

Voice Disorders in the Elderly



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KEYWORDS

- Presbyphonia • Vocal atrophy • Physiology of aging voice • Acoustics of aging voice
- Quality of life • Voice therapy • Vocal exercise • Singing

KEY POINTS

- Dysphonia in the elderly is a common and likely underreported symptom.
- There are key anatomic and physiologic changes contributing to the aging voice.
- Singing largely prevents or mitigates changes associated with the aging voice.
- Vocal exercises are of proven benefit in presbyphonia
- Surgical options such as vocal fold injection augmentation and thyroplasty may offer additional improvement.

INTRODUCTION

As the number of individuals aged 65 and older increases, it is not surprising to note an increase in the number of older patients seeking consultations for dysphonia. The reported incidence of vocal complaints in the geriatric population is somewhere between 12% and 35%.^{1,2} In developed countries, older individuals comprise an increasing proportion of the workforce. Twenty to 35% of geriatric patients (Kost K, Yammine N. Dysphonia in the elderly: findings from the McGill Voice Laboratory; unpublished data, 2012)³ use their voices for work, suggesting that vocal health is a high priority within this subgroup of older patients. In all geriatric patients, dysphonia negatively impacts quality of life. Often, it also significantly impairs the ability to communicate effectively with hearing-impaired spouses, family, and friends. Indeed, dysphonia

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and hearing loss frequently coexist in the elderly; those with hearing loss are more likely to have dysphonia than their counterparts without hearing loss.⁴ Consequently, dysphonic seniors may suffer from social isolation, anxiety, and depression, indicating a need to address both dysphonia and hearing loss when treating these patients.^{2,5}

Presbyphonia should not be diagnosed until all other possibilities have been considered and eliminated. It may also coexist with other vocal diagnoses, including benign vocal fold lesions (polyps, nodules, cysts, papillomas), chronic inflammatory laryngitis (reflux-related conditions, autoimmune disorders, medication-induced conditions), acute inflammatory laryngitis (viral, fungal, and bacterial), muscle tension disorders, neurologic disorders (essential tremor, Parkinson's, poststroke, spasmodic dysphonia, amyotrophic lateral sclerosis), vocal malignancies, vocal fold immobility (from mechanical or neurologic causes), and vocal fold paresis of the superior or recurrent laryngeal nerve. Vocal fold atrophy is unusual in younger patients except in the setting of muscle wasting diseases, paresis and paralysis, or extreme weight loss. Despite the high prevalence of dysphonia in the elderly, there are relatively few published studies on the subject. This may be because of the complexity of the subject; the severity of dysphonia in the geriatric patient is a function of not only the primary vocal diagnosis, but also several other factors including the functional status of the patient, coexisting morbidities, pulmonary reserve, medications, and cognitive function.

In a retrospective review of 175 elderly patients seen in a tertiary care laryngology practice in Philadelphia, the most common complaints were hoarseness in 71%, inability to project the voice or decreased volume in 45%, excessive throat clearing and phlegm in 43%, vocal fatigue in 37%, cough in 23%, and breathiness in 22%.⁶ Less common complaints included raspiness, pitch breaks, loss of range, globus sensation, tremor, and dysphagia. Many patients had more than 1 complaint. The most commonly identified diagnoses, which frequently coexisted with other conditions such as presbylarynx, included laryngopharyngeal reflux, muscle tension dysphonia, paresis (diagnosed clinically and with electromyography in many cases), vocal fold mass, glottic insufficiency, and varicosities and ectasias. As a result of their dysphonia, more than 50% of patients in this study reported a significant impairment in their quality of life, with potentially serious psychosocial implications.⁶

ANATOMY AND PHYSIOLOGY

With advancing age, the respiratory system undergoes marked anatomic and physiologic changes, with a net decrease or undermining of the power source of the voice.⁷⁻¹¹ The larynx itself also undergoes extensive anatomic and physiologic change during adulthood,¹² as summarized in previous literature.¹³ Changes in the larynx from young adulthood to old age are generally more extensive in men than in women, with the possible exception of muscle atrophy, about which there is little information on gender differences.¹² The nature of age-related changes in the epithelium of the vocal folds has been in dispute. Several investigators report thickening; others have found no evidence of change with aging.

Microscopic changes noted in the superficial layer of the lamina propria have been documented, including thickening or edema of the superficial layer, degeneration or atrophy of elastic fibers, and decreases in the number of myofibrils.^{14,15} Histologic examination of aged human vocal folds has shown a decrease in the total number of cells, a decrease in the intracellular organelles responsible for protein synthesis, and reduced production of extracellular matrix from these cells. The overall result is that the superficial layer of the lamina propria increases in thickness and is more

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