**Diagnosis and treatment of oropharyngeal dysphagia**

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**INTRODUCTION** — Dysphagia can be classified as either oropharyngeal or esophageal. Initial evaluation of oropharyngeal and esophageal dysphagia differs, making their distinction important. In most cases a comprehensive examination and a careful history are sufficient to guide appropriate evaluation.

The diagnosis and treatment of oropharyngeal dysphagia will be reviewed here, while esophageal dysphagia is presented separately. (See ["Evaluation of dysphagia in adults"](http://www.uptodate.com/contents/evaluation-of-dysphagia-in-adults?source=see_link).) A guideline issued by the American Gastroenterological Association (AGA) on this topic is also available ([algorithm 1](http://www.uptodate.com/contents/image?imageKey=GAST%2F6848&topicKey=GAST%2F2237&rank=1%7E51&source=see_link)). The AGA guideline for oropharyngeal dysphagia [[1](http://www.uptodate.com/contents/diagnosis-and-treatment-of-oropharyngeal-dysphagia/abstract/1)], as well as other AGA guidelines, can be accessed through the AGA web site at <http://www.gastro.org/practice/medical-position-statements>. The physiology of normal swallowing, and the pathogenesis and clinical manifestations of oropharyngeal dysphagia are discussed separately. (See ["Pathogenesis and clinical manifestations of oropharyngeal dysphagia"](http://www.uptodate.com/contents/pathogenesis-and-clinical-manifestations-of-oropharyngeal-dysphagia?source=see_link).)

**HISTORY AND PHYSICAL EXAMINATION** — A careful history and physical examination can usually distinguish between an esophageal and oropharyngeal cause of dysphagia ([algorithm 2](http://www.uptodate.com/contents/image?imageKey=GAST%2F6540&topicKey=GAST%2F2237&rank=1%7E51&source=see_link)) [[2](http://www.uptodate.com/contents/diagnosis-and-treatment-of-oropharyngeal-dysphagia/abstract/2)]. Furthermore, they can often predict the cause of oropharyngeal dysphagia, which should be confirmed by specific testing [[3](http://www.uptodate.com/contents/diagnosis-and-treatment-of-oropharyngeal-dysphagia/abstract/3)].

**History** — For most patients, specific clues in the history can help establish the cause of the dysphagia ([table 1](http://www.uptodate.com/contents/image?imageKey=GAST%2F6361&topicKey=GAST%2F2237&rank=1%7E51&source=see_link)):

* Patients with any cause of oropharyngeal dysphagia complain of symptoms immediately upon swallowing; in contrast, the onset of symptoms after swallowing is delayed in patients with esophageal dysphagia. Patients with oropharyngeal dysphagia point toward the cervical region when asked to identify the site of their symptoms; however, because the interpretation of visceral innervation is imprecise, dysphagia related to distal esophageal disease, such as a peptic stricture, may sometimes be felt in the suprasternal notch.
* Older patients presenting with oropharyngeal dysphagia, particularly those with a history of alcohol abuse, smoking, or weight loss, should raise concern about a malignant cause. Referred pain, such as otalgia (ear pain), may indicate a hypopharyngeal lesion [[4](http://www.uptodate.com/contents/diagnosis-and-treatment-of-oropharyngeal-dysphagia/abstract/4)]. Referred otalgia is not just a symptom of hypopharyngeal cancer but can also occur at other sites such as the larynx, pharynx, and base of the tongue.
* Patients who have difficulty transferring food from the mouth to the pharynx will often reposition their body to optimize alignment of the bolus for presentation to the pharynx. Such patients may report extending their arms and neck during swallowing, and will often use their finger to move food into proper position. (See ["Pathogenesis and clinical manifestations of oropharyngeal dysphagia", section on 'Physiology of swallowing'](http://www.uptodate.com/contents/pathogenesis-and-clinical-manifestations-of-oropharyngeal-dysphagia?source=see_link&anchor=H2#H2).)
* 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. Anticholinergics, antihistamines, and certain antihypertensive agents can reduce salivary flow. Sjögren's syndrome is also a consideration. A history of radiation therapy to the head and neck should also be noted. (See ["Classification and diagnosis of Sjögren's syndrome"](http://www.uptodate.com/contents/classification-and-diagnosis-of-sjogrens-syndrome?source=see_link).)
* Changes in speech may provide important clues, and often implicate 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 [[5](http://www.uptodate.com/contents/diagnosis-and-treatment-of-oropharyngeal-dysphagia/abstract/5)]. The combination of hoarseness, dysphonia (difficulty or pain in speaking), and nasal speech accompanying dysphagia is associated with the muscular dystrophies.
* 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 ([picture 1](http://www.uptodate.com/contents/image?imageKey=GAST%2F7964&topicKey=GAST%2F2237&rank=1%7E51&source=see_link)) [[6](http://www.uptodate.com/contents/diagnosis-and-treatment-of-oropharyngeal-dysphagia/abstract/6)]. 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) may also present with frequent food impaction or aspiration [[5](http://www.uptodate.com/contents/diagnosis-and-treatment-of-oropharyngeal-dysphagia/abstract/5)]. (See ["Zenker's diverticulum"](http://www.uptodate.com/contents/zenkers-diverticulum?source=see_link).)
* 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"](http://www.uptodate.com/contents/clinical-manifestations-of-myasthenia-gravis?source=see_link).)
* Oropharyngeal dysphagia is common after intubation, especially in patients with a history of prolonged intubation [[7](http://www.uptodate.com/contents/diagnosis-and-treatment-of-oropharyngeal-dysphagia/abstract/7)].

**Physical examination** — A comprehensive examination should be part of the initial evaluation of all patients with oropharyngeal dysphagia [[8,9](http://www.uptodate.com/contents/diagnosis-and-treatment-of-oropharyngeal-dysphagia/abstract/8,9)].

* Examination of the oral cavity, head and neck, and supraclavicular region may reveal lymphadenopathy, a mass, facial muscle weakness, poor dentition, or other abnormalities associated with dysphagia.
* Neurologic examination should include 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 also may detect disorders with more subtle physical findings. As an example, decreased proximal strength may indicate dermatomyositis or polymyositis. 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 [[10](http://www.uptodate.com/contents/diagnosis-and-treatment-of-oropharyngeal-dysphagia/abstract/10)].

**DIAGNOSTIC TESTING** — There are five major tests that can be used for the evaluation of oropharyngeal dysphagia: [barium](http://www.uptodate.com/contents/barium-drug-information?source=see_link) radiography, videofluoroscopy, upper endoscopy, fiberoptic nasopharyngeal laryngoscopy, esophageal manometry. The choice of specific testing depends upon the clinical presentation and available expertise. Patients with acute neurologic injury, for example, may benefit most from videofluoroscopy, which may identify whether aspiration is present and also assist in planning the best options for rehabilitation.

**General principles** — For many patients, testing begins with videofluoroscopy, in which swallowing is videotaped during fluoroscopy, permitting detailed analysis of swallowing mechanics [[11](http://www.uptodate.com/contents/diagnosis-and-treatment-of-oropharyngeal-dysphagia/abstract/11)]. (See ['Videofluoroscopy'](http://www.uptodate.com/contents/diagnosis-and-treatment-of-oropharyngeal-dysphagia?source=search_result&selectedTitle=1%7E51#H7) below.) Standard [barium](http://www.uptodate.com/contents/barium-drug-information?source=see_link) testing involves ingestion of a thick barium solution while obtaining a sequence of x-rays. Lesions in the oropharynx can be seen with more detail via nasopharyngeal laryngoscopy.

The finding of a mass or other mucosal lesions (such as an esophageal web) on [barium](http://www.uptodate.com/contents/barium-drug-information?source=see_link) studies usually requires confirmation or treatment during upper endoscopy. However, it is usually **inadvisable** to proceed directly to endoscopy without prior barium studies. Intubation of the upper esophagus is the least well visualized part of upper endoscopy. As a result, pathology in the upper esophagus or pharynx (such as a stricture, malignancy or diverticulum), may be associated with perforation during intubation ([picture 2A-B](http://www.uptodate.com/contents/image?imageKey=GAST%2F7522%7EGAST%2F7523&topicKey=GAST%2F2237&rank=1%7E51&source=see_link)). Information provided by contrast radiography can help avert such a catastrophe. In addition, upper endoscopy is not a sensitive means of detecting abnormal swallowing function.

Patients who have oropharyngeal dysphagia despite an unrevealing [barium](http://www.uptodate.com/contents/barium-drug-information?source=see_link) study or endoscopy may benefit from esophageal manometry. However, the value of esophageal manometry for oropharyngeal dysphagia is less certain than for esophageal dysphagia. Manometry rarely leads to alteration in management in patients with oropharyngeal dysphagia but may be useful in cases in which surgical myotomy is being considered. The AGA technical review for the clinical use of esophageal manometry [[12](http://www.uptodate.com/contents/diagnosis-and-treatment-of-oropharyngeal-dysphagia/abstract/12)], as well as other AGA guidelines, can be accessed through the AGA web site at <http://www.gastro.org/practice/medical-position-statements>.

**Videofluoroscopy** — An alternative to conventional [barium](http://www.uptodate.com/contents/barium-drug-information?source=see_link) studies is videofluoroscopy, which permits accurate visualization and analysis of the rapid sequence of events which make up a swallow. It is ideal for viewing the elevation of the hyoid and larynx, the relaxation of the upper esophageal sphincter (UES), and contraction of the pharynx [[3,13,14](http://www.uptodate.com/contents/diagnosis-and-treatment-of-oropharyngeal-dysphagia/abstract/3,13,14)].

The video, taken from both anteroposterior and lateral directions, can be replayed at much slower speeds or even frame-by-frame to facilitate accurate analysis. This helps identify abnormal movement of a bolus, such as aspiration, pooling in pharyngeal recesses, movement of anatomic structures, muscle activities throughout the area, and exact oral and pharyngeal transit times. The effects of different [barium](http://www.uptodate.com/contents/barium-drug-information?source=see_link) consistencies and positions should be tested. Thick or solid boluses should be used for patients who primarily complain of solid food dysphagia.

Examination during standard videofluoroscopy is limited to the cervical esophagus. Thus, it does not exclude lesions in the distal esophagus, which may sometimes give rise to symptoms referable to the cervical region. A study of 51 consecutive dysphagic patients referred for videofluoroscopy found the reliability of the test to be acceptable only for penetration or aspiration [[15](http://www.uptodate.com/contents/diagnosis-and-treatment-of-oropharyngeal-dysphagia/abstract/15)]. This study suggests the need for better definitions of the parameters assessed by videofluoroscopy.

**Fiberoptic endoscopic evaluation of swallowing** — Fiberoptic endoscopic evaluation of swallowing (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 the structure and functioning of the pharyngeal phase of swallowing can be evaluated. Sensory testing can also be performed by administering pulses of air at sequentially increased pressures to elicit the laryngeal adductor reflex.

Several studies have shown good correlation between FEES and videofluoroscopy, although interobserver reliability of results has been questioned [[16,17](http://www.uptodate.com/contents/diagnosis-and-treatment-of-oropharyngeal-dysphagia/abstract/16,17)].

**Barium swallow** — A [barium](http://www.uptodate.com/contents/barium-drug-information?source=see_link) swallow may identify anatomic abnormalities associated with dysphagia and document the presence of aspiration. The indications for the test should be carefully communicated to the radiologist since modification of the technique may help identify specific causes of dysphagia. Specifically requesting ingestion of a solid bolus, typically bread, or a barium tablet, is important. Subtle abnormalities, such as a small ring or diverticulum, may be missed by a standard examination ([picture 3](http://www.uptodate.com/contents/image?imageKey=GAST%2F7172&topicKey=GAST%2F2237&rank=1%7E51&source=see_link)). In addition, reproduction of symptoms while demonstrating slow passage or obstruction of the solid bolus establishes the location giving rise to symptoms. This is particularly useful if more than one abnormality is observed.

**Nasopharyngeal laryngoscopy** — More detailed examination of the oropharynx, hypopharynx, larynx, and proximal esophagus is often required, and can be accomplished with a nasopharyngolaryngoscope [[4](http://www.uptodate.com/contents/diagnosis-and-treatment-of-oropharyngeal-dysphagia/abstract/4)]. This procedure is usually performed at the bedside by an otolaryngologist, and is associated with minimal discomfort to the patient. A clear view of the oropharynx, larynx, and vocal cords can be obtained. The vallecula, piriform sinuses, and perilaryngeal regions can be inspected for pooled secretions or food material.

**Manometry** — A standard manometric study of the UES provides quantitative evaluation of the pressures and relative timing involved in the pharyngeal contraction and deglutitive UES relaxation [[18,19](http://www.uptodate.com/contents/diagnosis-and-treatment-of-oropharyngeal-dysphagia/abstract/18,19)]. A high resolution manometry system allows for more accurate analysis of the deglutitive UES relaxation ([figure 1](http://www.uptodate.com/contents/image?imageKey=GAST%2F6530&topicKey=GAST%2F2237&rank=1%7E51&source=see_link)) [[20](http://www.uptodate.com/contents/diagnosis-and-treatment-of-oropharyngeal-dysphagia/abstract/20)].

Manometry can also be used in conjunction with [barium](http://www.uptodate.com/contents/barium-drug-information?source=see_link) radiography to establish a more complete understanding of both the movement and pressures involved in a particular patient's condition [[6,19,21](http://www.uptodate.com/contents/diagnosis-and-treatment-of-oropharyngeal-dysphagia/abstract/6,19,21)]. Combined manometry and multichannel intraluminal impedance can also be used to predict ineffective pharyngeal swallowing [[22](http://www.uptodate.com/contents/diagnosis-and-treatment-of-oropharyngeal-dysphagia/abstract/22)]. The AGA technical review for oropharyngeal dysphagia [[23](http://www.uptodate.com/contents/diagnosis-and-treatment-of-oropharyngeal-dysphagia/abstract/23)] and the AGA guideline for esophageal manometry [[24](http://www.uptodate.com/contents/diagnosis-and-treatment-of-oropharyngeal-dysphagia/abstract/24)] can be accessed through the AGA web site at <http://www.gastro.org/practice/medical-position-statements>.

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:

* Abnormally high resting pressure of the UES (cricopharyngeal hypertension) may cause functional obstruction leading to dysphagia. Elevated resting pressures may occur as a primary disorder or, more commonly, may be associated with underlying gastroesophageal reflux. Reflux into the esophagus may result in reflexive UES contraction which is primarily due to esophageal distension, although acid may also play a role [[25,26](http://www.uptodate.com/contents/diagnosis-and-treatment-of-oropharyngeal-dysphagia/abstract/25,26)].
* Abnormally low resting pressures of the UES (cricopharyngeal hypotonia) have been described in a variety of neuromuscular disorders (such as myasthenia gravis, motor neuron disease [amyotrophic lateral sclerosis], and myotonic dystrophy). Dysphagia in such patients usually results from concomitant weakness of the pharyngeal musculature [[27](http://www.uptodate.com/contents/diagnosis-and-treatment-of-oropharyngeal-dysphagia/abstract/27)].
* Abnormalities in UES relaxation may also lead to oropharyngeal dysphagia. Delayed UES relaxation is observed in patients with Riley-Day syndrome or familial dysautonomia [[28,29](http://www.uptodate.com/contents/diagnosis-and-treatment-of-oropharyngeal-dysphagia/abstract/28,29)].

Complete failure of UES relaxation (cricopharyngeal achalasia) is unusual. It has been described in association with oculopharyngeal muscular dystrophy and following neck surgery [[30-32](http://www.uptodate.com/contents/diagnosis-and-treatment-of-oropharyngeal-dysphagia/abstract/30-32)]. More often, the diagnosis is used to describe functional obstruction of the UES seen by [barium](http://www.uptodate.com/contents/barium-drug-information?source=see_link) 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](http://www.uptodate.com/contents/barium-drug-information?source=see_link) 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 [[33](http://www.uptodate.com/contents/diagnosis-and-treatment-of-oropharyngeal-dysphagia/abstract/33)].

**THERAPY** — The goals of treatment of oropharyngeal dysphagia are to improve food transfer and to prevent aspiration. The approach chosen depends in part upon the cause of the dysphagia ([algorithm 1](http://www.uptodate.com/contents/image?imageKey=GAST%2F6848&topicKey=GAST%2F2237&rank=1%7E51&source=see_link)).

* Neoplasms usually call for resection, chemotherapy or radiation therapy. Efforts should be coordinated with an otolaryngologist and oncologist.
* Following stroke, head or neck trauma, surgery, or in degenerative neurologic diseases, rehabilitation can be achieved through techniques that facilitate oral intake.
* Patients with esophageal webs or strictures usually benefit from therapeutic endoscopy.
* Surgical myotomy may benefit selected patients (see ['Surgery'](http://www.uptodate.com/contents/diagnosis-and-treatment-of-oropharyngeal-dysphagia?source=search_result&selectedTitle=1%7E51#H16) below).

**Swallowing rehabilitation** — Following a full evaluation, appropriate postural, nutritional, and behavioral modifications can be suggested. Successful rehabilitation depends largely on the cause of oropharyngeal dysphagia [[34,35](http://www.uptodate.com/contents/diagnosis-and-treatment-of-oropharyngeal-dysphagia/abstract/34,35)]. Simple remedies should not be overlooked. As an example, partially dentulous elderly patients who have difficulty masticating may benefit from prosthetic teeth. When specific swallowing training is required, referral to a specialist in swallowing disorders is helpful [[36-38](http://www.uptodate.com/contents/diagnosis-and-treatment-of-oropharyngeal-dysphagia/abstract/36-38)]. The AGA technical review for oropharyngeal dysphagia [[23](http://www.uptodate.com/contents/diagnosis-and-treatment-of-oropharyngeal-dysphagia/abstract/23)] can be accessed through the AGA web site at <http://www.gastro.org/practice/medical-position-statements>.

Several maneuvers during swallowing may reduce oropharyngeal dysphagia, and their use should be based upon the specific defect leading to dysphagia ([table 2](http://www.uptodate.com/contents/image?imageKey=GAST%2F7829&topicKey=GAST%2F2237&rank=1%7E51&source=see_link)):

* 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 [[18](http://www.uptodate.com/contents/diagnosis-and-treatment-of-oropharyngeal-dysphagia/abstract/18)].

Dietary modifications may also improve swallowing and help avoid aspiration. Some patients are more tolerant of solid, soft, or liquid consistencies. 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 [[39](http://www.uptodate.com/contents/diagnosis-and-treatment-of-oropharyngeal-dysphagia/abstract/39)]. Other patients benefit from a reduction in the volume of their mouthfuls, or an alternation of solid and liquid boluses, which can facilitate transfer. In some cases, feeding with a particular implement, such as a cup, straw, or spoon, may improve swallowing.

Assistance provided by a caretaker during meals can also be helpful. For patients whose dysphagia is related to neurologic dysfunction, administering meals during times of maximal attentiveness may be beneficial.

**Neuromuscular electrical stimulation** — Neuromuscular electrical stimulation involves direct stimulation of muscles to recruit motor units and increase muscle strength. It has been applied to patients with oropharyngeal dysphagia in an attempt to improve swallowing function.

Only a few studies have been published. A meta-analysis of seven studies found a small but significant improvement in swallowing overall but the results differed among the individual reports [[40](http://www.uptodate.com/contents/diagnosis-and-treatment-of-oropharyngeal-dysphagia/abstract/40)]. Further studies are needed to clarify the role of this technique.

**Endoscopy** — Patients found to have an esophageal web or a benign stricture usually benefit from endoscopy with dilation. Endoscopic therapy in such patients may be curative. (See ["Esophageal webs and rings"](http://www.uptodate.com/contents/esophageal-webs-and-rings?source=see_link).) The rare patient with UES dysfunction due to failed or partial sphincter relaxation, a lack of pharyngoesophageal coordination, or a reduction in muscular compliance (referred to as primary cricopharyngeal dysfunction) may benefit from balloon dilation [[41](http://www.uptodate.com/contents/diagnosis-and-treatment-of-oropharyngeal-dysphagia/abstract/41)].

**Surgery** — Cricopharyngeal myotomy may be considered for patients who have inadequate pharyngeal contraction, or lack coordination between the pharynx and the UES. Myotomy decreases or removes obstruction due to the relative high-pressure zone caused by the UES. Surgery for Zenker's diverticulum may also involve cricopharyngeal myotomy in conjunction with diverticulum suspension. (See ["Zenker's diverticulum"](http://www.uptodate.com/contents/zenkers-diverticulum?source=see_link).)

A review of the literature regarding outcomes of cricopharyngeal myotomy suggested that success was associated with appropriate patient selection [[42](http://www.uptodate.com/contents/diagnosis-and-treatment-of-oropharyngeal-dysphagia/abstract/42)]. Successful outcomes were associated with the following features:

* 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

On the other hand, the presence of dysarthria predicts a poor response to myotomy [[43](http://www.uptodate.com/contents/diagnosis-and-treatment-of-oropharyngeal-dysphagia/abstract/43)].

Cricopharyngeal myotomy is not without its risks. In one series of 23 patients who underwent cricopharyngeal myotomy for a variety of conditions, 22 percent had complications (two with self-limiting pharyngeal leaks, and three with aspiration pneumonia) [[44](http://www.uptodate.com/contents/diagnosis-and-treatment-of-oropharyngeal-dysphagia/abstract/44)]. In another series of 40 patients, complications included a retropharyngeal hematoma in one patient and intraoperative death in another [[43](http://www.uptodate.com/contents/diagnosis-and-treatment-of-oropharyngeal-dysphagia/abstract/43)].

**Botulinum toxin injection** — Botulinum toxin is a potent inhibitor of the release of acetylcholine from nerve endings and has been used successfully for decades to treat certain spastic disorders of skeletal muscle, such as blepharospasm and torticollis, and more recently achalasia. Limited experience suggests that botulinum toxin therapy may also have a role as an alternative to cricopharyngeal myotomy [[45,46](http://www.uptodate.com/contents/diagnosis-and-treatment-of-oropharyngeal-dysphagia/abstract/45,46)].

In one series, injection of botulinum toxin into the cricopharyngeus muscle (performed under general anesthesia with electromyographic guidance) was associated with complete or marked relief of dysphagia in five of seven patients [[46](http://www.uptodate.com/contents/diagnosis-and-treatment-of-oropharyngeal-dysphagia/abstract/46)]. Repeat injections may be required, which is similar to the use of botulinum toxin for the treatment of achalasia. Clinical experience with this approach has suggested safety concerns related to the potential for disrupting swallowing function. Thus, this approach is probably best reserved for centers that have considerable experience with it. (See ["Overview of the treatment of achalasia"](http://www.uptodate.com/contents/overview-of-the-treatment-of-achalasia?source=see_link).)

In another series, 21 patients with oropharyngeal dysphagia (eight with central nervous system abnormalities, five with peripheral nerve disease, and eight with idiopathic) underwent injection with 5 to 10 units of Botox [[47](http://www.uptodate.com/contents/diagnosis-and-treatment-of-oropharyngeal-dysphagia/abstract/47)]. Nine of the 21 patients had improvement in symptoms; however, one patient died due to a massive aspiration seven days after Botox injection.

**SUMMARY AND RECOMMENDATIONS**

* Dysphagia can be classified as either oropharyngeal or esophageal. Initial evaluation of oropharyngeal and esophageal dysphagia differs, making their distinction important. In most cases a comprehensive examination and a careful history are sufficient to guide appropriate evaluation.
* A careful history and physical examination can usually distinguish between an esophageal and oropharyngeal cause of dysphagia ([algorithm 2](http://www.uptodate.com/contents/image?imageKey=GAST%2F6540&topicKey=GAST%2F2237&rank=1%7E51&source=see_link)). (See ['History and physical examination'](http://www.uptodate.com/contents/diagnosis-and-treatment-of-oropharyngeal-dysphagia?source=search_result&selectedTitle=1%7E51#H2) above.)
* There are five major tests that can be used for the evaluation of oropharyngeal dysphagia: [barium](http://www.uptodate.com/contents/barium-drug-information?source=see_link) radiography, videofluoroscopy, upper endoscopy, fiberoptic nasopharyngeal laryngoscopy, esophageal manometry. The choice of specific testing depends upon the clinical presentation and available expertise. (See ['Diagnostic testing'](http://www.uptodate.com/contents/diagnosis-and-treatment-of-oropharyngeal-dysphagia?source=search_result&selectedTitle=1%7E51#H5) above.)
* The goals of treatment of oropharyngeal dysphagia are to improve food transfer and to prevent aspiration. The approach chosen depends in part upon the cause of the dysphagia ([algorithm 1](http://www.uptodate.com/contents/image?imageKey=GAST%2F6848&topicKey=GAST%2F2237&rank=1%7E51&source=see_link)).

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