



# Clinical screening of oropharyngeal dysphagia: standard of care

*To the Editor:*

We read with interest the paper by VERIN *et al.* [1] related to oropharyngeal dysphagia and its importance in institutionalised neurological and head and neck patients, between others. Furthermore, this is a very common problem in the critical and intermediate care settings, and a similar situation occurs with other acute neurological diseases, such as amyotrophic lateral sclerosis, cerebral trauma, post-neurosurgical procedures and toxic metabolic encephalopathies [2, 3]. The authors emphasised the necessity of identifying risks factors for aspiration early and suggested that clinical screening methods are needed to recognise patients with oropharyngeal dysphagia. However, swallowing clinical screening performed by speech therapists and nurses is a standard of care in critical care units. This concept is particularly relevant, considering that in stroke patients, the prognosis is closely related to the medical complications, and aspiration is responsible for >50% of these and increases mortality for up to 33% at 6 months. Even more, after the acute phase of a stroke, swallowing dysfunction has a recovery capacity of 87% at 6 months [4–6].

Video fluoroscopy, as mentioned by the authors, is the gold standard to demonstrate aspiration. However, is also useful in evaluating tongue movement, velopalatal closing, laryngeal elevation, epiglottic closing and the tone of the cricopharyngeal sphincter. Nevertheless, in acute neurological patients, the interpretation of video fluoroscopy is controversial, and results may not be reliable due to the frequent difficulty of patients to comprehend and collaborate during the test. This may be due to altered consciousness, drugs, and inability to sit and perform an adequate swallowing. Nasolaryngoscopy is a more readily available tool and has been considered the main exam for bedside evaluation. Some evidence suggests performing clinical screening and a nasolaryngoscopy as the first steps for bedside evaluation. Endoscopic criteria of aspiration are flooding of the hypopharynx, flooding of the epiglottic vallecula and piriform pouches, or direct observation of aspiration of secretions or coloured jelly through the glottis [2, 4, 6, 7].

Clinical clues of swallowing deficit can be suspected depending on the affected area of the nervous system. In left cerebral hemisphere disease, patients commonly present with apraxia and deterioration of the oral phase of feeding. In right cerebral hemisphere injuries, patients commonly present with pharyngeal phase alteration with a high risk of aspiration. In stem lesions, severe involvement of the pharyngeal phase is characteristic [5, 6]. In Parkinson's disease, hypertonia of the cricopharyngeal sphincter is common, and in amyotrophic lateral sclerosis, dysphagia is the rule.

A series of simple and cost-effective clinical evaluations are regularly performed by speech therapists, helping to detect patients with a risk of aspiration [6–8] and reduce erroneous decisions regarding initiation of feeds. Common clinical monitoring of aspiration consists of clinical examination of the neck, cranial nerves, laryngeal elevation, velopalatal movement, gag reflex, characteristics of phonation and cough with swallowing [6–8], the three-ounce water test [9], and cervical auscultation [10].

The three-ounce water test is a well-known and useful bedside screening tool [9] with a sensitivity of 84.6–88.23% and negative predictive value of 81.8–93.75% [8, 9]. In patients with stroke, the use of diverse clinical indicators and endoscopic observation of aspiration has a sensitivity of 86% and a negative predictive value of 73% [7]. In other series, the association of two abnormal variables indicates a high risk of aspiration: association of wet voice and noisy cervical auscultation has shown a sensitivity of 76.92%, a negative predictive value of 89.65% and a negative likelihood ratio of 0.24. The association of the three-ounce swallowing test and wet voice, with a sensitivity of 90%, a negative predictive value of 95.65% and a negative likelihood ratio of 0.11, practically exclude dysphagia.



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**The three-ounce water test is a well-known and useful bedside screening tool for oropharyngeal dysphagia** <http://ow.ly/9Krl30cW2HJ>

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The rationale in performing screening of oropharyngeal dysphagia is, of course, to protect the airway from aspiration, to reduce the incidence of pneumonia and to define procedures that guarantee a comprehensive nutrition. This clinical screening has an elevated sensitivity and negative predictive value. Clinical and nasolaryngoscopic screening of oropharyngeal dysphagia have also been useful for the critical care team to decide on endoscopic or percutaneous gastrostomy and percutaneous tracheotomy, particularly in patients with a low probability of recovering in the first month after a stroke. It is also useful to make a decision as to whether to suspend oral feeding and indicate rehabilitation by speech therapists [5–7, 9]. This evaluation is usually performed by a multidisciplinary team of pulmonary and ear, nose and throat specialists, together with speech therapists and nurses.

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### From the author:

We were very interested in the comments made by I. Caviedes and co-workers regarding our paper entitled “Oropharyngeal dysphagia: when swallowing disorders meet respiratory diseases” [1].

Nevertheless, regarding hemispheric stroke patients, it must be kept in mind that it is very difficult to predict oropharyngeal dysphagia with the location of the stroke because of the multiple cerebral locations involved in deglutition in health and disease [2]. For example, the dominant hemisphere for swallowing could not be predicted in healthy subjects [3], and it has been demonstrated that when this dominant hemisphere is affected by stroke, the patient should have post stroke dysphagia [4] and is a candidate for aspiration pneumonia [5]. In brainstem stroke, the dysphagia is very severe and those patients are often



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candidates for gastrostomy. Treatment strategy is very poor, and we recently demonstrated that coupling rTMS and surgery could become an interesting option [6].

Because of the high prevalence of oropharyngeal dysphagia in stroke, it is very important to have a systematic attitude. Bedside screening is systematic, and different tests exist. The most often used is the three-ounce test, because it has a high sensitivity and specificity [7]. Nevertheless, it has some imperfections. The first one is not to detect silent aspirations, which are frequent; the second one is that it doesn't test different consistencies to adapt food; and the third one is that it has been validated only in stroke. That explains why the European Society of Swallowing Disorders ([www.myessd.org](http://www.myessd.org)) developed a new screening test based on viscosity and volume consistency [8]. Its advantages are detection of aspirations and silent aspirations with the use of an oximeter, and also detection of default in bolus propulsion in the pharynx. It has been validated against videofluoroscopy and in different populations, especially in old people [9] and in patients with amyotrophic lateral sclerosis [10].

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