

surrogate (where trismus is suspected in any patient who cannot place 3 vertically stacked fingers between the incisors).

Trismus is a common complication of the treatment of HNC especially in patients with oral and oropharyngeal cancers and has a deleterious impact on QoL in this population.⁵⁹ Patients with trismus may have difficulty with eating, speaking, maintaining oral hygiene, being examined for cancer recurrence, engaging in oral intimacy, and a variety of other important aspects of daily life. One study found the incidence of trismus for multiple types of HNC was 9% pretreatment and 28% 1-year posttreatment when defined as ≤ 35 mm.⁶⁰ The highest prevalence of trismus (38%) was observed 6 months after treatment. Patients with tonsillar tumors were most likely to develop trismus.⁶⁰ Another study demonstrated that about half of patients who underwent primary treatment for oral or oropharyngeal cancer developed trismus (MID < 35 mm) and reported problems opening the mouth, dental occlusion, problems eating and/or drinking, dry mouth, voice problems, or speech problems.⁶¹ Trismus in patients treated for oral and oropharyngeal cancer is strongly associated with clinical T-classification (tumor in situ [Tis]/T1-T2, 35 mm; T3-T4, 24 mm), RT (no, 30 mm; yes, 27 mm), and type of primary surgery (primary closure, 38 mm; soft tissue flaps, 30 mm; composite flaps, 24 mm).⁶²

Physical therapy is often primary treatment for trismus; however, trismus because of HNC is difficult to treat with physical therapy alone.⁶³ A combination of physical therapy and stretching with a jaw motion rehabilitation appliance has been shown to slow progression of trismus in patients with nasopharyngeal carcinoma after RT.⁶⁴ Other splinting devices have also shown promise in reducing trismus.⁴⁴

Nerve-stabilizing agents, such as pregabalin, gabapentin, and duloxetine, may be helpful in treating neuropathic pain and spasm associated with radiation-induced trismus. Gabapentin demonstrated benefit in an RCT, and pentoxifyline improved jaw opening by 4.5 mm in a non-RCT,⁶⁵ although pain was not an outcome measure in that study. BTX-A showed benefit in reducing pain, but not in improving jaw opening,⁶⁶ as an adjunctive treatment for select neuromuscular and musculoskeletal complications of radiation fibrosis syndrome related to cancer treatment, including trismus, in a small retrospective case series.³⁸ Referral to a rehabilitation specialist for medication management or botulinum toxin injection may be helpful.

Physical Effects: General

Dysphagia/aspiration/stricture

Recommendation 3.6. It is recommended that primary care clinicians: a) should refer HNC survivors presenting with complaints of dysphagia, postprandial cough, unexplained

weight loss, and/or pneumonia to an experienced speech-language pathologist for instrumental evaluation of swallowing function to assess and manage dysphagia and possible aspiration (LOE = IIA); b) should recognize potential for psychosocial barriers to swallowing recovery and refer HNC survivors to an appropriate clinician if barriers are present (LOE = IIA); c) should refer to a speech-language pathologist for videofluoroscopy as the first-line test for HNC survivors with suspected stricture because of the high degree of coexisting physiologic dysphagia (LOE = IIA); and d) should refer HNC survivors with stricture to a gastroenterologist or HN surgeon for esophageal dilation (LOE = IIA).

Clinical interpretation. Persistent or chronic dysphagia in HNC survivorship is a challenging clinical problem. The type, severity, and risk of dysphagia vary, depending on the site of HNC and the treatment regimen. Chronic dysphagia is relatively infrequent in patients who were treated with small-field radiation or single-modality surgery for early stage (T1-T2 N0) HNC but is frequently encountered after multimodality treatment for advanced-stage HNC. Even in modern practice with highly conformal RT (eg, intensity-modulated RT [IMRT]) and less invasive surgical techniques (eg, transoral surgery), it is estimated that almost half of patients treated with multimodality therapy for locoregionally advanced-stage disease suffer some degree of chronic dysphagia.⁶⁷ Psychosocial factors, such as depression, cognitive impairment, and lack of caregiver support, and sensory changes, such as altered taste or mucosal pain, may also interfere with oral intake in HNC survivorship. Persistent dysphagia is not fully reversible, but functional gains can be achieved with appropriate swallowing therapy.⁶⁸⁻⁷⁰ Swallowing therapy may include or combine compensations, exercise, biofeedback, and/or esophageal dilation. Evaluation procedures to allocate appropriate therapies are detailed below.

Dysphagia in HNC survivors is most commonly characterized by inefficiency moving a solid food bolus through the mouth or pharynx; however, in more severe cases, it may result in chronic aspiration. Aspiration typically occurs when drinking liquids. Primary care clinicians should be alert to a high risk of subclinical ("silent") aspiration. More than 50% of chronic aspirators after HNC treatment do so silently with no outward cough or symptom of airway entry.⁷¹⁻⁷³ Silent aspiration is only detected and effectively treated using instrumental swallowing studies (eg, the videofluoroscopic swallow study—also known as the modified barium swallow or the fiberoptic endoscopic evaluation of swallow). Aspiration detected on instrumental testing is an independent predictor of pneumonia in cancer survivorship⁷⁴ and can be lessened with training in individualized (typically straightforward) compensatory techniques by a