Dysphagia

Overview

What is dysphagia?

Dysphagia is the medical term used to describe difficulty swallowing. Dysphagia includes difficulty starting a swallow (called *oropharyngeal dysphagia)* and the sensation of food being stuck in the neck or chest (called *esophageal dysphagia*). Oropharyngeal dysphagia can result from abnormal functioning of the nerves and muscles of the mouth, pharynx (back of the throat) and upper esophageal sphincter (muscle at the top end of the swallowing tube). Diseases that involve the swallowing tube (esophagus) can cause esophageal dysphagia. When a patient is being evaluated for dysphagia, it is important for the doctor to determine which type of dysphagia is more likely, oropharyngeal or esophageal, as different tests are ordered for each type.

Dysphagia needs to be distinguished from *odynophagia*, which is defined as pain during swallowing. This can arise from infection or inflammation in the esophagus. Dysphagia also needs to be distinguished from *globus sensation*. This is a constant sensation of something being stuck at the back of the throat, which does not typically make swallowing difficult. In contrast, dysphagia is a symptom that only occurs when attempting to swallow. Globus can sometimes be seen in acid reflux disease, but more often, it is due to increased sensitivity in the throat or esophagus.

Causes

What causes dysphagia?

Just as there are two types of dysphagia – oropharyngeal and esophageal dysphagia – there are similarly two broad groups of causes for dysphagia. Within each broad group, there are two subgroups of causes: neuromuscular (involving the nerve or muscle), and structural, where the esophagus is narrowed or compromised.

Oropharyngeal dysphagia: Neuromuscular causes are more frequent than structural causes for this type of dysphagia. This is because the nerves controlling the muscles of the mouth, back of throat (pharynx) and top end of the esophagus (upper esophageal sphincter) have direct connections with the brain through cranial nerves, and can therefore be damaged in diseases involving the brain or cranial nerves.

Less common than neuromuscular causes are structural causes, including strictures (narrowed areas), or rarely tumors growing in the back of the throat.

Esophageal dysphagia: In this type of dysphagia, structural causes are far more frequent than disorders involving nerves or muscles. Therefore, narrowing in the esophagus from scarring due to acid reflux disease, inflammation of the lining of the esophagus (usually from acid reflux disease but occasionally from infections), tumors within the esophagus, and compression of the esophagus from growths in the chest or sometimes even an enlarged heart can all cause dysphagia. In addition, a unique type of inflammation caused by a type of blood cell called eosinophils can cause dysphagia; this condition is called eosinophilic esophagitis.

Less common are disorders involving the nerves and muscle of the esophagus. The esophageal muscle can be weak and sometimes unable to generate adequate pressure during contraction. In extreme situations, the muscle generates no force and is unable to squeeze – this is sometimes called scleroderma esophagus (even though scleroderma is not frequently the cause), and can be associated with dysphagia. Another disorder of the nerves and muscles is achalasia; a condition in which the muscle at the bottom end of the esophagus cannot relax during swallowing because of abnormal nerve control. The muscle in the body of the esophagus also does not squeeze normally in achalasia, and becomes weak and stretched. When the nerves are abnormal to a lesser degree, spasm of the esophagus may result, which can also cause dysphagia.

Symptoms

What are the symptoms of dysphagia?

By definition, dysphagia is the sensation that food or liquids do not pass normally from the mouth to the stomach. Symptoms can vary depending on the location of the abnormality causing dysphagia. When the patient has oropharyngeal dysphagia from a neuromuscular cause, muscles involved in chewing and in pushing food to the back of the throat may also be involved. In general, dysphagia occurring within one second of trying to swallow is due to oropharyngeal dysphagia. The muscles that protect the nose and the voice box (larynx) during swallowing may be defective in their function, causing the patient to have food and drink come out through the nose or enter the airway through the larynx (voice box) while trying to swallow (called 'aspiration'). Food entering the larynx can cause choking, coughing, or even lead to a type of pneumonia called aspiration pneumonia. There may be a change in the patient's voice (husky voice or hoarse voice) because of involvement of nerves that control the vocal cords. The trouble swallowing is typically felt in the region of the back of the throat.

With esophageal dysphagia, food may be swallowed normally, but may get stuck in the neck or chest. Sometimes, swallowed food comes back up (regurgitation), when it may taste like the food just eaten. Difficulty swallowing is usually worse with solids than with liquids. Symptoms of acid reflux

disease such as heartburn may also be present, since reflux is the most common cause of narrowing in the esophagus causing dysphagia. Even though the abnormality may be at the bottom end of the esophagus, the sensation of food being stuck may be felt higher up in the chest or even in the neck region. Rarely, food may actually block the esophagus (food impaction) – this will result in a total inability to swallow, including liquids, and usually requires urgent endoscopy to remove the food bolus. Achalasia, a condition where the esophagus fails to relax and allow food to pass, may be difficult to diagnose because symptoms progress slowly. In achalasia, difficulty may occur with both solids and liquids, and symptoms may be severe enough to cause weight loss. Patients with esophageal spasm can have chest pain as well.

Diagnosis

What are the tests that are done in patients with dysphagia?

The first step is to distinguish between oropharyngeal dysphagia and esophageal dysphagia from the patient's symptoms. The evaluation begins with a careful history from the patient, which can provide direction towards the cause of dysphagia in the majority of patients. Tests performed on patients with dysphagia depend on whether the doctor thinks that the patient has oropharyngeal or esophageal dysphagia.

Investigation of oropharyngeal dysphagia starts with a careful neurologic examination to identify which nerves and muscles might be abnormal. Swallowing function testing of the mouth and throat can be performed with videofluoroscopy or modified barium swallow. This test involves giving the patient food items of different consistency (e.g. cookie, marshmallow) containing barium and observing the swallow on an x-ray screen (fluoroscopy). This test can show if the barium enters the larynx (opening to the breathing tube) while attempting to swallow, or if it passes normally through the upper esophageal sphincter, and can help determine how the patient can position his or her head or neck to make each swallow effective.

A tiny endoscope can be introduced through the nose to the back of the throat to see the act of swallowing – this test is called nasal endoscopy. This test can also be used to stimulate the back of the throat with a jet of air to see if the muscle responds or if it is paralyzed. When tumors of the back of the throat or back of the brain are suspected, a CT scan or a MRI scan of the head and neck may be useful. Measurement of pressures within the back of the throat during swallowing (manometry) is less useful, but the newer high resolution manometry techniques can be considered if other tests fail to find an abnormality. Finally, blood tests can be useful to diagnose myasthenia gravis, polymyositis and other muscle disorders.

Endoscopy (examination of the esophagus using a tube with a light and a video camera at the end) is one of the tests used in the evaluation of esophageal dysphagia. This test not only allows the doctor to inspect the lumen and lining of the esophagus, but samples of abnormal tissue can be taken for examination and if appropriate, treatment can be performed by stretching out narrowed areas. Another test that can be used is to take x-rays while the patient swallows barium (barium swallow or esophagram). This is most useful when the esophagus is expected to have very tight narrowing. If a narrowing is not seen on either endoscopy or barium swallow, measurement of pressures within the esophagus while swallowing sips of water (manometry) can help find out if the muscle of the esophagus squeezes or relaxes abnormally while swallowing, and can diagnose conditions like achalasia or esophageal spasm.

Treatment

What is the treatment of dysphagia?

For the most part, the treatment of dysphagia depends on the cause. Treatment often involves making a change in the foods eaten or the consistency of food. The modified barium swallow may identify foods of certain consistencies that can be swallowed better than others. The test can also identify head and neck positions that facilitate swallowing.

Patients with narrowing of the esophagus benefit from stretching (dilating) the esophagus. Several techniques are available for dilation. Balloons can be passed through the endoscope and distended to stretch the narrowing, or dilators (long rubber or plastic cylinders of various sizes) can be passed through the mouth, sometimes over a guide wire. Since narrowing is usually related to acid reflux disease, treatment with an acid lowering agent is usually recommended. Patients with eosinophilic esophagitis are treated with acid lowering agents or steroid preparations sprayed to the back of the throat and swallowed. Dilation is also affective but should be performed with caution to avoid tears; dilation is usually done if steroid preparations do not improve dysphagia in eosinophilic esophagitis. When the narrowing is from inoperable cancer, wire or metal stents (thin expandable tubes) can be placed during endoscopy to keep the lumen of the esophagus open allowing food and liquid to pass through. Patients with achalasia improve when the muscle at the bottom end of the esophagus is disrupted, either with a large balloon (pneumatic dilation) or during surgery where the muscle is cut (myotomy). Sometimes, botulinum toxin (BOTOX®) can be injected into the muscle at the bottom end of the esophagus to make it relax, but this treatment only results in short term improvement in achalasia.

Can I expect my dysphagia to improve?

This depends on the cause of dysphagia. Dysphagia from strictures (narrowings) in the esophagus may improve very well with stretching of the esophagus, but repeat endoscopic sessions for stretching may be necessary from time to time. Dysphagia from acid reflux disease, esophageal infections and eosinophilic esophagitis may resolve completely with medicines. Dysphagia from achalasia improves with either surgery or forceful dilation of the lower end of the esophagus, but the esophagus remains dilated. When the cause of dysphagia cannot be treated, alternative options include placing a metal or wire stent to keep the esophagus open, especially when the narrowing is due to a cancer.

With both types of dysphagia, if symptoms are present over a long period of time, patients may lose weight and become malnourished. Weight loss can be worse when the cause is cancer of the esophagus, or if there is a very tight narrowing or obstruction in the esophagus. Dehydration can occur if there is difficulty swallowing liquids. Sometimes, if esophageal blockage is nearly complete, it can be bypassed to avoid some of these problems, by placing a tube into the stomach for feeding (percutaneous gastrostomy tube). This is also sometimes performed in oropharyngeal dysphagia when the risk of food and liquids entering the lungs and causing pneumonia is high.

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Patient Links

- American Partnership for Eosinophilic Disorders (http://www.apfed.org/)
- Directory of Digestive Diseases Organizations for Patients (http://digestive.niddk.nih.gov/resources/patient.htm)
- National Digestive Diseases Information Clearinghouse (http://digestive.niddk.nih.gov/index.htm)
- National Institute of Diabetes, Digestive and Kidney Diseases (http://www.niddk.nih.gov/)

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