

psychosocial long-term and late effects most commonly experienced by HNC survivors are detailed in Table 6 (Guideline for Assessment and Management of Physical and Psychosocial Long-Term and Late Effects of HNC and Its Treatment).

Physical Effects: Musculoskeletal and Neuromuscular

Spinal accessory nerve palsy

Recommendation 3.2. It is recommended that primary care clinicians should refer HNC survivors with spinal accessory nerve (SAN) palsy occurring after radical neck dissection (RND) to a rehabilitation specialist to improve range of motion (ROM) and ability to perform daily tasks (LOE = IA).

Clinical interpretation. While the overall incidence of injury is unknown, damage to the SAN and subsequent perturbation of shoulder motion is a major cause of shoulder dysfunction and pain in HNC survivors, especially in those undergoing neck dissection. Preservation of the SAN during modified RND (MRND) has been associated with improved shoulder function.³⁵ One study demonstrated denervation and neurogenic compromise of the SAN at 4 to 6 months postoperatively in all groups of patients who underwent neck dissection including RND, MRND, and selective neck dissection (SND).³⁶ Electromyographic activity of the upper trapezius and middle trapezius is significantly decreased compared with the unaffected side in patients who have undergone neck dissection. Upper limb dysfunction reportedly was mild in 54% of patients, moderate in 15%, and severe in 8%, whereas only 23% reported no issues.³⁷

Patients with SAN dysfunction should be referred to a rehabilitation specialist to strengthen the affected shoulder girdle muscles, to improve or maintain ROM, and to improve overall function. Patients with impaired ability to perform activities of daily living should be referred to a rehabilitation specialist. Patients with a more complex clinical situation, who face diagnostic challenges regarding shoulder and neck pain or who fail physical or occupational therapy, should be referred to a physical medicine and rehabilitation physician for expert assessment.

Cervical dystonia/muscle spasms/neuropathies

Recommendation 3.3. It is recommended that primary care clinicians: a) should assess HNC survivors for cervical dystonia, which is characterized by painful dystonic spasms of the cervical muscles and can be caused by neck dissection, radiation, or both (LOE = 0); b) should refer HNC survivors for comprehensive neuromusculoskeletal management if cervical dystonia or neuropathy is found; this may include referral to a rehabilitation specialist (LOE = 0);

and c) should prescribe nerve-stabilizing agents, such as pregabalin, gabapentin, and duloxetine, or refer to a specialist for botulinum toxin type A (BTX-A) injections into the affected muscles for pain management and spasm control as indicated (LOE = 0, IIA).

Clinical interpretation. Painful dystonic spasms of the cervical muscles may be present in some HNC survivors. The sternocleidomastoid (if preserved), scalene, and trapezius muscles are most often involved. This painful condition is best termed cervical dystonia, but it differs clinically and pathophysiologically from the cervical dystonia that results from central nervous system disorders and degenerative conditions, in that the dystonic activity after HNC treatment is often progressive, which is in contrast to idiopathic and other central nervous system-mediated cervical dystonias and thus may be amenable to treatment options aimed at stretching and strengthening muscles and stabilizing neuromuscular units through targeted physical modalities. There are no standardized diagnostic criteria for post-HNC acquired cervical dystonia, but symptoms typically involve more than one of the following: rotation of the neck, elevation of a shoulder, repetitive flexion of the neck, pain that is worse with stress, and relief of symptoms through sensory “tricks,” such as touching the chin. Cervical dystonia in HNC patients can result from neck dissection that disrupts the cervical anatomy and damages the cervical plexus and nerve roots. Subsequent uncontrolled ectopic activity in these neural structures causes painful spasms in the muscles they innervate. The condition may worsen as scarring progresses. Radiation to the neck can cause progressive fibrosis of the nerve roots and plexus as well as any peripheral nerves and muscles in the radiation field, with adverse effects on these structures that further exacerbate propensity for painful spasm. The effect of spasm and progressive radiation fibrosis can lead to severe neck contracture. Radiation fibrosis syndrome is the clinical manifestation of progressive tissue fibrosis that results from radiation.³⁸

Radiation treatment techniques can impact the risk of side effects. A prospective, randomized study comparing the outcomes and toxicities of intensity-modulated RT (IMRT) versus conventional 2-dimensional RT for the treatment of nasopharyngeal carcinoma reported the percentage of patients with neck fibrosis as 2.3% after IMRT and 11.3% after conventional 2-dimensional RT.³⁹ The mean follow-up was 42 months (range, 1-83 months). Another study evaluating late toxicity after conventional radiation in nasopharyngeal carcinoma found that 169 of 771 patients (22%) had neck fibrosis.⁴⁰ No definitive diagnostic criteria are available for the diagnosis of neck fibrosis, making it difficult to accurately ascertain incidence rates.