Dysphagia in the Older Patient

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KEYWORDS

• Geriatric • Dysphagia • Older • Presbyphagia • Management • Aging

KEY POINTS

- Dysphagia is an important health concern for elderly populations, intrinsically related to the physiology of aging.
- Dysphagia in the elderly can be misconstrued as a normal part of aging both by physicians and the patients themselves, hence, remaining undetected.
- Dysphagia requires a multidisciplinary approach with involvement of primary care physicians, geriatricians, otolaryngologists, neurologists, gastroenterologists, speech language pathologists, occupational therapists, and nutritionists.

INTRODUCTION

It is estimated that by the year 2050, people aged 65 years or older will account for 25% of the population in developed countries.[1,2] As an overall increase in longevity over the past 50 years is being reported, there is an imminent need to understand changes in physiology with aging and the unique challenges this population faces.[1,3] Dysphagia is an important health concern for elderly populations, intrinsically related to the physiology of aging. A cause of malnutrition, dehydration, aspiration pneumonia, and even asphyxiation, dysphagia affects 7% to 13% of those aged 65 years or older.[1] Particularly vulnerable to dysphagia are individuals afflicted with cognitive dementia or Parkinsonism or those residing in assisted-living facilities; up to 50% of the latter group experiences swallowing difficulties.[1] It is crucial to recognize that dysphagia significantly impacts quality of life, with social and psychological consequences.[4] Often times, dysphagia in the elderly can be misconstrued as a normal part aging both by physicians and the patients themselves, hence remaining undetected. Moreover, the workup of dysphagia can be difficult, as it requires a multidisciplinary approach with involvement of primary care physicians, geriatricians, otolaryngologists, neurologists, gastroenterologists, speech language pathologists, occupational therapists and nutritionists. With dire consequences and mortality, all elderly patients should be assessed for swallowing impairment. This article aims to

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arm the geriatrician and otolaryngologist with the necessary tools in the workup of dysphagia.

Changes in the Physiology of Swallowing with Aging

Dysphagia occurs to some extent in most older adults, usually beginning at 45 years of age.[3] This process, known as presbyphagia, is the result of multiple factors: age-related changes in head and neck anatomy as well as changes in the neural and physiologic mechanisms that control swallowing. Additionally, the prevalence of diseases increase with aging, and dysphagia is a common cofinding of many disease processes or their treatments.

The process of deglutition involves both voluntary and involuntary muscles. Controlled by 6 cranial nerves and about 40 bilaterally innervated muscles, which control the upper digestive tract, swallowing can be divided into 4 distinct phases. These include the oral preparatory, oral transport, pharyngeal, and esophageal phases. Several physiologic changes associated with aging impact these processes, including loss of muscle mass and function, decreased tissue elasticity, cervical spine changes, decreased saliva production, and reduced compensatory capacity of the brain.[2] Holistically, aging slows deglutition and *reduces its efficiency*.

The tongue is the driving force for the initiation of deglutition in normal individuals. The anterior tongue is mostly used for forming a food bolus and, thus, is composed of type II fast-twitch muscle fibers, whereas the posterior tongue is involved in involuntary movements such as propulsion of the food bolus; therefore, it is composed of type I slow-twitch fibers. As we age, *sarcopenia* causes the fibers of lingual musculature to decrease in size and strength.[2] Robbins and colleagues[5] in multiple studies, demonstrated increased lingual isometric pressures and decreased swallow pressures with aging. Additionally, they discovered that swallow pressure reserve and maximum lingual pressures decrease in older adults as compared with those younger than 60 years. They proposed *sarcopenia* as the reason for the impairment of pressure production. Given the role that the tongue plays in swallowing, this is likely one of the important factors that contribute to the increased prevalence of dysphagia in older persons. Tongue strengthening exercises, such as tongue pressing effortful swallow developed by Park and colleagues,[6] have been shown to help healthy older adults increase their maximum tongue pressure, alleviating dysphagia.

Pharyngeal phase changes typically manifest as a delay in initiation of the pharyngeal phase and a delay in laryngeal vestibule closure. These delays put the elderly at a higher risk for aspiration and its consequences. Also contributing to the increased aspiration risk is deterioration of the pharyngoglottal closure reflex. In healthy individuals, this reflex induces adduction of the vocal folds, thereby preventing aspiration if premature spillage of oral content occurs. In individuals with presbyphagia, this reflex is impaired.[7]

In typical elderly individuals, the prevalence of aspiration and penetration remains to be elucidated, as there are conflicting reports, ranging from 0% to 15%.[7] A well-known risk factor is pooling in the pyriform sinuses and resultant overflow into the laryngeal vestibule.

Upper esophageal sphincter (UES) dysfunction can also contribute to postwallow residues. Indeed, esophageal manometry studies on healthy individuals older than 40 years show increased esophageal stiffness and reduced primary and secondary peristaltic pressures.[8] Additionally, Logemann and colleagues[9] demonstrated that younger adults are able to continue the anterior motion of the hyoid bone and move