73-Year-Old Man With Recent-Onset Dysphagia

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A 73-year-old man presented to his gastroenterologist for evaluation of dysphagia that had begun 6 months previously. He reported progressively worsening intermittent solid food dysphagia with difficulty initiating swallows. He denied dysphagia with ingestion of liquids, nasal regurgitation, abdominal pain, weight loss, voice changes, aspiration, or choking episodes.

His medical history was notable for prostate cancer treated with radiation therapy, type 2 diabetes mellitus, and well-controlled gastroesophageal reflux disease (GERD). His current medications included metformin, amlodipine, omeprazole, and glipizide. Other than a recent cataract operation on his right eye, he had had no previous surgical procedures. He had a remote history of alcohol and tobacco use but had quit using both substances more than 10 years previously. He lived in the Virgin Islands.

Physical examination revealed no muscle fatigability or vision issues, such as diplopia or ptosis. He was able to lift his arms above his head and rise from a seated position without difficulty. He had no difficulty swallowing water. The remainder of his examination findings were unremarkable. Results of laboratory studies, including complete blood cell count, electrolyte panel, thyroid-stimulating hormone level, and evaluation of kidney function, were unremarkable.

1. **In this patient, which *one* of the following features is *most* helpful in determining the location of his dysphagia?**
   a. Dysphagia to solids
   b. Progressively worsening clinical course
   c. History of GERD
   d. Lack of weight loss
   e. Difficulty initiating swallows

The medical history is key in the evaluation of dysphagia. In most cases, an accurate diagnosis can be obtained on the basis of the history alone. Fundamental questions should include: (1) Does the dysphagia occur with solids, liquids, or both? (2) Are the symptoms intermittent or progressive? (3) Are there any underlying medical conditions that could be implicated? and (4) Is the dysphagia related to oropharyngeal or esophageal dysfunction?[1]

Dysphagia occurring only with solid foods suggests an obstructive lesion such as a stricture, ring, web, or tumor, all of which rarely pose a barrier to liquids. However, dysphagia on ingestion of solids, liquids, or both can occur at various areas along the oropharynx and esophagus. Symptoms that are progressive in severity and frequency often relate to esophageal strictures, with malignant strictures progressing rapidly and benign strictures in a more insidious fashion. Various medical conditions can include dysphagic symptoms. The most common associations include GERD, collagen vascular disorders, neuromuscular diseases, and inflammatory myopathies. Medications leading to pill-induced esophagitis should also be considered. Weight loss can suggest possible malignancy particularly if the degree of weight loss is greater than the duration of symptoms, but this finding is not specific to any one location for dysphagia. The location of dysphagia is best determined by the history as well. Oropharyngeal dysphagia is caused by disorders affecting swallowing function above the level of the esophagus, and esophageal dysphagia is caused by disorders affecting the body of the esophagus. Difficulty initiating a swallow and swallowing associated with coughing, choking, or nasal regurgitation suggest an oropharyngeal etiology.

Our patient had difficulty initiating swallows, indicating possible oropharyngeal dysfunction.

2. **To evaluate oropharyngeal dysfunction, which *one* of the following tests provides the *most* information?**
   a. Videofluoroscopic swallowing study
   b. Barium esophagography
   c. Nasopharyngoscopy
   d. Esophagogastroduodenoscopy
   e. Computed tomography (CT) of the head and neck

Videofluoroscopic evaluation of oropharyngeal function is the best initial test in patients with presumed oropharyngeal dysphagia.[2]

See end of article for correct answers to questions.

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During this procedure, multiple swallows of contrast material, using a variety of volumes and consistencies, are recorded from a lateral perspective. This view allows visualization of the entire swallowing mechanism including the proximal esophagus and upper airway. Videofluoroscopy allows for evaluation of all 4 categories of oropharyngeal dysfunction: (1) inability or excessive delay in the initiation of swallowing, (2) aspiration of ingested contents, (3) nasal regurgitation, and (4) residual material within the pharynx after swallowing.[2] At many institutions, barium esophagography accompanies the video swallow test to assess dysmotility, identify protruding or excavating lesions, and determine the presence or absence of gastroesophageal reflux within the esophagus.

Nasopharyngoscopy allows for direct visualization of the nasopharynx, oropharynx, and larynx for detection and biopsy of structural lesions but provides limited information regarding function. Esophagogastroduodenoscopy and CT of the head and neck may provide useful luminal or anatomic information as well but also provide minimal functional data.

Our patient was initially referred for barium esophagography with videofluoroscopic evaluation of oropharyngeal function. No abnormalities were seen on esophagography, but videofluoroscopy revealed a mildly weak swallowing mechanism with all ingested consistencies and intermittent penetration to the level of the vocal cords. He was subsequently seen in the otorhinolaryngology department and underwent nasopharyngoscopy, with no suspicious lesions detected. Esophagogastroduodenoscopy and CT of the head and neck were also performed but yielded no abnormal findings.

3. Which *one* of the following causes of oropharyngeal dysphagia is *most likely* to occur during the second decade of adulthood?

a. Inclusion body myositis
b. Parkinson disease
c. Myasthenia gravis
d. Postpolio syndrome
e. Zenker diverticulum

Most cases of oropharyngeal dysphagia in adults older than 50 years are secondary to neurologic or myopathic processes, with oropharyngeal dysphagia being only one pathologic manifestation. Neurologic and myopathic disorders that should be considered in this patient include Parkinson disease, myasthenia gravis, and inflammatory myopathies. Inclusion body myositis typically presents after age 50. Parkinson disease is also a disorder of the elderly, with a mean age at onset of 60 years.[3] Myasthenia gravis has a bimodal distribution, with a smaller early peak in the second and third decades of life occurring mostly in females and then another peak at 60 to 80 years.[4,5] Postpolio syndrome typically presents 35 years after the initial polio infection and remission with new-onset weakness.[6] Zenker diverticula are almost always found in patients older than 60 years, and most are older than age 75.[3]

Our patient's age (73 years) would put him at risk for multiple causes of oropharyngeal dysphagia. His clinical presentation, however, provided no evidence of parkinsonian symptoms or recent cerebrovascular accident. Additionally, the progressive nature of his symptoms makes a cerebrovascular event unlikely. Preliminary laboratory studies revealed normal values for aspartate aminotransferase, alanine aminotransferase, aldolase, and creatine kinase, making the diagnosis of an inflammatory myopathy (ie, dermatomyositis and polymyositis) implausible as well; however, inclusion body myositis can sometimes present with normal laboratory findings.

We referred the patient to our neurology department for further evaluation. Formal neurologic examination revealed no muscle fatigue with prolonged upward gaze, repeated standing and sitting, or upper extremity abduction. General motor examination, strength testing, and reflex assessment revealed no abnormalities. Results of electromyography (EMG) were highly suggestive of a mild defect of neuromuscular transmission, ruling out suspected amyotrophic lateral sclerosis—a relentless and rapidly progressive motor neuron disorder—and other neuropathies or myopathies. In this clinical setting, the defect in neuromuscular transmission was most consistent with myasthenia gravis. Specific testing in the EMG laboratory is sometimes required to increase the sensitivity and specificity for detecting myasthenia (ie, repetitive nerve stimulation, single-fiber EMG), and therefore, notifying the EMG laboratory of your suspicions is imperative.

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