Oropharyngeal dysphagia, an underestimated disorder in pediatrics

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ABSTRACT

Oropharyngeal dysphagia is a rather frequent clinical entity in patients with neurological problems that can lead to serious complications such as aspiration pneumonia and other disorders like dehydration or malnutrition due to feeding difficulties. It should be suspected in children with splitting of food intake or prolonged feeding, coughing or choking during feeding, continuous drooling or repeated respiratory symptoms. For the diagnosis, apart from the examination of swallowing, additional tests can be run like the water-swallowing test, the viscosity-volume test (which determines what kind of texture and how much volume the patient is able to tolerate), a fiberoptic endoscopy of swallowing or a videofluoroscopic swallow study, which is the gold standard for the study of swallowing disorders.

It requires a multidisciplinary approach to guarantee an adequate intake of fluids and nutrients with minimal risk of aspiration. If these two conditions cannot be met, a gastrostomy feeding may be necessary.


INTRODUCTION

Swallowing occurs along three phases—oral, pharyngeal, and esophageal. Oropharyngeal dysphagia involves the initial two phases and is rather common in patients with neurological impairment (1). Despite this, the condition is usually underestimated in the pediatric setting, and may result in serious complications such as dehydration, malnutrition, and respiratory disorders. An appropriate patient assessment should allow confirmation of this diagnosis and the development of an adequate treatment plan on an individual basis (2,3).

CASE REPORT

We report the case of a 7-year 10-month-old child with a history of mitochondrial cytopathy (respiratory chain complex I-III-IV deficiency) on vitamins B1 and B6, carnitine, coenzyme Q, clobazam, and phenobarbital. The patient was referred for assessment to the Pediatric Gastroenterology and Nutrition clinic because of choking episodes while eating and several admissions for pneumonia. During history taking the patient’s parents reported they were feeding their son with purées, but then he had cough bouts and raspiness on swallowing. Upon physical examination the patient was in good general condition with no signs of dehydration or malnutrition, and exhibited age- and gender-appropriate anthropometric percentiles. Abnormal findings included generalized hypotonia, phonoarticulatory and swallowing apraxia, and oral hypotonia with drooling. The exam yielded no other findings.

ula, pharynx, and pyriform sinuses (subsequently passing into the esophagus under the effect of gravity). With 5 cc of pudding (thicker texture) there was penetration without cough reflex; fractionated swallowing with pooling in the vallecula, pharynx, and pyriform sinuses; delayed progression into the esophagus, and deficient upper esophageal sphincter opening.

Given his underlying neurological disorder, the patient also underwent high-resolution manometry (Fig. 2) to assess esophageal motility. This test resulted in findings suggestive of hypertensive upper esophageal sphincter with poor pharyngeal pumping and normal peristaltic waves alternating with very low amplitude contractions. Resting pressure in the esophageal body was normal whereas that in the lower esophageal sphincter was on the lower limit of normal.

The patient was diagnosed with oropharyngeal dysphagia of neurogenic etiology and a multidisciplinary approach was established. A liquid thickener was prescribed together with a hypercaloric diet with nectar texture in small volumes, which had been seen to provide the lowest aspiration risk during swallowing tests. General measures were recommended, including avoidance of dual textures and appropriate posturing at meals (upright trunk, symmetric shoulders, slightly flexed head), and the patient was also referred to logopedia for swallowing rehabilitation exercises.

The outcome was favorable in subsequent years; he has mild choking episodes but no admissions for aspiration pneumonia and no other complications such as dehydration or malnutrition, hence no gastrostomy has been considered.

**DISCUSSION**

The impairment of the oral and pharyngeal stages of deglutition (oropharyngeal dysphagia) may entail serious complications, including aspiration pneumonia and disorders such as dehydration and malnutrition because of difficulties with food. Identifying children at risk for dysphagia, performing the appropriate tests, and setting up a multidisciplinary management plan is of great importance (4).

Oropharyngeal dysphagia should be suspected in children with splitting of prolonged ingestions and food-associated cough or choking, ongoing drooling, or repeated respiratory manifestations (5). It is a lot more common in preterm newborns and children with underlying neurological disorders (6), with some series showing a prevalence of 85 % in patients with cerebral palsy (7).

When clinically suspected the strength and resistance of the tongue and maxillaries, the palatoglossal seal, and the palatal reflex. Examining deglutition is also important; a water test may reveal signs suggestive of oropharyngeal
dysphagia such as drooling, cough, dysphonia, or fractioned swallowing (8). The volume-viscosity swallow test includes the progressive administration of various textures (nectar, honey, pudding) in growing volumes (5, 10, 20 ml) according to swallowing efficacy and safety (9). This testing may be performed with pulse oximetry to assess potential desaturations (over 5%) as indirect evidence of aspiration.

Fiberoptic endoscopic assessment of swallowing (FEES) is useful to visualize deglutition dynamics, bolus penetration, pharyngeal residue, and the efficacy of airway protection mechanisms. Video-fluoroscopy is considered the gold standard, but is available only in few centers and requires brevity to avoid excessive radiation exposure to the thyroid gland (10). It consists of a dynamic study of deglutition (which includes the oral phase as opposed to FEES) by administering a bolus marked with a water-soluble contrast medium (11). In addition to confirming the diagnosis of dysphagia, the test can also detect silent aspiration, a common occurrence in neurologic patients that is easily overlooked given that no symptoms or desaturations result (12,13). In a recent study, high-resolution manometry combined with impedance was also considered a useful technique for the assessment of aspiration risk in patients with oropharyngeal dysphagia (14).

In the pediatric setting, this disorder requires a multidisciplinary management to ensure the child is receiving an adequate provision of oral liquids and nutrients while keeping aspiration risk at a minimum. Should the patient be unable to orally ingest enough calories for adequate growth and development in a safe, aspiration-free manner, gastrostomy may be the treatment of choice (4,15).

To conclude, early dysphagia identification should be based on the data obtained from the patient’s medical history and the findings of swallow testing with either the water test or the volume-viscosity test, with subsequent confirmation by diagnostic methods such as fiberoptic endoscopy or video-fluoroscopy. Following these tests food ingestion should be adjusted to provide water and nutritional requirements while avoiding aspiration risks into the airway. Gastrostomy must be considered when these goals are unmet.

REFERENCES