



Cancer Survivorship Patient Education on Post-Treatment Care

Radiation Fibrosis

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What is it?

Radiation therapy for head and neck cancer exposes the normal bone and soft tissues of the jaws, face, neck and throat to radiation which can result in tissue damage known as radiation fibrosis. Radiation Fibrosis Syndrome (RFS) refers to the signs and symptoms of soft tissue injury resulting from radiation therapy. All of the soft tissues within the field of radiation can be affected, including skin, connective tissue, muscles, nerves and blood vessels.

How common is it among head and neck cancer patients?

The likelihood of developing RFS and the severity of RFS increases with higher doses of radiation therapy, and radiation therapy in combination with chemotherapy and /or surgery. There are several symptoms of RFS and it is variable how common each is. For example, approximately 25% of patients who receive radiation to the jaw muscle region experience difficulty opening their mouths (trismus) that is severe enough to impact normal function.

What are the signs/symptoms?

Trismus, or restricted mouth opening, may result from radiation treatments to the muscles and connective tissues that permit mouth opening. Tightness, pain and/or spasms ([cervical dystonia](#)) of the neck can occur following radiation to the neck. [Head and neck lymphedema](#), or swelling that results from impaired lymphatic fluid drainage, can affect speech and swallowing function, and may also lead to facial swelling and disfigurement. Radiation treatments to the swallowing muscles of the throat frequently cause impairments in swallowing function ([dysphagia](#)). These signs and symptoms may take numerous years to develop after the completion of therapy. Once the signs and symptoms appear, they can also progressively worsen over time.

How is it diagnosed?

Each of the signs and symptoms of RFS is diagnosed differently, generally by a clinician. Trismus is diagnosed by measuring the degree of mouth opening in millimeters. Tightness, pain and neck spasms are patient-reported experiences that can be evaluated by experienced clinicians using established quality of life assessment tools. The diagnosis of head and neck lymphedema is based on the patient's signs and symptoms and whether the suspected lymphedema is located in the throat (internal) or involves the face and neck (external). Evaluation by a speech and language pathologist or a clinician with special expertise in head and neck cancer may be required. Dysphagia resulting from radiation therapy typically requires evaluation by a speech and language pathologist and may require endoscopic and/or radiographic evaluation.

How is it treated?

Each of the signs and symptoms of RFS is treated differently by specialized clinicians. Trismus is treated by an active regimen of exercise therapy generally prescribed and followed by speech language pathologist utilizing a variety of commercially available appliances. Neck tightness, pain and cervical dystonia are treated with physical therapy aimed at improvements in range of motion and decreased pain, nerve-stabilizing medications, and botulinum toxin injections in selected patients. Head and neck lymphedema is treated by specialists with manual lymphatic drainage (a form of massage therapy) and, in selected cases, compressive bandaging. Dysphagia therapy requires referral to a speech and language pathologist who is knowledgeable about the evaluation and management of head and neck cancer



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patients. Outcomes are generally improved when patients with swallowing problems are engaged in an active dysphagia rehabilitation program.

When should I call my doctor?

Contact your doctor if you notice any changes in mouth opening, pain in the jaw, throat or neck region, stiffness or decreased range of motion of your neck, muscle spasms, unremitting pain, persistent swelling of the face or neck, or changes in speech and swallowing.

Where can I learn more?

<http://www.cancerforward.org/survivor-resources/experts-speak/Michael-D-Stubblefield-MD/radiation-fibrosis-syndrome-what-it-is-and-how-to-treat-it>

<https://www.mskcc.org/cancer-care/patient-education/trismus>

<http://oralcancerfoundation.org/complications/trismus/>

<http://oncologypt.org/consumer-resources/index.cfm>