

Algorithm for Dysphagia Screening

Subjects: **Clinical Neurology**

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Dysphagia is often unrecognized because many people are unfamiliar with symptoms and signs of dysphagia besides choking during swallowing. Dysphagia screening is therefore important. A good screening should be a quick process and minimally invasive but can determine the likelihood of dysphagia. Here, an algorithm for dysphagia screening is introduced. The algorithm can be used for people unspecialized in dysphagia.

Dysphagia Screening Algorithm

1. Introduction

Dysphagia, or difficulty swallowing, may result in acute asphyxia (airway obstruction) [1], aspiration pneumonia, dehydration, and malnutrition [2]. Dysphagia has been reported in 8.1-80 % of stroke patients, 11-81 % of Parkinson's disease, and 91.7 % of patients with community-acquired pneumonia [3]. The prevalence of difficulty swallowing in the community-dwelling elderly may be up to 72% [2]. However, dysphagia is often unrecognized because many people are unfamiliar with symptoms and signs of dysphagia (Figure 1) besides choking during swallowing. For nonprofessionals, many of these symptoms and signs are not easily recognized to be associated with dysphagia. Dysphagia screening is therefore important.

Signs and symptoms of dysphagia

- Coughing or choking with swallowing
- Difficulty initiating swallowing
- Food sticking in the throat
- Drooling
- Inability to maintain lip closure, leading to food and/or liquids leaking from the oral cavity
- Unexplained weight loss
- Change in dietary habits
- Recurring aspiration pneumonia/respiratory infection and/or fever
- Change in voice or speech (wet voice)
- Nasal regurgitation/food and/or liquids leaking from the nasal cavity
- Extra effort or time needed to chew or swallow
- Weight loss or dehydration from not being able to eat enough
- Sensation of food sticking in the chest or throat
- Oral or pharyngeal regurgitation
- Change in dietary habits
- Recurrent pneumonia

https://www.asha.org/PRPSpecificTopic.aspx?folderid=8589942550§ion=Signs_and_Symptoms
<https://emedicine.medscape.com/article/2212409>

Figure 1. Signs and symptoms of dysphagia

2. Influence and application

A good screening should be a quick process and minimally invasive but can determine the likelihood of dysphagia [4]. Here, an algorithm for dysphagia screening is introduced (Figure 2). The algorithm can be used for people unspecialized in dysphagia, e.g., public health practitioners, nurses, or family physicians who have not received the specific training of diagnosing and treating swallowing disorders.

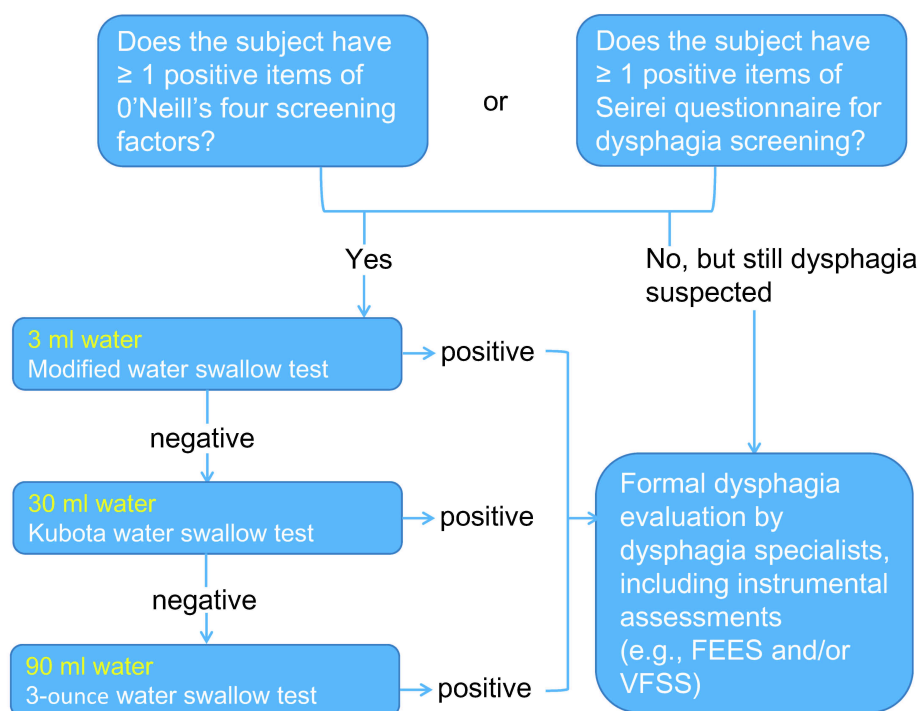


Figure 2. Algorithm for dysphagia screening

This algorithm is a battery of tests applied to screen dysphagia. Each of these tests is simple to learn and use, does not need professional equipment, and does not take much time to perform.

The algorithm includes an initial evaluation of the likelihood of dysphagia including several screening factors introduced by O'Neill [5] and the Ohkuma Questionnaire [6][7][8] (Figure 3), and then several sequential water swallow tests including the Modified water swallow test (3 ml), Kubota water swallowing test (30 ml), and 3-ounce water swallow test (approximate 90 ml) [9][10]. Tests with increased volumes of water become more challenging to swallowing ability and therefore are more sensitive. For example, a subject with mild dysphagia may pass the 3 ml water swallow test but fail in the 3-ounce water swallow test.

The most useful factors pointing towards high risks of aspiration include: (1) any disturbance of conscious level; (2) wet voice; (3) weak voluntary cough; (4) cough on drinking small volumes of water; and (5) a timed water

swallowing test ^[5].

For each of the water swallowing tests (3 ml, 30 ml, and 90 ml), failed to swallow with choking, changes in breathing, presenting post-swallow wet-hoarse voice, holding water in the mouth while drinking, water coming out of the mouth, and throat clearing during or shortly after drinking are positive findings. The 3 ml water swallowing test should be repeated 3 times if the examinee does not demonstrate abnormal signs, and the worst assessment is used as the final result. The 30 ml water swallowing test or 3-ounce water swallow test is performed only once. It is considered abnormal if a subject cannot complete drinking 30 ml water at normal temperature from a cup within 5 s or cannot drink 3-ounce water from a cup without interruption ^{[9][10]}.

Positive findings indicate the necessity for a formal dysphagia evaluation including a flexible endoscopic evaluation of swallowing (FEES) and/or videofluorographic swallowing study (VFSS). FEES and VFSS are considered gold-standard procedures to diagnose dysphagia ^[11].

摂食・嚥下障害質問紙 (Japanese version: 大熊るり, 藤島一郎 et al)

Seirei 吞咽障碍筛查问卷 (中文版: 魏鹏绪, 唐志明, 窦祖林 译)

Seirei questionnaire for dysphagia screening (for interpretation)

あなたの嚥下（飲み込み、食べ物を口から食べて胃まで運ぶこと）の状態についていくつかの質問をいたします。ここ2, 3年のことについてお答え下さい。

いずれも大切な症状ですので、よく読んでA, B, Cのいずれかに丸をつけて下さい。

此问卷调查与您吞咽功能状态有关的一些问题（吞咽，是指吃东西时食物从嘴到胃的运送过程）。请按照最近 2~3 年的表现回答。下面都是重要的问题。请仔细阅读后，在 A、B、C 中选择最符合的一项。

This questionnaire includes questions on your swallowing status. Please answer based on your condition during recent 2 to 3 years. All items are important. Thus, please mark the most appropriate option from A, B, or C after reading carefully.

编号	問題	A. (严重 / serious)	B. (轻中度 / mild or moderate)	C. (无 /no)
1	肺炎と診断されたことがありますか？ 是否被诊断过肺炎？ Have you ever been diagnosed as having pneumonia?	繰り返す 多次 Repeatedly	一度だけ 仅 1 次 Once	なし 没有 No
2	やせてきましたか？ 变瘦了吗？ Have you become thin?	明らかに 明显 Obviously	わずかに 有一点 Slightly	なし 没有 No
3	物が飲み込みにくいと感ずることがありますか？ 咽东西时有感到困难的情况吗？ Do you feel difficulty when swallowing something?	しばしば 经常 Many times	ときどき 有时候 Sometimes	なし 没有 No
4	食事中にむせることがありますか？ 吃饭的时候有呛咳的情况吗？ Do you ever choke during a meal?	しばしば 经常 Many times	ときどき 有时候 Sometimes	なし 没有 No
5	お茶を飲むときにむせることがありますか？ 喝茶[或喝水]的时候有呛咳的情况吗？ Do you ever choke when swallowing tea or water?	しばしば 经常 Many times	ときどき 有时候 Sometimes	なし 没有 No
6	食事中や食後、それ以外の時にのどがゴロゴロ（痰がからんだ感じ）することがありますか？ 在吃饭时或吃完饭后、或者在其他时间，喉咙（嗓子）有咕噜咕噜响（像有痰的感觉）的情况吗？ Do you ever have bubbling sounds in the throat (feeling like phlegm) during or after a meal, or at other times?	しばしば 经常 Many times	ときどき 有时候 Sometimes	なし 没有 No
7	のどに食べ物が残る感じがすることがありますか？ 感觉食物残留在喉咙（嗓子）里，有这种情况吗？ Do you ever feel residue food left in the throat?	しばしば 经常 Many times	ときどき 有时候 Sometimes	なし 没有 No

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