

## EDUCATION PRACTICE

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# Management Strategies for Dysphagia With a Normal-Appearing Esophagus

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### Clinical Scenario

A 27-year-old man was evaluated for solid-food dysphagia. He described intermittent bouts of solid food sticking in his midchest. He always was a slow eater. There was one episode of food impaction 2 years earlier that required endoscopic removal of a piece of chicken. The patient has had neither heartburn nor weight loss.

Physical examination was normal. Complete blood count and differential white blood cell count were unremarkable. No abnormalities of the esophagus, stomach, or duodenum were detected at upper endoscopy. How should this patient be managed?

### The Problem

Dysphagia is defined as difficulty in transferring food from the mouth to the stomach and involves 2 stages. The first stage of swallowing, termed the *oropharyngeal stage*, is under voluntary control and moves the food bolus from the mouth to the esophagus. The second stage is called the *esophageal stage* and is involuntary.

The history often gives clues as to the site of abnormality in the esophagus. Patients with oropharyngeal problems have difficulty in transferring the bolus from the mouth to the upper esophagus. These patients have a distinct clinical presentation that includes difficulty in initiating the swallow, as well as problems with aspiration, choking, nasopharyngeal regurgitation, and dysphonia.

In contrast, patients with esophageal causes of dysphagia frequently report a perception that food sticks at a point in the chest or throat. In patients with distal esophageal strictures, the level of perception of obstruction usually corresponds to the site of the stricture. However, some patients with lower-esophageal strictures can point to the proximal esophagus as the site of obstruction. It is unusual for patients with proximal esophageal lesions to point to the distal esophagus as the site of obstruction.

It is important to determine whether dysphagia is for solids, liquids, or whether it affects both consistencies of food. Disease processes that narrow the esophageal lumen characteristically will begin with dysphagia to solid foods and then may progress to dysphagia to liquids. In contrast, patients with esophageal dysmotility (typically achalasia) frequently complain of dysphagia to both solids and liquids as the initial symptom.

The time course of dysphagia may be helpful. Non-progressive and long-standing intermittent dysphagia often is caused by a lower-esophageal mucosal ring (Schatzki's ring). In contrast, discrete esophageal strictures cause progressive dysphagia and if weight loss is prominent malignancy should be considered. A history of heartburn and regurgitation increases the likelihood of a peptic esophageal stricture. Patients with pill esophagitis often describe pain in association with dysphagia. In patients with smooth muscle diseases such as scleroderma, dysphagia may be secondary to gastroesophageal reflux or the esophageal dysmotility.

Eosinophilic esophagitis (EE) may be a cause of dysphagia in a normal-appearing esophagus. This condition is seen in young adults with a long history of solid-food dysphagia or impaction. Endoscopy may reveal a number of subtle features that include a ringed-appearing or corrugated esophagus (Figure 1), a crepe-paper-appearing esophagus, or distal esophageal furrowing, or even a normal-appearing esophagus. The diagnosis of EE is made reliably by showing a dense eosinophilic infiltrate in the esophageal mucosa by using standard H&E staining. Patients with EE may develop deep mucosal tears during endoscopy even in the absence of dilatation. These tears can be quite alarming, but rarely result in perforation. The treatment of EE in adults includes topical steroid lavage with the use of a fluticasone inhaler.

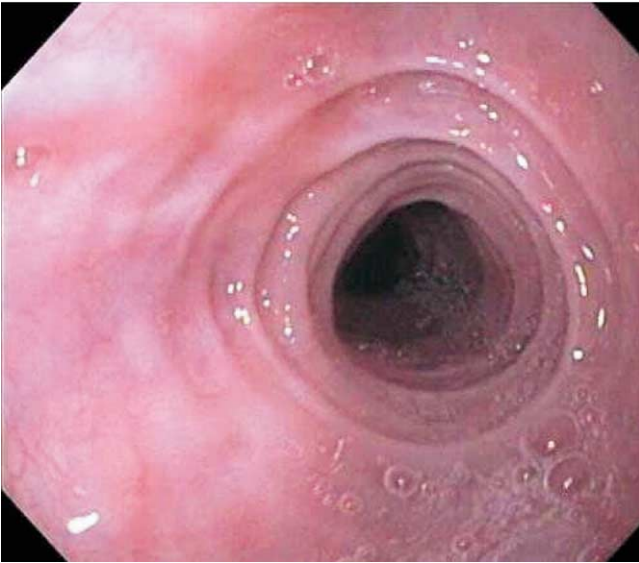
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Abbreviation used in this paper: EE, eosinophilic esophagitis.

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**Figure 1.** Endoscopic features suggestive of EE. A typical ringed appearance is seen in the midesophagus.

There are data to suggest that a leukotriene D<sub>4</sub> antagonist (Montelukast; Merck and Company, White House Station, NJ) on a daily basis also may be helpful.

### Management Strategies and Supporting Evidence

**Barium esophagram or endoscopy?** Upper endoscopy is the initial investigation of choice in patients with esophageal dysphagia because it identifies mucosal lesions, biopsy specimens can be obtained, and dilatation can be performed. Barium evaluation is more sensitive than routine endoscopy in detecting subtle esophageal narrowings caused by mucosal rings and is recommended as the primary test when there is a high suspicion for achalasia or proximal esophageal lesions. If the upper endoscopic and barium examinations are normal, mid- and distal esophageal biopsy examinations, as well as esophageal manometry, may be indicated.

**Esophageal biopsy examinations.** Routine mid- and distal esophageal biopsy examinations in patients with dysphagia and a normal-appearing esophagus would seem reasonable to exclude EE. Others would restrict biopsy examinations to patients with ringed esophagus, or history of atopy. There is some controversy as to the role of gastroesophageal reflux in EE. The diagnosis of eosinophilic esophagitis is based on >20 eosinophils per high-power field (Figure 2). Patients with reflux esophagitis rarely have >5–10 eosinophils per high-power field.

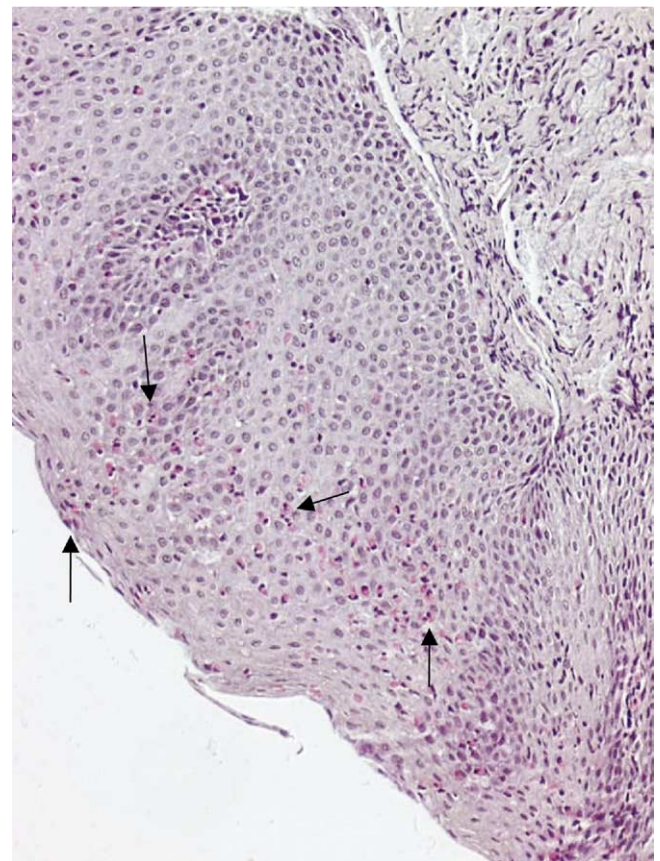
**Esophageal manometry.** Two major disease processes cause esophageal aperistalsis and dysphagia: scleroderma, a connective tissue disorder, and achalasia, a

disorder of unknown cause. The classic manometric features of scleroderma include loss of peristalsis in the smooth muscle esophagus, with a low to low-normal lower-esophageal sphincter mean pressure. The manometric features for achalasia include aperistalsis (with simultaneous waves) and a poorly relaxing lower-esophageal sphincter that has an increased basal tone. Upper endoscopy frequently will show resistance to advancing the scope through the esophagogastric junction in achalasia, and endoscopy may show evidence of distal esophageal inflammation or stricture formation in scleroderma.

Patients with diffuse esophageal spasm may have intermittent dysphagia to solids and liquids associated with chest pain. On esophageal manometry, there is a pattern of simultaneous contractions (at least 30%) interspersed with normal peristalsis. Nutcracker phenomenon (high amplitudes in the distal esophagus) may be unrelated to dysphagia.

### Areas of Uncertainty

**Role of provocative barium studies.** Whether a patient with intermittent solid-food dysphagia and a



**Figure 2.** Histologic features of the esophageal mucosa in EE (H&E stains). Numerous intraepithelial eosinophils are seen (>20/high-power field) (arrows).

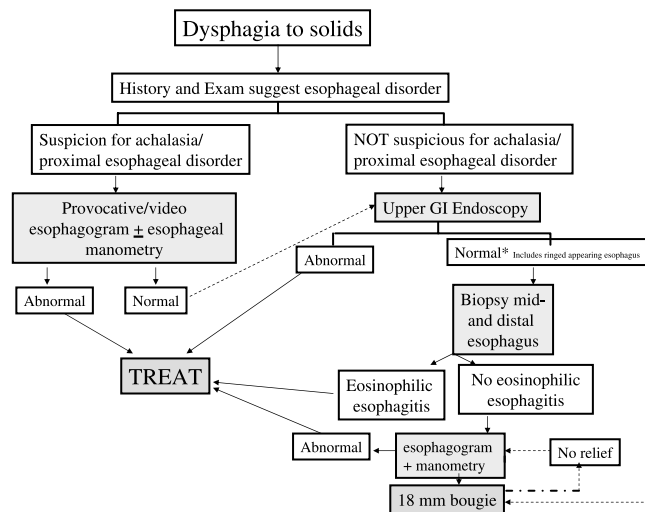
normal-appearing esophagus should undergo a provocative barium study (barium-coated marshmallow study) followed by dilatation has yet to be determined. It is conceivable that patients who have evidence of a subtle distal esophageal ring or hold-up of the marshmallow on radiologic evaluation (using a marshmallow) may benefit from a dilatation during endoscopy.

**Empiric dilatation of a normal-appearing esophagus.** In the patient with a normal-appearing esophagus without evidence of EE, the American Gastroenterology Association Practice guidelines suggest empiric dilatation of the esophagus. The few studies that address this issue have all had a number of methodologic flaws. In general, esophageal rings were not excluded. Upper endoscopy may miss one third of large rings shown on barium evaluation. Moreover, the presence of the ring may not be the cause of symptoms because patients with rings 20 mm or greater in diameter (thought to be nonobstructive) may be asymptomatic or have reproduction of symptoms by swallowing a barium-coated marshmallow. It can be argued that patients with a normal-appearing esophagus may have a subtle ring and should undergo empiric dilatation. Patients with only solid-food dysphagia seem to benefit from an empiric dilation using 18-mm diameter bougies; patients with only liquid dysphagia derive no benefit from dilatation. If empiric dilatation is performed, it should be performed with a bougie of a diameter >17- to 18-mm diameter. Patients (with an endoscopically normal esophagus) whose esophagus was dilated with a 17-mm diameter bougie were able to eat more solid food than the group of patients who underwent dilatation with smaller bougies, despite a lack of improvement in the frequency of overall dysphagia.

A randomized study evaluated 83 patients in whom the esophagus appeared normal on endoscopy, and they underwent a dilatation to 18 mm at the esophagogastric junction by using a through-the-scope balloon, or a sham dilatation. Both groups showed improvement in symptoms using a visual analog scale and, interestingly, the sham group fared better. At 6 months there was no difference in the response rate between the 2 groups. Unlike the other studies discussed, this group used a through-the-scope balloon rather than a bougie and it is possible that the greater therapeutic benefit seen in the other studies was owing to concomitant upper-esophageal dilatation by the bougie.

**Risk for Perforation With Empiric Dilatation of the Normal-Appearing Esophagus**

What is the risk for empiric dilatation in a normal-appearing esophagus? Patients with a normal-ap-



**Figure 3.** Algorithm for the management of dysphagia to solids. Dotted line represents reasonable alternatives.

pearing distal esophagus who undergo esophageal dilatation rarely have had any complications. However, a systematic evaluation beyond the small numbers in the aforementioned is lacking and endoscopists need to be cautious, especially in older patients. In patients with EE dilatation, there may be deep mucosal tears and perforation has been reported.

**Published Guidelines**

The published guidelines from the American Gastroenterological Association recommend that upper gastrointestinal endoscopy be performed in patients with “esophageal-sounding” dysphagia. The 1999 American Gastroenterological Association guidelines state “a trial of empiric bougienage is reasonable for patients who complain of dysphagia for solid food and who have normal findings on endoscopic examination.” The algorithm in Figure 3 incorporates the recommendations from the position statement as well as the novel observations since 1999. The evidence from limited studies suggests that an 18-mm diameter bougie should be used in patients who undergo an empiric dilatation.

**Recommendations**

In this young patient with a clear history of solid-food dysphagia and a normal upper endoscopy, mid- and distal esophageal biopsy examinations are recommended to include EE (see Figure 3). If the biopsy specimens do not show EE, empiric dilatation with an 18-mm diameter bougie is reasonable. If, on the other hand, EE is present, the recommended regimen is a trial of 4 puffs of Fluticasone (GlaxoSmithKline, Brentford, Middlesex, UK; 220 µg/ puff) twice a day after breakfast

and after the evening meal for 6 weeks. To ensure adequate delivery to the esophagus (rather than the lungs), a spacer should NOT be used. The patient should be instructed to inspire deeply and at that moment depress the inhaler and swallow the aerosol. The patient should rinse the mouth out with water and avoid food or drink for 2–3 hours. If this fails to resolve symptoms, other therapies include a leukotriene D<sub>4</sub> antagonist (Montelukast, 10–40 mg/day) and possibly oral steroids (prednisone, 30 mg/day for 2 weeks and taper over 6 weeks) as reasonable alternatives.

### Suggested Reading

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