Oropharyngeal dysphagia: Clinical features, diagnosis, and management

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INTRODUCTION

Patients with oropharyngeal dysphagia have difficulty transferring food from the mouth into the pharynx and esophagus to initiate the involuntary swallowing process.

This topic will review the evaluation and treatment of oropharyngeal dysphagia. Our recommendations are largely consistent with the American Gastroenterological Association (AGA) guidelines on the management of oropharyngeal dysphagia (algorithm 1) [1]. An overview of dysphagia; the etiology and evaluation of patients with esophageal dysphagia; the etiology and pathogenesis of oropharyngeal dysphagia; and the etiology, assessment, and management of swallowing disorders in palliative care populations are discussed separately. (See "Approach to the evaluation of dysphagia in adults" and "Oropharyngeal dysphagia: Etiology and pathogenesis" and "Swallowing disorders and aspiration in palliative care: Definition, pathophysiology, etiology, and consequences" and "Swallowing disorders and aspiration in palliative care: Assessment and strategies for management".)

DEFINITIONS

- Dysphagia is defined as a subjective sensation of difficulty or abnormality of swallowing.

- Oropharyngeal or transfer dysphagia is characterized by difficulty initiating a swallow. Swallowing may be accompanied by nasopharyngeal regurgitation, aspiration, and a sensation of residual food remaining in the pharynx.

- Esophageal dysphagia is characterized by difficulty swallowing several seconds after initiating a swallow and a sensation of food getting stuck. (See "Approach to the evaluation of dysphagia in adults", section on 'Symptom-based differential diagnosis' and "Approach to the evaluation of dysphagia in adults", section on 'Evaluation of nonacute dysphagia'.)

CLINICAL FEATURES

Patients with oropharyngeal dysphagia have difficulty transferring food from the mouth to the pharynx and report a feeling of an obstruction in the neck. Patients often point toward the cervical region when asked to identify the site of their symptoms. Other common complaints include coughing, choking, drooling, and regurgitation when swallowing liquids or solid food [2]. Patients may have a history of aspiration pneumonia and weight loss.

Patients often reposition their body to optimize alignment of the bolus for presentation to the pharynx. As an example, patients may report extending their arms and neck during swallowing, and will often use their finger to move food into proper position. Many patients will have made significant adjustments in their diet prior to seeking medical attention. In extreme cases, patients may sustain themselves entirely on a liquid diet before presenting to their physician.

DIAGNOSIS

The diagnosis of oropharyngeal dysphagia is based on a history of difficulty transferring food from the mouth to the pharynx and report a feeling of an obstruction in the neck. These symptoms also help exclude alternative diagnoses (eg, esophageal dysphagia, globus sensation) (algorithm 2). (See 'Clinical features' above.)

- **Esophageal dysphagia** – Similar to patients with oropharyngeal dysphagia, dysphagia related to distal esophageal disease, such as a peptic stricture, may sometimes be felt in the suprasternal notch. However, patients with oropharyngeal dysphagia have difficulty initiating a swallow and may have nasopharyngeal regurgitation, aspiration, and a sensation of residual food remaining in the pharynx. In contrast, esophageal dysphagia is characterized by difficulty swallowing several seconds after initiating a swallow (algorithm 2) [3]. (See "Approach to the evaluation of dysphagia in adults", section on 'Evaluation of nonacute dysphagia'.)

- **Globus** – Patients with globus (sensation of a lump or foreign body in the throat) can sometimes be confused as oropharyngeal dysphagia. Globus is defined as a persistent or intermittent nonpainful sensation of a lump or foreign body in the throat with the occurrence of the sensation between meals and the **absence** of dysphagia, odynophagia, a major esophageal motor disorder, gastroesophageal reflux, or structural lesion on examination, laryngoscopy, or endoscopy as the cause of symptoms. These criteria must be fulfilled for the last three months with symptom onset at least six months before a diagnosis of globus can be made [4]. In contrast with patients with oropharyngeal dysphagia whose symptoms occur with swallowing, patients with globus report the sensation of a lump or foreign body independent of swallowing. (See "Globus sensation".)

DETERMINING THE ETIOLOGY

In patients with oropharyngeal dysphagia, evaluation should be performed to determine the underlying etiology (table 1 and algorithm 1).

Initial evaluation

History — A history of associated symptoms and risk factors for oropharyngeal dysphagia can help determine the underlying etiology:

- Oropharyngeal dysphagia in an older patient, particularly with a history of alcohol use disorder, smoking, blood in the mouth, or weight loss, should raise concern about a malignant cause [5]. Referred pain, such as otalgia (ear pain), may indicate a hypopharyngeal lesion or cancer of the larynx, pharynx, and base of the tongue [6].

- A history of dry mouth or eyes may indicate inadequate salivary production. In such cases, it is particularly important to obtain a detailed review of medications that can reduce salivary flow (eg, anticholinergics, antihistamines, antihypertensive agents), a history of radiation therapy to the head and neck, or Sjögren's disease. (See "Diagnosis and classification of Sjögren's disease".)

- Changes in speech suggest the presence of neuromuscular dysfunction. Hoarseness or a weak cough may represent vocal cord paralysis. Slurred speech may indicate weakness or incoordination of muscles involved in articulation and swallowing. Dysarthria (abnormal articulation), and nasal speech or regurgitation of food into the nose may represent weakness of the soft palate or pharyngeal constrictors [7]. The combination of hoarseness, dysphonia (difficulty or pain in speaking), and nasal speech accompanying dysphagia is associated with a muscular dystrophy. (See "Oculopharyngeal, distal, and congenital

muscular dystrophies", section on 'Clinical features' and "Facioscapulohumeral muscular dystrophy", section on 'Clinical features'.)

- Food regurgitation, halitosis, a sensation of fullness in the neck, or a history of pneumonia accompanying dysphagia may be the result of a Zenker's diverticulum, which may be associated with a noncompliant or a hypertensive upper esophageal sphincter (image 1) [8]. In addition, patients with a Zenker's diverticulum sometimes report coughing several minutes to hours after ingestion of a meal, which occurs during emptying of the diverticulum. Patients with intrinsic dysfunction of the upper esophageal sphincter (UES), which consists of the cricopharyngeus muscle, inferior pharyngeal constrictor, and the cervical esophagus, may also present with frequent food impaction or aspiration [7]. (See "Zenker's diverticulum".)

- Pain upon swallowing (odynophagia) can result from inflammation, infection, malignancy, or neoplasia.

- Dysphagia developing late in a meal may suggest myasthenia gravis. (See "Clinical manifestations of myasthenia gravis".)

- Oropharyngeal dysphagia is common after intubation, especially in patients with a history of prolonged intubation [9]. (See "Management and prognosis of patients requiring prolonged mechanical ventilation".)

Physical examination — The physical examination performed as part of the initial evaluation of all patients with oropharyngeal dysphagia should include the following [2,10]:

- Examination of the oral cavity, head and neck, and supraclavicular region as this may reveal lymphadenopathy, a mass, facial muscle weakness, poor dentition, or other abnormalities associated with dysphagia.

- Neurologic examination that includes testing of all cranial nerves, especially those involved in swallowing (sensory components of cranial nerves V, IX, and X, and motor components of cranial nerves V, VII, X, XI, and XII). The neurologic examination may also detect disorders with more subtle physical findings. As an example, decreased proximal strength may indicate dermatomyositis or polymyositis. Hoarseness of the voice may indicate vocal cord paresis or paralysis. Bilateral ptosis, muscle weakness, or repetitive efforts at swallowing are other signs suggestive of muscle disease. The presence of cogwheeling, rigidity, or a shuffling gait may indicate Parkinson disease. Motor and sensory abnormalities should raise the suspicion for multiple sclerosis, which is frequently associated with oropharyngeal dysphagia, but usually in the setting of longer disease

duration and significant motor disability [11]. (See "The detailed neurologic examination in adults" and "Clinical manifestations of Parkinson disease", section on 'Cardinal features' and "Manifestations of multiple sclerosis in adults", section on 'Clinical symptoms and signs' and "Clinical manifestations of dermatomyositis and polymyositis in adults", section on 'Clinical manifestations'.)

Laboratory testing and imaging — Based on the history and physical examination, additional tests may be warranted to determine the etiology (table 1). These include imaging or laboratory studies to confirm the underlying infectious (eg, candidiasis), metabolic (eg, Cushing's disease, thyrotoxicosis), or neuromuscular conditions (eg, myopathy, myasthenia gravis, multiple sclerosis).

Subsequent evaluation — Subsequent evaluation depends upon the suspected etiology (algorithm 1) [10,12]. In addition to identifying the underlying etiology, the evaluation also serves to assess the severity of oropharyngeal dysfunction and degree of aspiration.

For patients with a history of or suspected neuromuscular disease, we perform videofluoroscopy with modified barium swallow and esophageal manometry to permit a detailed analysis of swallowing mechanics and pressures [8,13-15].

For patients with no evidence of a systemic disease, we begin with fiberoptic endoscopic evaluation of swallowing (nasoendoscopy) and perform videofluoroscopy with modified barium swallow and manometry if no etiology is found.

Videofluoroscopic modified barium swallow — Videofluoroscopy with modified barium swallow permits functional evaluation of swallowing by visualization and analysis of the rapid sequence of events that make up a swallow [16]. Videofluoroscopy serves to detect oropharyngeal dysfunction and to assess the degree of dysfunction and severity of aspiration. This technique allows for a more accurate assessment of laryngeal penetration.

In contrast with a standard barium swallow that involves ingestion of a thick barium solution while obtaining a sequence of x-rays at fixed points in time, in videofluoroscopy, video taken from both anteroposterior and lateral directions can be replayed at much slower speeds or even frame-by-frame to facilitate accurate analysis. In addition, the effects of different barium consistencies and positions can be tested (eg, thick or solid boluses in patients who primarily complain of solid food dysphagia). Videofluoroscopy is ideal for viewing the elevation of the hyoid and larynx, the relaxation of the UES, and contraction of the pharynx [12,17,18]. Videofluoroscopy can be used to analyze the movement of anatomic structures, muscle activity, and determine exact oral and pharyngeal transit times. It can also identify abnormal movement of a bolus, and identify aspiration and pooling in pharyngeal recesses.

However, videofluoroscopy has some limitations. The examination is limited to the cervical esophagus. In addition, clinical practice guidelines on parameters assessed by videofluoroscopy have not been standardized, thereby limiting its interobserver reliability [19]. A study of 51 consecutive dysphagic patients referred for videofluoroscopy found the interobserver reliability to be high only for penetration/aspiration [20].

Nasopharyngeal laryngoscopy — Nasopharyngolaryngoscopy allows for a detailed examination of the oropharynx, hypopharynx, larynx, and proximal esophagus to rule out a structural lesion [6]. The vallecula, piriform sinuses, and perilaryngeal regions can also be inspected for pooled secretions or food material. This procedure is usually performed at the bedside by an otolaryngologist, and is associated with minimal discomfort to the patient.

Fiberoptic endoscopic evaluation of swallowing — Fiberoptic endoscopic evaluation of swallowing (FEES) or nasoendoscopy is based upon nasopharyngoscopy with the addition of functional assessment. FEES provides the same view as one obtains with nasopharyngoscopy and is therefore the optimal method of identifying structural abnormalities in the oropharynx. It can also be used to obtain biopsies if needed (algorithm 1). FEES involves passing a flexible fiberoptic endoscope transnasally to visualize the laryngeal and pharyngeal structures. Food and liquid boluses are then given to the patient so that both oropharyngeal structure and function can be evaluated during the pharyngeal phase of swallowing. Sensory testing can also be performed by administering pulses of air at sequentially increased pressures to elicit the laryngeal adductor reflex.

While there is good correlation between FEES and videofluoroscopy, penetration/aspiration risk is perceived to be more severe on FEES as compared with videofluoroscopy assessment [21-23]. Whether this difference in FEES and videofluoroscopic prediction of the likelihood of aspiration is of clinical significance is unknown [21]. FEES has the advantage that it is safe, portable, and can be performed at the patient's bedside. In addition, it provides visualization of pharyngeal secretions that cannot be detected during videofluoroscopy. FEES can also help determine if pooled secretions are due to a decrease in swallowing frequency or dysphagia or both. However, FEES has the disadvantage that it requires specialized training in both swallow physiology and flexible endoscopy.

Manometry — Manometry of the UES provides quantitative evaluation of the pressures and relative timing involved in the pharyngeal contraction and deglutitive UES relaxation [14,24]. Although manometry rarely leads to alteration in management of patients with oropharyngeal dysphagia, it may help identify the underlying etiology and is useful in identifying patients who may benefit from surgical myotomy [25]. (See 'Cricopharyngeal myotomy' below.)

An abnormality of the UES should be suspected if the pharyngeal wave does not occur within the period of UES relaxation. UES dysfunction can be broadly divided into alterations in its resting tone or relaxation:

- The clinical significance of abnormally high resting pressure of the UES (cricopharyngeal hypertension) is not clear, although it may be associated with globus sensation in some patients [26]. Elevated resting pressures can occur as a primary disorder or, more commonly, may be associated with underlying gastroesophageal reflux. Reflux into the esophagus can result in reflexive UES contraction, which is primarily due to esophageal distension, although acid may also play a role [27,28].

- Abnormally low resting pressures of the UES (cricopharyngeal hypotonia) have been described in a variety of neuromuscular disorders (eg, myasthenia gravis, motor neuron disease [amyotrophic lateral sclerosis], and myotonic dystrophy). Dysphagia in such patients usually results from concomitant weakness of the pharyngeal musculature [29]. (See "Clinical manifestations of myasthenia gravis", section on 'Clinical features' and "Clinical features of amyotrophic lateral sclerosis and other forms of motor neuron disease" and "Myotonic dystrophy: Etiology, clinical features, and diagnosis", section on 'Clinical features'.)

- Abnormalities in UES relaxation may also lead to oropharyngeal dysphagia. Incomplete relaxation of the UES can be seen in cases of cricopharyngeal bars and Zenker's diverticulum. Delayed UES relaxation is observed in patients with Riley-Day syndrome or familial dysautonomia and in patients with primary cricopharyngeal dysfunction [30,31]. Primary cricopharyngeal dysfunction is a rare functional disorder that is characterized by inadequate pharyngeal contraction, lack of coordination between the pharynx and the UES, or inadequate UES relaxation/reduced muscular compliance. (See "Hereditary sensory and autonomic neuropathies", section on 'HSAN3 (Familial dysautonomia)' and "Oropharyngeal dysphagia: Etiology and pathogenesis", section on 'Disorders of the pharyngeal phase'.)

  Complete failure of UES relaxation (cricopharyngeal achalasia) is unusual. It has been described in association with oculopharyngeal muscular dystrophy and following neck surgery [32-34]. Although failure of UES relaxation has been used to describe functional obstruction of the UES seen by barium studies, in such cases, poor opening of the UES is due to pharyngeal muscle weakness, poor elevation of the hyoid or decreased elasticity of the UES, rather than failure of its relaxation. Similarly, patients with a cricopharyngeal bar seen on barium studies (a defect in the upper esophagus at the level of the

cricopharyngeus muscle) usually have reduced muscle compliance of the cricopharyngeus rather than hypertension or failure of relaxation of the UES [35].

High resolution manometry allows for more accurate analysis of the deglutitive UES relaxation as compared with standard manometry (figure 1) [36]. Combined manometry and multichannel intraluminal impedance has also been used to predict ineffective pharyngeal swallowing [37]. An international working group has established metrics for evaluation of the UES (eg, UES integrated relation pressure) [38]. (See "High resolution manometry", section on 'High-resolution manometry (HRM)'.)

MANAGEMENT

The goals of management of oropharyngeal dysphagia are to improve food transfer and prevent aspiration. Management involves treatment of the underlying disorder (eg, treatment of infectious esophagitis, chemoradiation for head and neck cancer) and may require additional intervention (eg, therapeutic endoscopy, surgery, swallow rehabilitation) in patients with underlying neuromuscular or structural causes of oropharyngeal dysphagia (table 1 and algorithm 1). (See "Overview of treatment for head and neck cancer".)

Neuromuscular disorders — In patients with neuromuscular disorders, management depends on whether the dysfunction is amenable to treatment (eg, primary cricopharyngeal dysfunction) and the severity of oropharyngeal dysfunction.

Swallowing rehabilitation and nutrition — We suggest swallow rehabilitation in patients with mild oropharyngeal dysphagia (eg, following a stroke, head or neck trauma, surgery, or degenerative neurologic diseases). In patients with severe dysfunction and risk of aspiration, we suggest enteral nutrition. (See "Nutrition support in critically ill patients: An overview" and "Care of patients with advanced dementia", section on 'Feeding and nutrition'.)

There is limited evidence to support the use of swallow rehabilitation therapy [39-45]. Studies are limited to the evaluation of specific maneuvers in individual patients or in small series of patients. However, despite this limited evidence, given the low cost and biologic plausibility that dietary and swallow training can reduce dysphagia and aspiration, we suggest dietary therapy in selected patients with mild oropharyngeal dysphagia.

Specific techniques have been used based on the underlying defect (table 2 and table 3) [46-48]. As examples:

- Tilting the head back and placing the bolus posteriorly on the stronger side of the mouth can counterbalance reduced oral mobility.
- Bending the neck forward can offset delayed pharyngeal contraction by assisting laryngeal elevation and closure.
- Turning the head to the weaker side while tilting it to the stronger side can facilitate directing and propelling of the bolus, and can help compensate for unilateral pharyngeal dysfunction.
- Oral motor exercises can strengthen the lip and tongue and control drooling while assisting bolus formation and propulsion.
- Use of the effortful swallow (modified Valsalva maneuver) can offset impaired tongue base retraction and decreased pharyngeal control.
- The supraglottic swallow improves laryngeal closure and airway protection.
- Use of Mendelsohn's maneuver (purposeful prolongation of anterosuperior laryngeal traction at mid-swallow) can assist laryngeal elevation, closure of the larynx, and opening of the upper esophageal sphincter (UES). Deliberate multiple swallows help clear pooling in the pharynx [24].

Dietary modification may also improve swallowing and help avoid aspiration (table 2).

- For patients with intolerance to liquids, for example, commercially available food additives that thicken liquids may be helpful since increasing bolus viscosity can improve swallowing function [49,50].
- A reduction in the volume of their mouthfuls, or an alternation of solid and liquid boluses, can facilitate transfer. Feeding with a particular implement, such as a cup, straw, or spoon, may also improve swallowing.
- For patients whose dysphagia is related to neurologic dysfunction, meals should be administered during times of maximal attentiveness. In addition, assistance provided by a caretaker during meals can also be helpful.

For patients who are unable to tolerate oral nutrition despite these measures or who are at high risk for aspiration (eg, severe neuromuscular dysfunction), enteral nutrition should be provided. (See "Gastrostomy tubes: Uses, patient selection, and efficacy in adults", section on 'Patients with neurologic disorders'.)

Cricopharyngeal myotomy — Cricopharyngeal myotomy should be considered for patients who have primary cricopharyngeal dysfunction characterized by inadequate pharyngeal contraction, lack of coordination between the pharynx and the UES, or inadequate UES relaxation/reduced muscular compliance [51]. Cricopharyngeal myotomy decreases or removes obstruction due to the relative high-pressure zone caused by the UES. Although there are no randomized trials, case series have suggested that cricopharyngeal myotomy has an overall response rate of approximately 60 percent in patients with neurogenic causes of oropharyngeal dysphagia [1]. Cricopharyngeal myotomy can be performed either open, which requires a neck incision, or endoscopically, using a transoral approach. Both offer good symptom relief but have not been directly compared and long-term follow-up for endoscopic myotomy is lacking. In a systematic review including eight endoscopic and seven open myotomy trials, endoscopic myotomy was associated with higher success rates (84 versus 71 percent) [52]. Both procedures were more effective compared with botulinum toxin injection. (See "Oropharyngeal dysphagia: Etiology and pathogenesis", section on 'Disorders of the pharyngeal phase'.)

The following characteristics may be predictive of a favorable response to cricopharyngeal myotomy in patients with primary cricopharyngeal dysfunction [53]:

- Intact voluntary initiation of swallowing
- Adequate propulsive force generated by the tongue and pharyngeal constrictors
- Videofluorographic demonstration of obstruction to bolus flow at the level of the cricopharyngeus muscle
- Manometric evidence of relatively elevated UES pressure in comparison to the pharynx
- A relatively good neurologic prognosis

The presence of dysarthria predicts a poor response to myotomy [54].

Cricopharyngeal myotomy is not without its risks [54-57]. In a series of 40 patients, complications included a retropharyngeal hematoma in one patient and intraoperative death in another [54]. In another series that included 253 patients who underwent cricopharyngeal myotomy by a single surgeon, complications occurred in 40 patients (16 percent) and included wound or retropharyngeal infection, aspiration pneumonia, retropharyngeal hematoma, and fistula formation [57].

Cricopharyngeal balloon dilatation — In patients with cricopharyngeal dysphagia who are not surgical candidates, endoscopic dilatation is a reasonable alternative. In an observational study including 43 patients with idiopathic cricopharyngeal bar, post-intervention symptom scores were not significantly different for patients who had endoscopic dilation compared with surgical myotomy [58]. However, rates of long-term improvement were lower in patients who had

endoscopic dilation (26 versus 95 percent). 13 of 23 patients who had endoscopic dilation (57 percent) required repeat endoscopic dilatation, while four of patients (17 percent) subsequently underwent a surgical myotomy.

Botulinum toxin injection — Botulinum toxin injection should be reserved for patients with cricopharyngeal dysfunction who are not candidates for surgery or endoscopic balloon dilation and should only be performed in centers of expertise. Botulinum toxin is injected under endoscopic guidance with either a rigid or flexible endoscope.

Botulinum toxin is a potent inhibitor of the release of acetylcholine from nerve endings and, when injected endoscopically into the cricopharyngeus muscle, it decreases muscle tone. Limited experience suggests that botulinum toxin therapy may also have a role as an alternative to cricopharyngeal myotomy [59,60]. However, repeat injections may be required. In addition, safety concerns related to the potential for disrupting swallowing function have limited its use [61]. As an example, in one series, 21 patients with oropharyngeal dysphagia (eight with central nervous system abnormalities, five with peripheral nerve disease, and eight with idiopathic oropharyngeal dysphagia) underwent injection with 5 to 10 units of botulinum toxin. Nine of the 21 patients had improvement in symptoms; however, one patient died due to a massive aspiration seven days after treatment with botulinum toxin.

Neuromuscular electrical stimulation — Neuromuscular electrical stimulation involves direct stimulation of muscles to recruit motor units and increase muscle strength. A meta-analysis of seven trials found a small but significant improvement in swallowing overall but there was significant heterogeneity among the trials included [62]. In a trial of 88 patients with Parkinson disease and oropharyngeal dysphagia, standard treatment (provided by a speech therapist) or neuromuscular electrical stimulation in addition to standard treatment, resulted in clinical improvement in both groups but without significant differences between groups [63]. A systematic review of 11 trials including 784 patients with post-stroke dysphagia concluded that neuromuscular electrical stimulation coupled with swallowing therapy was an optional intervention to improve swallowing [64]. Further studies are needed to clarify the role of neuromuscular electrical stimulation in the treatment of oropharyngeal dysphagia.

Structural disorders — For patients with structural disorders, treatment of the underlying disorder may require surgery (eg, oropharyngeal tumors) or endoscopic dilation (eg, esophageal webs or strictures). (See "Esophageal rings and webs", section on 'Esophageal webs' and "Endoscopic interventions for nonmalignant esophageal strictures in adults", section on 'Procedure'.)

In patients with a Zenker's diverticulum, management depends on the availability of local expertise, patient age and the size of the diverticulum [65]. The management of Zenker's diverticulum is discussed in detail, separately. (See "Zenker's diverticulum", section on 'Open transcervical surgical approach'.)

SOCIETY GUIDELINE LINKS

Links to society and government-sponsored guidelines from selected countries and regions around the world are provided separately. (See "Society guideline links: Dysphagia" and "Society guideline links: Subacute and chronic cough in adults".)

INFORMATION FOR PATIENTS

UpToDate offers two types of patient education materials, "The Basics" and "Beyond the Basics." The Basics patient education pieces are written in plain language, at the 5th to 6th grade reading level, and they answer the four or five key questions a patient might have about a given condition. These articles are best for patients who want a general overview and who prefer short, easy-to-read materials. Beyond the Basics patient education pieces are longer, more sophisticated, and more detailed. These articles are written at the 10th to 12th grade reading level and are best for patients who want in-depth information and are comfortable with some medical jargon.

Here are the patient education articles that are relevant to this topic. We encourage you to print or e-mail these topics to your patients. (You can also locate patient education articles on a variety of subjects by searching on "patient info" and the keyword(s) of interest.)

- Basics topics (see "Patient education: Dysphagia (The Basics)" and "Patient education: Malnutrition (The Basics)" and "Patient education: Malnutrition – Discharge instructions (The Basics)")

SUMMARY AND RECOMMENDATIONS

- **Background** – Patients with oropharyngeal dysphagia have difficulty transferring food from the mouth to the pharynx and report a feeling of an obstruction in the neck. Patients often point toward the cervical region when asked to identify the site of their symptoms. Other common complaints include coughing, choking, drooling, and regurgitation when

swallowing liquids or solid food. Patients may have a history of aspiration pneumonia and weight loss. (See 'Definitions' above and 'History' above.)

- **Evaluation** – Oropharyngeal dysphagia is an alarm symptom that warrants urgent evaluation. It is important to determine the underlying etiology and to assess the severity of oropharyngeal dysfunction prior to initiating treatment. A careful history can distinguish between an esophageal and oropharyngeal cause of dysphagia and globus sensation and may help identify the underlying etiology (algorithm 2 and table 1). (See 'Diagnosis' above.)

  The choice of specific diagnostic testing depends upon the suspected etiology after initial evaluation (algorithm 1). For patients with a history of or suspected neuromuscular disease, we perform videofluoroscopy and esophageal manometry to permit a detailed analysis of swallowing mechanics and pressures. For patients with no evidence of a systemic disease, we begin with fiberoptic endoscopic evaluation of swallowing (nasoendoscopy) and perform videofluoroscopy and manometry if no etiology is found. In patients in whom there is no known etiology despite fiberoptic endoscopic evaluation of swallowing, videofluoroscopy, and manometry, we perform a nasopharyngeal laryngoscopy to rule out a lesion in the oropharynx. (See 'Determining the etiology' above.)

- **Management** – The goal of management of oropharyngeal dysphagia is to improve food transfer and to prevent aspiration. The approach depends in part upon the cause of the dysphagia (algorithm 1). In patients with oropharyngeal dysphagia following a stroke, head or neck trauma, surgery, or degenerative neurologic diseases, we suggest swallow rehabilitation to facilitate oral intake (**Grade 2C**). In patients with primary cricopharyngeal dysfunction, we suggest endoscopic or open myotomy (**Grade 2C**). In patients who are unwilling to undergo surgery and in patients with esophageal webs or strictures, we perform therapeutic endoscopic dilatation. Botulinum toxin injection should be reserved for patients with cricopharyngeal dysfunction who are not candidates for surgery or endoscopic balloon dilation and should only be performed in centers of expertise. (See 'Manometry' above and 'Management' above.)

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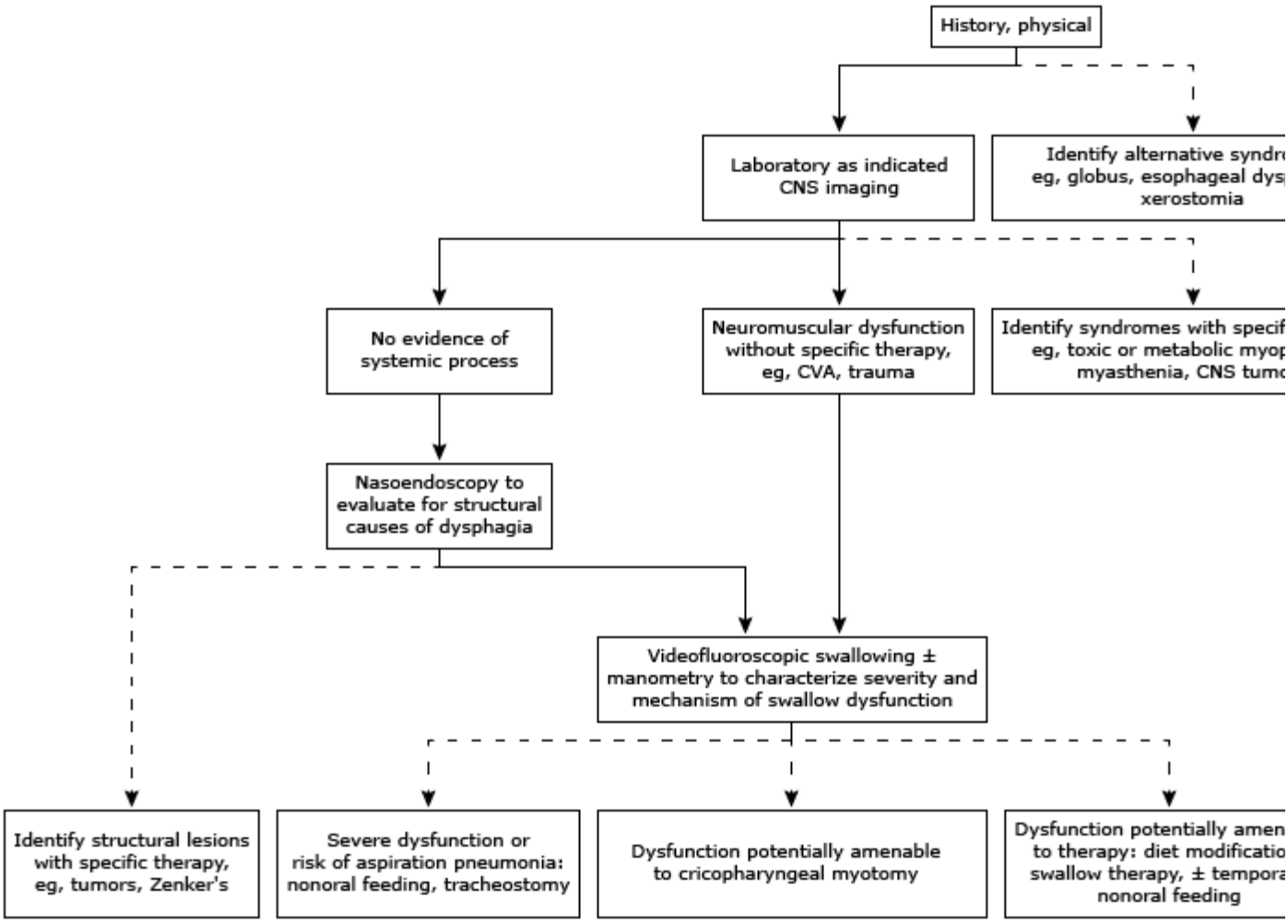
Topic 2237 Version 31.0

GRAPHICS

Evaluation and management of oropharyngeal dysphagia[1]



Summary of the clinical approach and key objectives in the management of oropharyngeal dysphagia

The objective is to reach a box targeted by a dashed arrow, which equates to a specific management strateg
arrows indicate a suggested pathway to proceed with the evaluation.

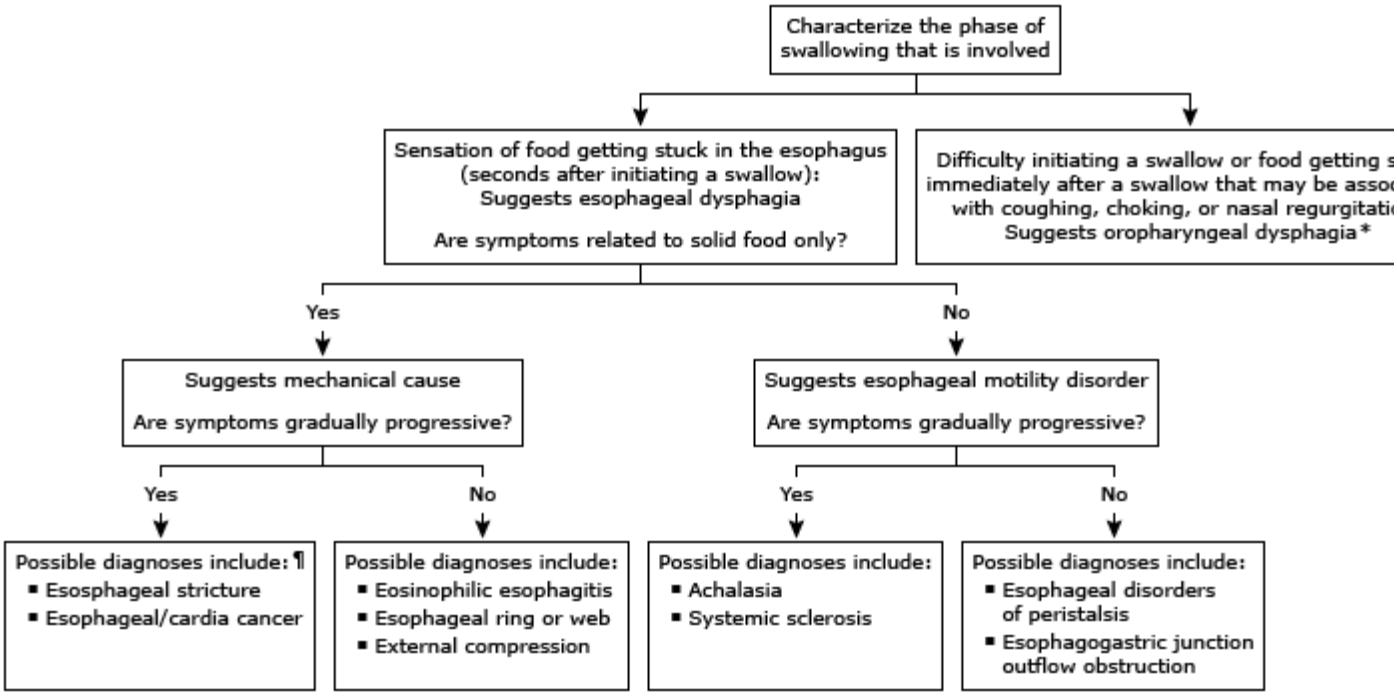
CNS: central nervous system; CVA: cerebrovascular accident.

Reference:

1. *Cook IJ, Kahrilas PJ. AGA: Technical review: Management of oropharyngeal dysphagia. Gastroenterology 1999; 116:455.*

Graphic 54485 Version 3.0

Differential diagnosis of nonacute dysphagia in adults



* Refer to UpToDate content on evaluation and management of oropharyngeal dysphagia.

¶ Patients with esophageal stricture may report chronic heartburn, whereas patients with esophageal cance tend to be older and often have rapid weight loss.

Graphic 70866 Version 9.0

Representative causes of oropharyngeal dysphagia

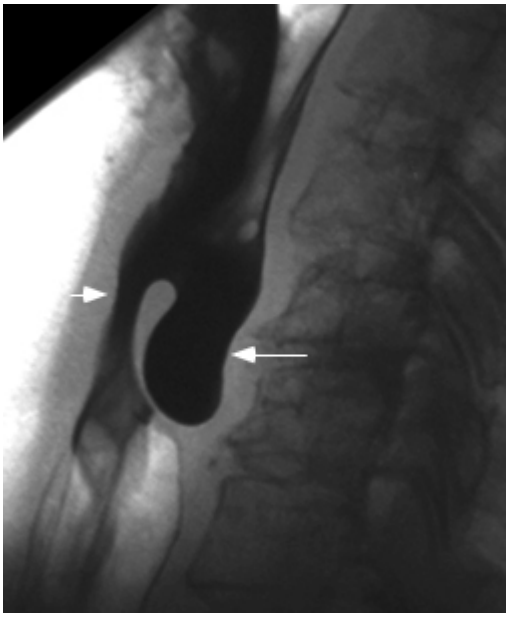
Iatrogenic
Medication side effects (chemotherapy, neuroleptics, etc)
Postsurgical muscular or neurogenic
Radiation
Corrosive (pill injury, intentional)
Infectious
Mucositis (herpes, cytomegalovirus, Candida, etc)
Diphtheria
Botulism
Lyme disease
Syphilis
Metabolic
Amyloidosis
Cushing's syndrome
Thyrotoxicosis
Wilson disease
Myopathic
Connective tissue disease (overlap syndrome)
Dermatomyositis
Myasthenia gravis
Myotonic dystrophy
Oculopharyngeal dystrophy
Polymyositis
Sarcoidosis
Paraneoplastic syndromes

Neurological
Brainstem tumors
Head trauma
Stroke
Cerebral palsy
Guillain-Barré syndrome
Huntington disease
Multiple sclerosis
Polio
Postpolio syndrome
Tardive dyskinesia
Metabolic encephalopathies
Amyotrophic lateral sclerosis
Parkinson disease
Dementia
Structural
Cricopharyngeal bar
Zenker's diverticulum
Cervical webs
Oropharyngeal tumors
Osteophytes and skeletal abnormalities
Congenital (cleft palate, diverticula, pouches, etc)

Adapted from: Cook IJ, Kahrilas PJ. AGA: Technical review: Management of oropharyngeal dysphagia. Gastroenterology 1999; 116:455.

Graphic 52707 Version 7.0

Zenker's diverticulum

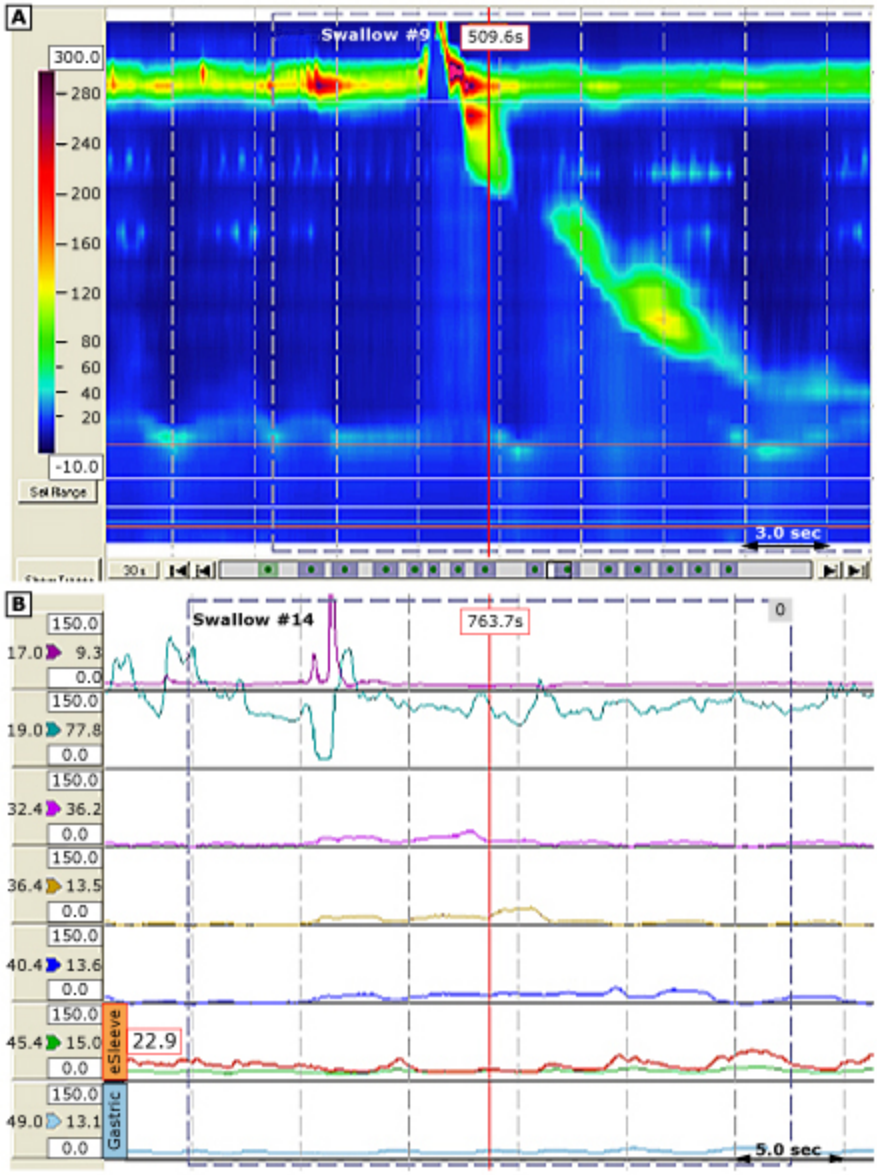


Barium study of the upper esophagus of an 82-year-old woman with dysphagia demonstrates a large diverticulum arising from the posterior wall of the upper esophagus (large arrow) producing extrinsic narrowing of the more anterior esophageal lumen (arrow head).

Courtesy of Jonathan Kruskal, MD, PhD.

Graphic 52971 Version 2.0

Deglutitive UES relaxation



(A) A color isobaric contour representing the pressure changes of the upper esophageal sphincter (UES) during deglutitive relaxation and esophageal contractions is shown with the high resolution manometry system.

(B) A linear tracing representing pressure changes is shown as well.

Courtesy of Anthony J Lembo, MD.

Graphic 57536 Version 2.0

Swallowing therapy techniques, indications, and rationale

Technique	Execution, rationale	Indication
Dietary modification		
Thickened liquids	Reduced tendency to spill over tongue base Preswallow spill/aspiration	Disordered tongue function Impaired laryngeal closure Weak pharyngeal contraction
Thin liquids	Offers less resistance to flow	Reduced cricopharyngeal opening
Maneuvers		
Supraglottic swallow	Breath hold, double swallow, forceful expiration (closes vocal folds before and during swallowing)	Aspiration: reduced/late vocal fold closure
Super-supraglottic swallow	Effortful breath hold (closes vocal folds before and during swallow) Increased anterior tilting of arytenoids	Aspiration (poor closure of laryngeal introitus)
Effortful swallow	Effortful tongue action (increases posterior motion tongue base)	Poor posterior tongue base motion
Mendelsohn maneuver	Prolong hyoid excursion guided by manual palpation (prolongs UES opening)	Poor pharyngeal clearance and laryngeal movement
Postural adjustments		
Head tilt	Tilt posteriorly at swallow initiation (gravity clears oral cavity)	Poor tongue control
	Tilt laterally to unaffected side (directs bolus down stronger side)	Unilateral pharyngeal weakness
Chin tuck	Chin down (widens valleculae, displaces tongue base and epiglottis posteriorly)	Aspiration, delayed pharyngeal response, reduced posterior tongue base motion
Head rotation	Rotate head to affected side (isolates damaged side from bolus path, reduces LES pressure)	Unilateral pharyngeal weakness
Head rotation	Rotate head to affected side with extrinsic pressure on thyroid cartilage (increases adduction)	Unilateral laryngeal dysfunction Unilateral pharyngeal dysfunction
Lying on side, elevation	R or L lateral (bypass laryngeal introitus)	Aspiration, bilateral pharyngeal impairment or reduced laryngeal

		elevation
Facilitatory techniques		
Strengthening exercises	Various	Nonprogressive disease
Biofeedback	Augment volitional component	Poor pharyngeal clearance
Thermal stimulation	Cold, tactile stimulation to anterior faucial pillar	Delayed/absent swallow response
Gustatory stimulation	Sour bolus (facilitates swallow response)	Huntington's chorea, stroke

Adapted from Cook, IJ, Kahrilas, PJ. AGA: Technical review: Management of oropharyngeal dysphagia. Gastroenterology 1999; 116:455.

Graphic 81927 Version 1.0

Aspiration precautions

▪ Provide comprehensive oral care before eating or drinking, clearing secretions from the oral cavity and moistening the mouth
▪ Upright positioning as close as possible to a 90 degree angle
▪ Flex the head to a neutral or slightly downward position
▪ Supervised hand feeding at a slow pace ensuring completed swallow before proceeding to the next
▪ Avoid rushed or forced feeding
▪ Inspection of the oral cavity for residual food or liquid after a swallow
▪ Elevate the head of bed to at least a 30 degree angle after eating for at least an hour

Graphic 96210 Version 2.0

Contributor Disclosures

Anthony J Lembo, MD Equity Ownership/Stock Options: Allurion [medical device for obesity]; Bristol Myers Squibb [Pharmaceuticals]; Johnson & Johnson [Pharmaceuticals]. Consultant/Advisory Boards: Aeon [Gastroparesis]; Allakos [EoE]; Ardelyx [IBS-C]; Arena [IBS]; Atmo [medical device for intestinal transit]; BioAmerica [IBS, IgG antibody food test]; Evoke [gastroparesis]; Gemelli Biotech [SIBO, IBS]; Ironwood [IBS-C, CIC, IBS-c]; orphoMed [IBS]; Pfizer [pharma]; Takeda [IBS-C, CIC]; Vibrant [CIC]. Other Financial Interest: Cin-Dome [clinical trial gastroparesis]; Vibrant - Phase III clinical trial [gastroparesis]. All of the relevant financial relationships listed have been mitigated. **Nicholas J Talley, MD, PhD** Patent Holder: Australian Provisional Patent [Diagnostic marker for functional gastrointestinal disorders]; Biomarkers of irritable bowel syndrome [Irritable bowel syndrome]; Mayo Clinic [Dysphagia questionnaire]; Mayo Clinic [Bowel Disease questionnaire]; Nepean Dyspepsia Index [Dyspepsia]; Nestec [Irritable bowel syndrome]; Singapore Provisional Patent [BDNF Tissue Repair Pathway]. Grant/Research/Clinical Trial Support: Alimetry [Gastric mapping device research collaboration]; Allakos [Gastric eosinophilic disease]; AstraZeneca [Eosinophilic gastritis, eosinophilic gastroenteritis]; Intrinsic Medicine [Bowel syndrome with constipation]; NHMRC Centre for Research Excellence in Digestive Health [NHMRC Investigator grant]. Consultant/Advisory Boards: Adelphi Values [Functional dyspepsia]; Allakos [Gastric eosinophilic disease, AK002]; AstraZeneca [Eosinophilic gastritis, eosinophilic gastroenteritis]; AusEE [Eosinophilic gut diseases]; Bayer [Inflammatory bowel syndrome]; BluMaiden [Microbiome Ad Board]; Comvita Mānuka Honey [Digestive health]; Dr Falk Pharma [Eosinophilia]; GlaxoSmithKline Australia [Educational speaker eosinophilic gut disease]; Glutagen [Celiac disease]; International Foundation for Functional Gastrointestinal Disorders [Advisory board, functional GI disorders]; Intrinsic Medicine [Human milk oligosaccharide]; IsoThrive [Esophageal microbiome]; Planet Innovation [Gas capsule, inflammatory bowel syndrome]; Progenity Inc [Intestinal capsule]; Rose Pharma [IBS]; Viscera Labs [Inflammatory bowel syndrome, diarrhea]. Other Financial Interest: Elsevier textbook royalties [Medical education]. All of the relevant financial relationships listed have been mitigated. **Daniel G Deschler, MD, FACS** No relevant financial relationship(s) with ineligible companies to disclose. **Kristen M Robson, MD, MBA, FACG** No relevant financial relationship(s) with ineligible companies to disclose.

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Conflict of interest policy

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