

Clinical Practice Guideline: Dysphagia and Assessing Risk of Aspiration and Choking

Bob Klaehn, M.D.
Medical Director, Division of Developmental Disabilities
Arizona Department of Economic Security

With research assistance from:
Sandra Verheijde, BSN, MBA
Quality Management Administrator,
Division of Developmental Disabilities
Arizona Department of Economic Security

Introduction

Chewing and swallowing are complex physiological tasks, requiring the use of both voluntary and involuntary neuromuscular contractions to move food or liquid safely from the mouth through the pharynx and esophagus to the stomach. There are more than 25 muscles involved in swallowing, according to the American Dysphagia Network (1).

Dysphagia (problems with chewing and swallowing) becomes more common as individuals age. Spieker reports that 7 to 10% of persons over 50 years of age will have difficulty swallowing and up to 25% of hospitalized patients will have dysphagia. (2) The American Dysphagia Network website indicates that as many as 66% of persons living in nursing homes may have dysphagia.

A recent study by Stewart and Hurd (3) identified "The Six Most Statistically Significant Observable Signs of Difficulty Swallowing." They are:

- 1) "Food often goes down the wrong way."
- 2) "I have lost weight because eating is now a difficult or unpleasant experience."
- 3) "I have repeated pneumonia/respiratory illness."
- 4) "I have trouble clearing food from my mouth in one swallow."
- 5) "Eating is now less enjoyable than it used to be."
- 6) "I have difficulty swallowing my medications."

These six statements from patients or their caregivers should be warning signs of possible dysphagia and this individual may be at risk for aspiration, choking or other complications.

Persons with Developmental Disabilities, particularly aging individuals with Cerebral Palsy are at risk for problems with chewing and swallowing. (4) Problems with chewing and swallowing can result in aspiration of food or liquid into the lungs, leading to damage to lung tissue and pneumonia. Dysphagia may also increase the likelihood of choking on food and sudden death.

It is recommended that every person with Cerebral Palsy be screened for Dysphagia after age 35 and all individuals with other Developmental Disabilities be screen for Dysphagia at age 45.

Causes of Dysphagia

The American Dysphagia Network's Physician Education Course lists three major causes of dysphagia in the elderly:

- 1) **Dysphagia due to Neurologic Disorders** often result in dysphagia due to the loss of muscle function and coordination. Neurologic disorders that may cause dysphagia may include:
 - a) Cerebral Palsy
 - b) Stroke
 - c) Brain Injury
 - d) Spinal Cord injury
 - e) Parkinson's Disease
 - f) Multiple Sclerosis
 - g) Amyotrophic lateral sclerosis (ALS)
 - h) Muscular Dystrophy
 - i) Alzheimer's Disease

- 2) **Dysphagia due to Disorders of the Head, Neck or Esophagus**, including:
 - a) Cancer
 - b) Injury or surgery involving the head or neck
 - c) Decayed or Missing Teeth
 - d) Poorly Fitting Dentures

- 3) **Drug Induced Dysphagia:** Medications may cause difficulty swallowing by several different mechanisms. In the list below, medications are grouped by their mechanism for causing dysphagia.
 - a) Medications that affect smooth muscle function and coordination of the esophagus: Anticholinergic and antimuscarinic agents

 - b) Cytotoxic injury to the esophageal muscles: anti-neoplastic agents

 - c) Viral and fungal infections of the esophagus: prolonged use of immunosuppressants

 - d) Esophageal muscle wasting: High dose corticosteroids

- e) Blockage of Dopaminergic Transmission resulting in an extra-pyramidal syndrome similar to Parkinson's disease: Antipsychotic Medications (Neuroleptics) such as Thorazine (Chlorpromazine),r Haldol (Haloperidol) or Risperdal (Risperidone).

Note: Tardive dyskinesia, an irreversible condition that may caused by neuroleptics can result in an orofacial and lingual muscle syndrome that may progress until the patient cannot chew or swallow.

- f) Medications that cause dry mouth (Xerostomia) which impairs food transport:

- i) ACE (Angiotensin Converting Enzyme) Inhibitors
- ii) Anti-arrythmics
- iii) Calcium Channel Blockers
- iv) Diuretics
- v) Anti-emetics
- vi) Anti-histamines and Decongestants
- vii) Selective Serotonergic Re-uptake Inhibitors such as Prozac (Fluoxetine) or Zoloft (Sertraline)
- viii) Tricyclic Anti-depressants such as Imipramine (Tofranil) or Elavil (Amitriptyline)

- g) Medications that CNS depression, leading to drowsiness, confusion and decreased voluntary muscle control:

- i) Benzodiazepines, such as Valium (Diazepam) and Xanax (Alprazolam)
- ii) Narcotics
- iii) Skeletal Muscle Relaxants

- h) Medications that local irritation of esophageal mucosa:

- i) Aspirin
- ii) Non-steroidal anti-inflammatory drugs (NSAIDS)
- iii) Antibiotics
- iv) Iron containing products
- v) Vitamin C
- vi) Anti-arrythmics
- vii) Potassium supplements

History

The American Dysphagia Network's Physician Education Course indicates that a thorough history will uncover the symptoms of dysphagia that a patient or caregiver has not reported. Questions to ask the patient or his/her caregiver include:

- 1) Do you ever choke or cough when eating solid foods or swallowing liquids?
- 2) Do you enjoy eating less than you used to?
- 3) Have you lost weight because you no longer enjoy eating?
- 4) Do you have difficulty swallowing medications?
- 5) Do you have difficulty swallowing certain foods?
- 6) Do you ever have the feeling that food is sticking in your throat?
- 7) Do you have trouble clearing food from your mouth with one swallow?
- 8) Does it ever feel as if food is "going down the wrong pipe?"
- 9) Does your voice ever sound "gurgly" or wet when you are eating?
- 10) Do you have repeated episodes of pneumonia and/or other respiratory illness?

Additional Questions recommended by Gasiorowski and Fass (5) include:

- 1) What is the duration of the dysphagia?
- 2) Is the onset of the dysphagia acute? **Sudden onset with other neurologic signs may indicate that a stroke has occurred.**
- 3) Can the patient localize the swallow dysfunction?
- 4) Are there any additional symptoms, such as heartburn, regurgitation, aspiration, weight loss and chest or abdominal pain?

Physical Examination

Dr. Spieker's article "Evaluating Dysphagia" in the *American Family Physician* suggests that the physical examination for a person with a positive history for difficulty swallowing include the following:

- 1) Neurological examination, including:
 - a) Assessment of Mental Status including level of consciousness
 - b) Motor and sensory functioning
 - c) Deep tendon reflexes
 - d) Cranial nerves including assessment of gag reflex

Persons with impaired cognitive functioning and those who are a decreased level of consciousness may be at a higher risk for difficulty swallowing.

Those persons with a decreased gag reflex are at increased risk for aspiration.

- 2) Examination of the oropharynx should include:
 - a) Assessment of whether there is adequate saliva production
 - b) Inspection of the soft palate and vocal cords
 - c) Bimanual palpation of the floor of the mouth, tongue and lips may detect masses and abnormal motor function
 - d) Examination of the teeth
- 3) Observation of the patient swallowing a variety of liquids and solids:
 - a) When swallowing, the patient should be able to chew food, mix the food with saliva and deliver it to the posterior pharynx without coughing or choking.
 - b) The larynx should rise during swallowing to protect the airway and open the esophageal sphincter. The normal upward movement of the larynx can be detected by placing a finger on the thyroid cartilage when the patient swallows.
- 4) Examination of the neck for thyroid masses or other conditions that may cause obstructive dysphagia.
- 5) The presence of occult blood in the stool may indicate esophagitis or cancer.

Diagnostic Tests

According to the American Dysphagia Network, a Modified Barium Swallow is the “gold standard” of diagnostic tests for the diagnosis of Dysphagia. The Physician Education Course recommends that this test be done by a speech and language pathologist and radiologist working as a team.

Discussion of other diagnostics tests to assist in the diagnosis of dysphagia are beyond the scope of this Clinical Guidance Document.

Referral to a Speech and Language Pathologist

An assessment by a Speech and Language Pathologist may be very helpful to the Primary Care Physician in the diagnosis and treatment of Dysphagia. The Speech and Language Pathologist will also complete a detailed history, evaluate musculature and observe feeding before making the diagnosis of dysphagia.

Once the diagnosis of Dysphagia has been made, the Speech and Language Pathologist will also develop a treatment plan. According to the Physicians Education Course on the American Dysphagia Network, this treatment plan may include the following:

- 1) Modification to the consistency of food by recommendation of a specific diet. Examples of these diets include:
 - a) Thin liquids
 - b) Thick liquids
 - c) Soft foods
- 2) The use of different head positions and swallowing techniques to reduce the risk of aspiration.
- 3) The recommendation of Prosthetic devices.
- 4) Exercises to improve effectiveness of swallowing by:
 - a. Improving range of motion
 - b. Strengthening the muscles of the jaw, cheeks, lips, tongue, soft palate and vocal cords.

Physician Recommendations for Reducing the Risk of Aspiration while Eating

- 1) The physician should be very specific with families or group home staff with regard to the type of diet necessary for the individual with dysphagia. A referral to a nutritionist may be needed.
- 2) If it is recommended that the individual's food be cut into small bites for them, the physician must specify the size of the bite. Under no circumstances should an order for cutting an individual's food into bite-sized portions to be done "PRN" or "as needed." This will significantly decrease the likelihood that the food will be cut appropriately and increase the risk of choking or aspiration.
- 3) The physician should encourage the individual's family, caregivers or group home to avoid "power struggles" over food. Denying an individual a desired food item may result in him or her attempting to covertly take the food item and stuff it quickly into their mouth. "Power Struggles" over food are a fairly common cause of choking episodes for individuals enrolled with the Division.

Suggestions for the Prevention of Aspiration during Hand Feeding

Norma Metheny, R.N., Ph.D., in "Preventing Aspiration in Older Adults with Dysphagia," Issue 20 of *Try This: Best Practices in Nursing Care to Older Adults*, (6) makes the following recommendations to reduce the risk of aspiration if a family member, caregiver or group home staff member is feeding an individual with dysphagia:

- 1) Provide a 30 minute rest period prior to feeding; a rested person is less likely to have difficulty swallowing.
- 2) Sit the person upright in a chair; if confined to bed, elevate the head of the bed to a 90-degree angle.
- 3) Adjust the rate of feeding and the size of bites to the person's tolerance; **avoid rushed or forced feeding.**
- 4) Alternate solid and liquid boluses.
- 5) Vary placement of food in the person's mouth according to the type of deficit. For example, food may be placed on the right side of the mouth if left facial weakness is present.
- 6) Determine the food viscosity that is best tolerated by the individual. For example, some persons swallow thickened liquids more easily than thin liquids.

A recent study by Clave and others (7) showed that increasing food viscosity greatly improved swallowing in neurological patients. **Aspiration was significantly lower when nectar or pudding was swallowed in comparison to when liquids were swallowed.**

- 7) **Minimize the use of sedatives and hypnotics since these agents may impair the cough reflex and swallowing.**

Footnotes

- 1) Logemann et. al., "Diagnosis and Management of Dysphagia in Seniors"
American Dysphagia Network Website, Downloaded 08/15/09 from the Internet:
<http://americandysphagianetwork.org/physician_education_course>
- 2) Spieker, M. "Evaluating Dysphagia" (2000) *American Family Physician*,
Downloaded 07/13/09 from the Internet:
<http://aafp.org/afp/20000615/3639.html>
- 3) Stewart, C. & Hurd, J. "Dysphagia Among Seniors Living Independently in L.A. County: Development of a NEW Self Test" Downloaded 08/15/09 from the Internet:
<http://americandysphagianetwork.org/ASHA_Poster_Self_Test_6/pdf.>
- 4) Turk, M.A., Overeynder, J.C. & Janicki, M.P., Eds. (1995) *Uncertain Future - Aging and Cerebral Palsy: Clinical Concerns*. Albany: New York State Developmental Disabilities Planning Council.
- 5) Gasiorowska, A. & Fass, R. "Current Approach to Dysphagia" *Gastroenterology and Hepatology* (April 2009) Vol. 5, No. 4, pp. 269-279
- 6) Metheny, N., "Preventing Aspiration in Older Adults with Dysphagia" (2007), *Try This: Best Practices in Nursing Care to Older Adults*, Issue 20.
Downloaded 0713/09 from the Internet:
<http://www.nursingcenter.com/prodev/ce_article.asp?tid=771094>
- 7) Clave, P., et al., (2006) "The effect of bolus viscosity on swallowing function in neurogenic dysphagia" *Alimentary Pharmacology & Therapeutics*, 24(9), pp. 1385-94.