Dysphagia Disorders Evaluation and Management

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47.1 Introduction

Dysphagia, difficulty to swallow normally and its sequel, is an extremely common clinical condition that affects millions of people annually in all ages. By examining incidence of dysphagia following stroke, one can begin to grasp the enormity of dysphagia problem.

Approximately 500,000 people per year in the United States have a stroke with up to 65% of those patients experiencing some type of swallowing difficulty. The incidence show up that 10–13% of the hospitalized patients experience some forms of swallowing difficulty.

It is not the acute neurological injury after stroke that usually causes patient demise rather, the pulmonary complications after stroke, in particular aspiration pneumonia, are deadly. Early diagnosis of swallowing disorder will help to avoid aspiration pneumonia, the third cause of killing in elderly patients.

It has found that around 50% of patients with dysphagia are silent aspirators, as a result, some of what one eats or drinks or secretes may enter the lungs, which in turn precipitates severe pulmonary infections.

47.2 The Structure of a Swallowing Clinic?

- Otolaryngologist (chairperson)
- Speech and language pathologist
- Trained registered nurse
- Clark
- Occupational therapist
- Dietician

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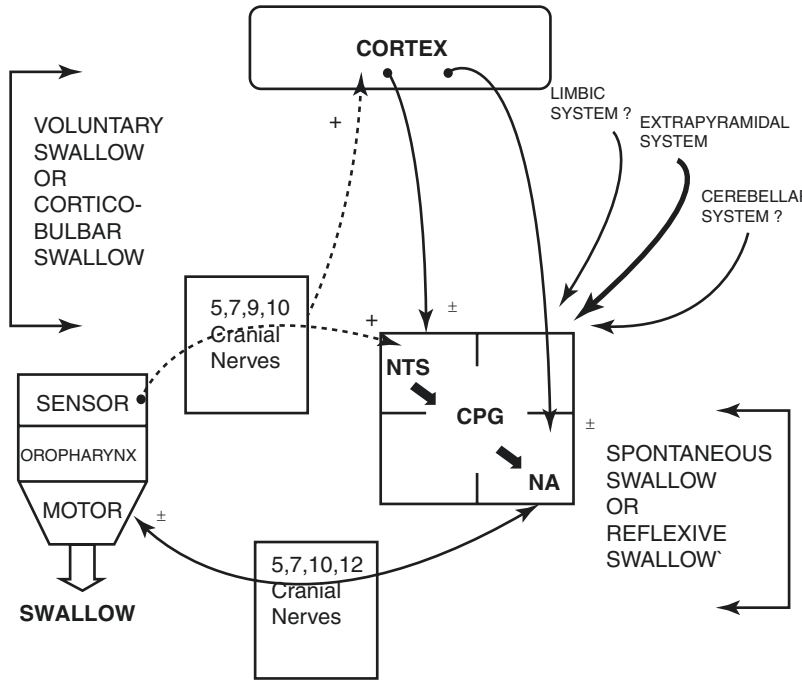
47.3 Neural Control of Swallowing



Swallowing is a centrally mediated phenomenon that can be divided into supratentorial and infratentorial regions of control. The supratentorial area of control is located in the frontal cortex anterior to the sensorimotor cortex. The infratentorial or brainstem areas involved in control of swallowing are located in the dorsal region within and subjacent to the nucleus of the tractus solitarius as well as in the ventral region around the nucleus ambiguus. The brainstem is responsible for the involuntary (pharyngeal and oesophageal) phases of swallowing. The dorsal and ventral medullary regions controlling swallowing are represented on both sides of the brainstem and are interconnected.

Either side can coordinate the pharyngeal and oesophageal stages of deglutition, however because they are interconnected, normal motor and sensory functioning on each side of the laryngopharynx depends on intactness on both sides of the medulla.

The clinical implication is that a unilateral medullary lesion, say after an embolic stroke, can result in bilateral pharyngeal motor and sensory dysfunction.

47.4 Stages of Swallowing in Both Adults and Pediatrics

- Pediatric have four stages, they are:
  - Oral preparatory phase
  - Oral transport phase
  - Pharyngeal phase
  - Oesophageal phase
- Adult have three stages, they are:
  - Oral preparatory phase
  - Pharyngeal phase
  - Oesophageal phase

47.5 Signs and Symptoms of Swallowing Disorders

1. Patients with laryngopharyngeal reflux disease (sore throat, phlegm in throat, change in voice.
2. Coughing during or immediately after eating or drinking.
3. Gurgling sound during or after eating or drinking.
4. Recurrent pneumonia or chest infection.

5. Weight loss or dehydration from not being able to eat.
6. Food or drink leaking from mouth or getting stuck in the mouth.
7. Increased congestion in the chest after eating or drinking.
8. Multiple swallows on a single mouthful of food.
9. Obvious extra effort or difficulty while chewing or swallowing.
10. Fatigue or shortness of breath while eating.
11. Temperature rise 30 minutes to an hour after eating.
12. Patients with refractory chronic cough.

47.6 Causes of Swallowing Disorders

1. Neurological: Stroke, parkinsonism, Guillain-Barre syndrome, cases of CP in pediatric age group
2. Infectious: Bacterial, fungal, and viral infections
3. Medications: Anticholinergics, antihypertensives, diuretics, opiates, antipsychotics, antidepressants, antihistamines
4. Psychogenic: Patients with globus hystericus
5. Neoplastic
6. Trauma

47.7 Diagnostic Procedures for the Swallowing Disorders

1. Transnasal flexible laryngoscope
2. Fixable endoscopic evaluation of swallowing safely (FEESS)
3. Fixable endoscopic evaluation of swallowing safely with sensory testing (FEESST)
4. Transnasal esophagoscopy
5. Transnasal tracheoscopy

47.8 Transnasal Flexible Laryngoscopy (TFL)

TFL is a way of examining the larynx and throat with a thin, flexible endoscope that is passed via the nose which permits a magnified view of the laryngeal structures and functions. The finding can be show on a monitor and can be recorded and the pictures can be printed out as well.

47.9 Flexible Endoscopic Evaluation of Swallowing Safely (FEESS)

FEES allow for the direct viewing of the swallow function as food passes from the mouth into the throat. It is able to identify functional abnormalities that may occur and is used in "practice swallows" to help determine the safest position and food texture to maximize nutritional status and eliminate the risk of aspiration and unsafe swallowing. The results of the evaluation are photographed and recorded on videotape or CD ROM for later viewing or use for patient and family education and instruction.

Velopharyngeal closure, anatomy of the base of the tongue and hypopharynx, abduction of the vocal folds, pharyngeal musculature and the patient's ability to handle his/her own secretions are assessed. This procedure is painless and well tolerated by most individuals.

47.10 Fibreoptic Endoscopic Evaluation of Swallowing with Sensory Testing (FEESST)

It is the state of the art nonradioactive alternative to modified barium swallow studies. This exam will allow for direct assessment of the motor and sensory aspects of the swallow in order to precisely guide the dietary and behavioral management of patients with swallowing problems to decrease the probability of aspiration pneumonia.

FEESST is a two-part test. The first part of the test assesses sensation in the larynx in order to illicit an airway protective reflex. The second part of the test involves giving food to the patient (with green food colourings mixed in) and watching/ tracking where the food travels in the throat.

47.11 Swallowing Treatment, or Swallowing Therapy, Is Divided into Four Broad Categories

The purpose of swallowing therapy is to assure a safe swallow. By safe swallow, it is meant a swallow where the chance of choking is very small.

1. Behavioral therapy
2. Dietary therapy
3. Pharmacotherapy
4. Surgery
    1. Behavioral therapy: includes head turn, chin tuck, effortful swallow, shaker exercises, supraglottic swallow, Mendelsohn maneuver, thermal and chemical stimulation.
    2. Food therapy during the FEEST test it may become evident that certain types of food cause the patient to cough or choke, but other foods do not. During the FEESST exam, the various food volumes and consistencies are used until it is determined which combinations allow the patient to swallow easily and safely.

3. Pharmacological therapy:
   (a) Mucolytic agents: medications that thin-out thick secretions.
   (b) Anti-acid medications: swallowing problems are sometimes due to untreated, or insufficiently treated, acid reflux disease. The acid causes swelling in the throat which can contribute to swallowing difficulties.
4. Surgery:
   (a) Zenker's diverticulum cricopharyngeal myotomy diverticulopexy, and (Dolman procedure) peroral end endoscopic division of the party wall between the diverticulum and the esophagus.
   (b) Cricopharyngeal myotomy pharmacologic (botulinum toxin).

Cricopharyngeal myotomy is primarily useful for true cricopharyngeal achalasia such as after vagus nerve injury at the base of the skull where pharyngeal motor function remains otherwise intact. Cricopharyngeal myotomy is contraindicated in conditions when there is impaired pharyngeal peristalsis or when significant reflux disease exists.

47.12 Tube Feeding

Percutaneous endoscopic gastrostomy (PEG) or percutaneous endoscopic jejunostomy (PEJ) are excellent ways to aliment patients who are at high risk for aspiration as a result of severe dysphagia.

Patients who are aspirating regularly frequently become malnourished, which only exacerbates their underlying condition.

47.13 Effect of Tracheostomy on Swallowing

(a) Mechanical impact: (1) prevents proper laryngeal elevation. (2) Direct pressure from the tracheotomy tube → extrinsic oesophageal pressure. (3) Change of the laryngeal function.
(b) Physiological impact: (1) ↓ pharyngeal sensation leads to ↓ sensitivity of the glotticclosure reflex. (2) Loss of subglottic pressure. (3) Impaired cough (cuffed tracheotomy).

***Also consider effect of underlying disease that led to insertion of tracheostomy.

47.14 Management of Swallowing in Patients on Tracheostomy

1. Oro-motor exercise.
2. Tube manipulation (downsizing, light occlusion during swallowing).
3. Diet change.
4. Positioning.

47.15 Benefit of Using the Speaking Valve

1. Provide the facility to produce voice.
2. Eliminate the use digital occlusion.
3. Normalize the pathway of expired air.
4. Restore the subglottic pressure.

***The speaking valve should be used only with use with deflated cuff, fenestrated tube or uncuffed tube.

Take Home Messages

- Dysphagia is a relatively common complaint; it is considered an alarming symptom that needs further evaluation and a diagnosis.
- Flexible endoscopic evaluation of swallowing is helpful in the identification of penetration, aspiration, residue, and the effectiveness of swallowing compensatory strategies.
- The purpose of swallowing therapy is to assure a safe swallow and minimize the chance of choking by behavioral therapy, dietary therapy, pharmacotherapy, and/or surgery.

Further Reading

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