic esophagitis is an uncommon pathology that generally affects children with a history of allergies and intrinsic asthma. We present a clinical case of eosinophilic esophagitis in a 16-year-old boy with upper dysphagia for solids since childhood. The analytical study showed only a repeat serum eosinophilia. Barium transit disclosed a reduction in caliber of the whole esophagus. Functional esophageal tests with pH monitoring and manometry were normal. Endoscopy showed a small-diameter esophagus and fibrosis with a very friable mucosa. The histological study of the esophageal biopsies revealed a full thickness major eosinophil infiltration of the esophagus. These findings suggest a differential diagnosis with a great variety of pathologies that can cause similar lesions in the esophagus, especially between primary eosinophilic esophagitis and eosinophilic esophagitis secondary to gastro-esophageal reflux disease (GERD). We implemented medical treatment with oral corticoids and total suppression of allergens from the diet, and the patient was asymptomatic.

### INTRODUCTION

Eosinophilic esophagitis is an uncommon pathology, confused until recent years with eosinophilic gastroenteritis, food allergy or gastro-esophageal reflux disease (GERD) but now considered an independent entity.<sup>1-7</sup> It generally affects children with a history of allergies and intrinsic asthma, although cases have been reported in adults. From the clinical point of view, it is characterized by dysphagia with severe diffuse inflammatory esophageal lesions, which means to establish a correct diagnosis it is necessary to know the clinicopathological features of the disease in order to rule out other more common causes of esophagitis.

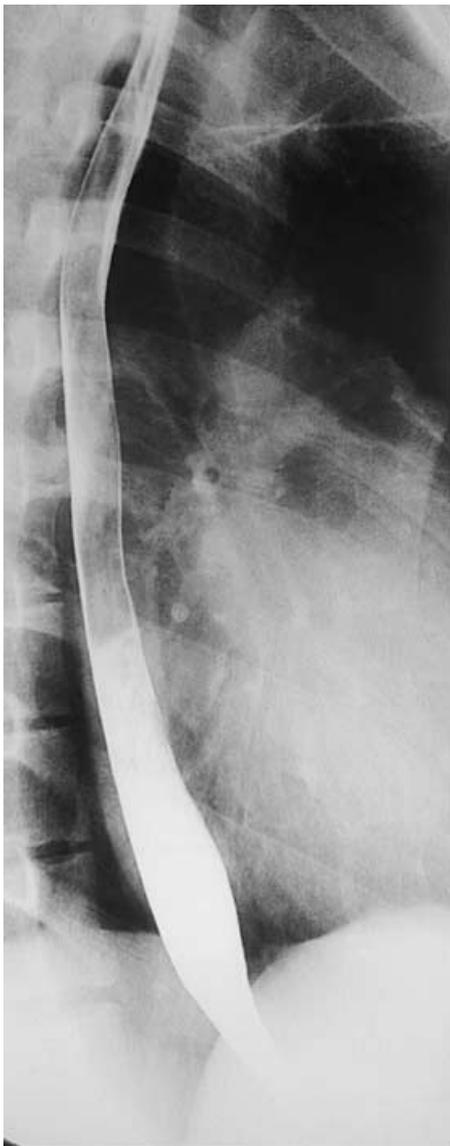
We present a clinical case of eosinophilic esophagitis in a 16-year-old boy diagnosed after a series of complementary tests.

### CASE REPORT

A 16-year-old boy was referred to us with upper dysphagia for solids since childhood, which required

large amounts of water to be able to swallow food. The dysphagia would coincide with retrosternal pain and, occasionally, passive regurgitations of small amounts. For this reason the patient consulted another hospital and was diagnosed with esophageal spasm, but no treatment was implemented. The symptoms increased in intensity and frequency until, 2 years before being sent to our unit, the patient had a bolus impaction, which had to be extracted by endoscopy, during which severe inflammatory esophageal lesions were observed. Having no history of caustic ingestion the patient was diagnosed with reflux esophagitis, and treatment was implemented with proton pump inhibitors. The patient improved only slightly and was thus referred to our unit. The patient had a history of intrinsic asthma and an allergy to pollen and other aeroallergens, as well as allergy to a number of food-stuffs, especially peanuts. Barium transit disclosed a reduction in caliber of the whole esophagus, with rigidity during deglutition (Fig. 1). Upper gastrointestinal endoscopy showed a small-diameter esophagus and fibrosis from the cervical portion to the cardia, with a very friable esophageal mucosa and a tendency towards longitudinal tears and bleeding on the slightest touch or strain (Fig. 2). Functional esophageal tests with pH monitoring and manometry revealed the absence of pathological acid reflux (total percentage of esophageal pH < 4 = 0.9%) and

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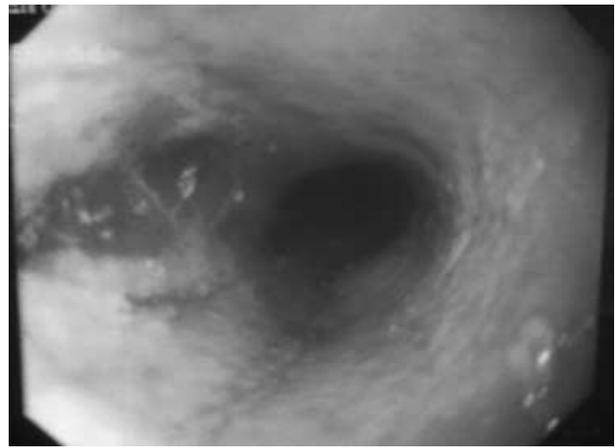


**Fig. 1** Barium esophagogram showing a reduction in esophageal caliber along the whole of its length ('small-caliber esophagus')

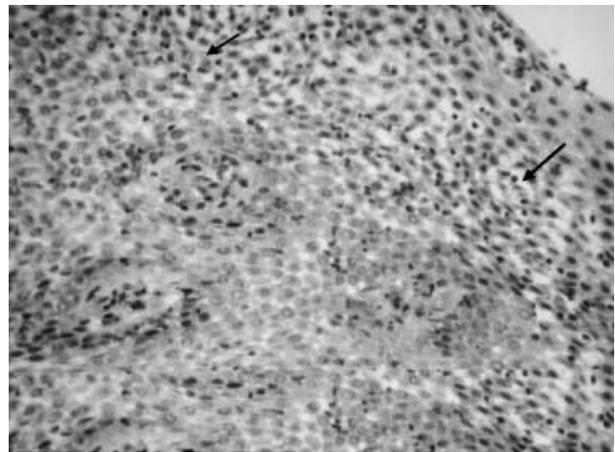
normal motility of the esophageal body and both sphincters.

The analytical study showed only a repeat serum eosinophilia (1.760 eosinophils/ $\mu$ L, 16% of eosinophils in the leukocyte formula), and histological study of the esophageal biopsies revealed a full thickness major eosinophil infiltration of the esophagus (more than 20 eosinophils per High Power Field [HPF]; Fig. 3).

With a diagnosis of primary eosinophilic esophagitis we implemented medical treatment with oral corticoids (methylprednisolone 1.5 mg/kg/day) and total suppression of allergens from the diet. At 2 months the patient was asymptomatic, with normal endoscopy, and the corticoid treatment was discontinued. After 8 months follow-up there are no signs of recurrence.



**Fig. 2** Endoscopic image of the esophageal lesions: the mucosa is reddened and friable, with longitudinal hemorrhagic tears



**Fig. 3** Histological image of the esophageal biopsies: note the significant eosinophilic infiltrate on the whole of the wall (H&E, 200x)

## DISCUSSION

Allergic reactions caused by ingested foodstuffs can lead to a great variety of gastro-intestinal syndromes, which have grown in interest in recent years.<sup>1,4-7</sup> One of the least-known food allergies is eosinophilic esophagitis. It was initially included within the more general condition known as eosinophilic gastroenteritis, but it is now considered an independent entity,<sup>1-3</sup> which, although uncommon, is on the increase, as are allergic problems in the child population.<sup>1</sup> Epidemiologically, it mostly affects children with intrinsic asthma and multiple allergies for ingested or inhaled antigens. From an etiologic point of view the relationship between asthma or other chronic respiratory pathologies and eosinophilic esophagitis has two possible explanations: on the one hand, both might be secondary to GERD, such that the respiratory pathology would develop from repeated episodes of

**Table 1** Differential diagnosis between primary eosinophilic esophagitis and eosinophilic esophagitis secondary to gastro-esophageal reflux disease

	Gastro-esophageal reflux	Primary eosinophilic esophagitis
Age		
Adults	+++	+
Children	++	+++
Heartburn	+++	-/+
Dysphagia	+	+++
Asthma	+	+++
Serum eosinophilia	-	+++
Pathological acid reflux	+++	-
Pathological manometry	++	-/+
Esophageal involvement	Distal	Cervical/Total
Eosinophilic infiltration	Intra-epithelial	Full thickness
No. eosinophils/HPF	< 20	≥ 20
Response to PPIs/Nissen	+/+/+++	-
Response to corticoids	-	+++
Response to diet restriction	+	+++

HPF, high power field; PPI, proton pump inhibitors; -, negative; +, mildly positive; ++, moderately positive; +++, highly positive; +/-, unclear or variable.

microaspiration, and the esophagitis from the direct damaging effect of the acid on the esophageal mucosa. Another hypothesis is that both symptoms are related to the typical atopy of children who suffer from multiple allergies to inhaled antigens (asthma) and food allergies (eosinophilic esophagitis).

From a clinical point of view the fundamental symptom is dysphagia for solids accompanied by repeated episodes of esophageal impaction.<sup>8,9</sup> In some patients the dysphagia may be due to organic causes, e.g. strictures or rings but stenosing esophageal lesions are not observed in other cases,<sup>10,11</sup> which means that the etiology of the dysphagia may be more difficult to explain, since esophageal manometry does not usually yield any pathological finding. In our case the radiological study with barium showed the esophagus to have a reduced caliber along the whole of its length, with absence of movement as if it were 'a rigid tube', something that could justify the presence of dysphagia, as reported by others.<sup>9</sup> Endoscopy usually reveals an esophagus with inflammatory lesions along the whole of its length and a very friable erythematous mucosa with hemorrhagic longitudinal erosions.<sup>12</sup> These findings suggest a differential diagnosis with a great variety of pathologies that can cause similar lesions in the esophagus: GERD, caustic ingestion, pharmacological esophagitis (tetracyclines, potassium chloride, quinidine, alendronate, etc.), infectious esophagitis (tuberculosis, candidiasis, herpes, etc.), Crohn's disease, vulgar pemphigus, postradiation esophagitis, etc.<sup>13-19</sup>

Diagnostic problems arise especially between primary eosinophilic esophagitis and eosinophilic esophagitis secondary to GERD. Some authors report that the number and location of eosinophilic infiltrates is different in both cases.<sup>19-23</sup> Justinich *et al.*<sup>23</sup> separated three groups of patients according to the

number of eosinophils in the esophagus and the relationship to reflux: a control group of children without pathological acid reflux and with a mean of  $0.1 \pm 0.1$  eosinophils per HPF; a group of patients with reflux esophagitis and pathological esophageal pH monitoring, with a mean eosinophilic infiltration of  $9.7 \pm 4$  per HPF; and lastly a group of children with a real eosinophilic esophagitis without pathological reflux, with a mean of  $45 \pm 8.5$  eosinophils per HPF. Other studies have shown that patients with eosinophilic esophagitis secondary to GERD improve clinically after antisecretory treatment or antireflux surgery,<sup>19,22,24</sup> with the number of eosinophils in the esophageal biopsies decreasing. This does not occur with patients presenting with primary eosinophilic esophagitis. Other features that may help differentiate these two conditions are shown in Table 1.

As for treatment, the first step must be to avoid ingestion of any foodstuff that triggers the disease, and is occasionally sufficient to bring about a considerable clinical improvement.<sup>25</sup> Other cases require administration of corticoids, either orally<sup>26</sup> or by inhalation<sup>27,28</sup> for at least a month until the symptoms and eosinophilic infiltrate in the esophagus disappear. If the pathology should recur after discontinuation of the treatment, further doses should be administered, although some authors contraindicate prolonged corticoid treatment because it can delay patient growth. As occurs with other food allergies in children, the atopy may disappear with the development of the patient, and the disease may not return.

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