

## Using Cervical Auscultation in the Clinical Dysphagia Examination in Long-Term Care

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**Abstract.** The ability of the clinical dysphagia examination to identify patients who aspirate and to determine specialized diet management has been suspect. In long-term care, however, the clinical examination can be the only assessment procedure available to clinicians. Cervical auscultation with stethoscope was incorporated into the clinical examination for dysphagia in an attempt to enhance the clinical examination's ability to detect aspiration and to determine specialized diet management in long-term care. Comparison of the clinical examination's results with results from videofluoroscopy revealed significant agreement in both areas. Results support the use of cervical auscultation as a highly sensitive and specific method of dysphagia assessment in long-term care.

**Key words:** Dysphagia, evaluation — Auscultation — Long-term care — Deglutition — Deglutition disorders.

Clinicians who work in long-term care settings rely heavily on the clinical dysphagia examination because instrumented examination procedures such as videofluoroscopy, endoscopy, and manometry are difficult to obtain. The research literature, however, does not support the confident use of the clinical examination as a method of detecting aspiration or planning diet and management modalities. Neither individual clinical examination components [1] nor the judgment of clinicians after the examination [2,3] have correlated well with the presence of aspiration on videofluoroscopy. In an attempt to improve the clinical examination technique, Zerilli et al. [4] added

laryngeal palpation to the examination but did not define risks of oral feeding when compared with videofluoroscopy results.

The clinical evaluation of oral-pharyngeal dysphagia uses methods to estimate the integrity of the pharyngeal phase, specifically to detect tracheal aspiration. Methods used to assess the pharyngeal phase of swallowing include visual observation of laryngeal movement [5], observation of coughing behavior [5], palpation of laryngeal movement [4,6], and cervical auscultation [7]. Cervical auscultation is a general term that describes several techniques, each yielding different acoustic information. Auscultation with an accelerometer transduces surface body movement to an acoustic signal. Sonography with Doppler, not generally associated with cervical auscultation, detects movement of fluid through the oropharynx. Auscultation with a laryngeal microphone provides a broader spectrum sound of muscle and fluid movement and breath exchange whereas a stethoscope narrows the spectral range of sound for enhanced detection of low frequency breath sounds. The frequency response characteristics of stethoscopes can vary among models but generally provide adequate transmission of sound frequencies up to 1,000 Hz [8-10].

Acoustic analyses of the pharyngeal swallow have focused on either the mechanical or respiratory components using different auscultation methods. Attempts have been made to correlate the mechanical sounds heard with an accelerometer with specific physiological events during the pharyngeal swallow [11,12]. Respiratory patterns surrounding normal and abnormal swallowing have been studied with contact microphones. These studies have found that, with the normal adult, respiratory apnea occurs during pharyngeal swallows, usually during the expiratory phase of breathing. Expiration usually follows the swallow apnea, and the length of

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