

Otolaryngological Evaluation of Dysphagia in Children: Flexible Endoscopic Evaluation of Swallowing (FEES)

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Assessment by an otolaryngologist of patients complaining of dysphagia must be done in an organized and schematic fashion in order to obtain significant information for the good management of these patients. It begins with exhaustive questioning that specifies personal medical history of mother and child since that pregnancy, evolution of conditions, drug use, and any pathologic conditions during gestation. Concerning labor, it is very important to point out the presence of hypoxia during delivery and whether the newborn needed reanimation and/or intubation. How long was lactation and how was suckling: was it strong, did it pause? The precise moment of ablactation and what kind of food did parents feed the child is of interest.

The history should elicit specifics about psychomotor development and presence of any congenital malformations. The examination should report the first time the patient presented a swallowing disorder and should search for stridor or cough at the beginning, during, or after feeding. The consistency of food that is difficult to swallow and duration of the problem should be recorded. The physician should investigate malnutrition, failure to thrive, and recurrent pneumonia.

Once completing this important stage, the examiner should proceed to performing a thorough physical examination of the head and neck before doing an endoscopic procedure, searching for bony narrowing, septal deviations, and tumors. The palatal area, maxillary bone, mandible, and pharynx should be explored. Tonsillar hypertrophy, thyroglossal cysts, cysts of valleculae, and functioning of cranial nerves should be searched for.

Then, an endoscopic evaluation is begun to determine anatomic/structural conditions of the nose, oral cavity, and hypopharynx (**Figure 1**). It is important to avoid using local anesthesia, because sensitivity of the testing is essential during endoscopy. If the patient has been fed through a nasogastric tube, it should be removed four hours before endoscopic testing. Precise descriptions are needed of velopalatine abnormalities and laryngeal dynamics during breathing (elevation, mobility, closure of vocal folds), and of malformations such as posterior laryngeal clefts, paralysis of vocal folds or presence of retained secretions at the base of the tongue, piriform sinuses, posterior cricoid area, and laryngeal vestibule. Penetration of secretions to the level of the vocal cords shows a severe disorder and contraindicates performing flexible endoscopic evaluation of swallowing (FEES).

Figure 1. Endoscopic evaluation

Evaluation of pediatric swallowing should begin with the elicitation of suckling and searching reflexes in a breastfeeding patient. In older children, there should be examination of closure of the lips, position of the tongue, manipulation of food, and movement of buccal muscles and jaws in the oral preparatory phase.

Assessment in FEES requires the passage of a flexible endoscope into the nares and over the velum to a position where it can visualize the epiglottis, base of the tongue, pharyngeal walls, hypopharynx, and larynx during their movements. Then food of various consistencies stained with artificial coloring that allows visualization of their path should be given to the patient to swallow. The FEES is unique for evaluating laryngeal reflexes for protection of the airway and transport of an ingested bolus. Consistencies of tested foods should include liquids (thin and thick fluids) and semisolids and solids given using a baby-bottle, straw, and spoon. This permits evaluation of the patient's handling of quantities of food and helps suggest better ways of administering feedings.

After results are available, the type of dysphagia may be established according to the anatomical region compromised: oropharyngeal dysphagia takes place in the mouth, pharynx, and cervical entrance to the esophagus; it involves the oral preparatory, oral, and pharyngeal phases of swallowing. Esophageal dysphagia affects the esophagus and the esophageal phase of swallowing. Severity of dysphagia is described using the Dysphagia Severity Scale (DSS) as follows. **Level I** demonstrates normal swallowing of all consistencies of food and drink. **Level II** demonstrates functional swallowing that may be abnormal or altered but does not result in aspiration or reduced efficiency of deglutition. **Level III:** In mild oropharyngeal dysphagia, a swallowing disorder is present, and speech therapists are needed to provide specific orientations.

Level IV: In mild to moderate dysphagia there is risk of aspiration, but risk can be reduced using therapeutic maneuvers and techniques. There may be signs of aspiration of one consistency of food. **Level V:** In moderate oropharyngeal dysphagia there is significant risk of aspiration of foods of two consistencies. Oral feeding must be supplemented by foods given by an alternative route. **Level VI:**

In moderate to severe oropharyngeal dysphagia, food of only one consistency can be tolerated and maximal care must be used in choosing feeding strategies. If the pulmonary condition of the patient is affected, it is necessary to withdraw oral feeding. **Level VII** describes severe oropharyngeal dysphagia, where the patient has no possibility of using oral feeding. Silent aspiration of foods of two or more consistencies is observed, and there are bronchospasms.

Faced with these results the treatment process focuses initially on safety in swallowing, prevention of aspiration, proper transit of the bolus, and the enjoyment of food, if permitted. The conclusions and recommendations of several specialists such as nutritionists may be referred to. Proper nutrition can be achieved through oral or non-oral diets or using a combination of the two so that the patient receives proper nourishment in the amount of calories and the content of calories with the best-tolerated consistency. A gastroenterologist may be helpful in evaluation and management of esophageal pathologic conditions including gastroesophageal reflux, presented frequently in these patients. A speech pathologist may assist with techniques for compensatory and rehabilitative swallowing. A pediatric surgeon will be needed to place an oral feeding tube or to perform corrective surgery for reflux.

Finally, the role of the otolaryngologist may be summarized as like that of an orchestral director who will give essential information and specific directions to specialists involved in managing pediatric patients with swallowing disorders. The objective is to establish an accurate, safe, organized, and diligent therapeutic program to benefit not only the patient but also their family and caregivers, bringing them a better quality of life.

Recommended readings

1. Darrow D, Harley Ch, Valoración de los trastornos de la deglución en niños. En: Clínicas Otorrinolaringológicas de Norteamérica. Disfagia en niños, adultos y ancianos. México. Vol 3/1998. : 373-385.
2. Murry T, Carrau R. Clinical Management of Swallowing Disorders. 2nd edition. San Diego.2006 : 97- 136.
3. Moyano H. Estudio dinámico de la succión-deglución. En: Problemática de la Deglución en Niños. Paraná. Chile.1998 : 39-58.
4. Padovani AR, Moraes DP, Mangili LD, Andrade CRF. Protocolo fonoaudiológico de avaliação do risco para disfagia (PARD). Rev Soc Bras Fonoaudiol. 2007; 12(3):199-205