Sidney Kimmel Cancer Center™ at Jefferson
NCI – designated

Jefferson Center for Head and Neck Surgery

Head and Neck Cancer Treatment

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About Head and Neck Cancer

Head and neck cancers account for 3-5 percent of all cancer in the United States. Approximately 59,000 people will be diagnosed with a head and neck cancer this year (2015). These cancers are more common in men than in women and are usually diagnosed after age 50.

There are several factors that can increase the risk of head and neck cancer. Tobacco use, including smokeless tobacco, is related to 85 percent of all head and neck cancers. Frequent and heavy alcohol use raises the risk of cancer in the mouth, throat, and voice box. Smokers who use alcohol are at an even greater risk for developing a cancer. Prolonged sun exposure is known to be associated with increased risk for skin cancer. Skin cancers commonly occur in the head and neck region because this area of the body is typically uncovered in the sun.

More recently, contact with the Human Papilloma Virus (HPV) has been linked to cancer of the throat. HPV is a virus most commonly transmitted through sexual contact. The number of otherwise young, healthy adults being diagnosed with throat cancer is increasing due to this virus. Fortunately, cure rates at Jefferson for HPV related cancers exceed 90 percent and cure rates for other head and neck cancers are also excellent.

Cancer can occur in any area of the head and neck region, including the skin, nose, sinus, mouth, throat and voice box. While uncommon, cancer can also be found in salivary glands.

The symptoms of head and neck cancer are varied and can present alone or in conjunction with another symptom. Oftentimes, the first symptom is a swollen lymph node or a lump in the neck. Other symptoms include:

- A lump or a sore that does not go away
- Persistent sore throat
- Hoarseness, or change in the voice
- Ear pain
- Difficulty eating or swallowing
- Dentures that no longer fit
- Unexplained weight loss

While there is no proven way to prevent cancer, there are ways to lower the risk. These include avoiding or quitting all tobacco use, decreasing the amount of alcohol consumption, and wearing sunscreen in daylight hours. HPV related cancers can be avoided by limiting the number of sexual partners and practicing safe sex.

Comprehensive Individualized Treatment

Jefferson's head and neck surgeons, radiation oncologists, and medical oncologists work together to develop an optimal treatment plan for each patient prioritizing overall quality of life. This means that in addition to recommending a treatment most likely to result in a cure, they consider the option that will have the impact on important functions and physical appearance. Treatment is complemented by multiple services that help support quality of life. These include speech and swallowing experts to ensure patients maintain these functions, nutritionists to help patients maintain a healthy weight, pain specialists to manage the most effective medication regimen, and hyperbaric oxygen therapy physicians to alleviate any treatment- related side effects and promote wound healing if needed. At Jefferson, the comprehensive, individualized treatment plan designed for each patient is based on the latest scientific evidence and our team's extensive experience. Our multidisciplinary tumor board discusses each individual case and together decides what the best combination of treatments is for each patient. As national leaders in the treatment of head and neck cancer, Jefferson physicians also carefully document the effect of treatment on each patient. This type of outcomes research enables us to determine the most effective and least toxic treatments. As a result, we have been able to dramatically reduce the side effects of treatment without compromising cure rates.

Clinical Trials

The surgeons in the Department of Otolaryngology-Head and Neck Surgery have committed themselves to advancing their field through carefully conducted basic science research and clinical trials. Our head and neck cancer research team is made up of physicians from the departments of Otolaryngology-Head and Neck Surgery, Medical Oncology, and Radiation Oncology. Our team works diligently to constantly learn more about this topic and educate the medical community about our findings. Many of our clinical trials are initiated here at Jefferson, while others are conducted with various academic partners around the country and/or with pharmaceutical or other industry partners. Our cancer clinical trials are testing new ways to treat cancer, find and diagnose cancer, prevent cancer, and manage symptoms of cancer and the side effects from its treatment. If you qualify for a clinical trial, your Jefferson physician will explain the trial in detail and discuss the potential risks and benefits with you. Our team maintains a comprehensive database of treatments and outcomes, which allows the physicians to conduct a variety of research studies to determine which treatments are best serving our patients' needs and lead them to a superior quality of life.

Treatment Options

The head and neck region is a complex part of a person's body. While most cancers that arise in the head and neck originate from the squamous cells that line the inner surface of the mouth, throat, and voice box, they can behave differently based on their location. Therefore, the location of the cancer in addition to other factors will help determine the best treatment option for each individual patient. The goal of the experts at Jefferson is to offer the highest chance of cure while minimizing treatment side effects in every patient we treat.

Surgery

Complete surgical removal of head and neck cancer is typically recommended whenever it is possible. Advances in surgical techniques have allowed surgery to be performed with better outcomes and fewer side effects than in the past. Often the cancers can be removed through the nose or the mouth with the use of small endoscopes, lasers, or even a robotic device. Jefferson surgeons are among the most experienced in the country in these advanced surgical techniques. All head and neck cancers have the potential to spread to lymph nodes in the neck. For this reason, removal of the lymph nodes in the neck is frequently performed as part of the treatment. For early stage cancers, surgery is often the only treatment required and, therefore, there is the added advantage that the side effects of radiation and chemotherapy are avoided.

Radiation Therapy

For more advanced stage head and neck cancers, radiation is used after surgery to eliminate any microscopic cancer cells that may still exist. Radiation is delivered in daily doses for six to seven weeks. Each treatment lasts approximately 20 minutes. Radiation is delivered by aiming an x-ray beam at the target tissue. Because of this, surrounding normal tissue can be affected by the treatments. At Jefferson, the radiation oncologists utilize the most advanced radiation technology that uses computer- controlled, small bundles of beams that can be designed to maximize dose to the cancer and minimize dose to the surrounding normal structures. This results in the best treatment outcomes with the least amount of side effects.

In certain situations, surgery may not be the best treatment option. This could be because the tumor is too large to be removed, the tumor has grown into structures that cannot be removed, or the removal of the tumor would cause too many side effects. When this is the case, radiation is used in higher doses to treat the cancer. Often chemotherapy is used with the radiation to maximize its effect. Fortunately, this approach can result in cure for many types of head and neck cancer.

Chemotherapy

Chemotherapy is medication that is used to treat cancer. It is typically delivered intravenously and some patients may require a port (small implanted device for medication delivery) for their treatment. Chemotherapy is rarely used alone for head and neck cancer, but is often used in conjunction with radiation because it has been shown to make radiation more effective. While chemotherapy can increase side effects of treatment, the types of chemotherapy typically used for head and neck cancer do not cause hair loss. Chemotherapy options continue to improve with newer medications that more selectively target cancer cells and others that come in pill form. These advances allow better outcomes with fewer side effects. The medical oncologists at Jefferson are leaders in utilizing the newest and best chemotherapy options.

How Specific Head and Neck Cancers are Treated

Oropharyngeal (Throat) Cancer

The oropharynx is the part of the throat directly behind the mouth. This area helps with speech and swallowing. Cancer of the oropharynx is the most common head and neck cancer in the United States, with squamous cell carcinoma being the most common type. Although a significant percentage is caused by smoking and tobacco use, the recent increase in

incidence is due to infection with the human papilloma virus (HPV). The good news is that more than 90 percent of patients with HPV-associated oropharyngeal cancer can be cured. Research is now focused on reducing the short – and long-term side effects of treatment. There are multiple effective treatment options for oropharyngeal cancer. The best choice for each patient includes consideration of oncologic and functional results.

Treatment for oropharyngeal cancer will depend on the stage of the cancer as well as your general health. Today, this type of cancer can be treated with Trans Oral Robotic Surgery (TORS). In more advanced stage oropharyngeal cancers, radiation with or without chemotherapy may be used after surgery. When TORS is not a feasible option, radiation and chemotherapy are used instead of surgery.

Laryngeal (Voice Box) Cancer

The larynx, also known as the voice box, is the part of the throat that contains the vocal cords. Squamous cell carcinoma is the most common type of laryngeal cancer. Smoking almost exclusively causes laryngeal cancer. The treatment of laryngeal cancer is often surgery, with the goal of treatment being to cure the cancer while preserving the patient's ability to talk and swallow. Laser procedures performed through a patient's mouth allows cure for most early stage cancers. Newer technology, such as robotic surgery, allows preservation of the larynx for even more advanced cases of laryngeal cancer. In select cases, chemotherapy and radiation are used in combination to treat the cancer and preserve the larynx. Only a small percent of patients require a total laryngectomy (removal of the voice box) and these patients are typically able to regain useful speech with the assistance of a external device or internal voice prosthesis.

Oral Cavity Cancer

The oral cavity includes the lips, the inside lining of the lips and cheeks, the gums, the tongue, the floor of mouth (area under the tongue) and the roof of the mouth. Squamous cell carcinoma is the most common type of oral cavity cancer. Treatment for oral cavity cancer is often surgery and in advanced cases may be followed by postoperative radiation with or without chemotherapy. At Jefferson, conformed radiation helps preserve the salivary glands. In some cases, where the tumor is very large, extensive surgery is required. Advanced reconstructive techniques offered at Jefferson allow the bones and tissues of the mouth to be rebuilt, which enable the patient to preserve their appearance and experience excellent functional outcomes.

Salivary Gland Cancer

The salivary glands include the parotid (located in front and just below each ear), the submandibular (located beneath the jawbone) and the

sublingual glands (located under the tongue). Most salivary gland cancers occur in the parotid gland. Surgery is a standard treatment for salivary gland cancer. The salivary glands are located near many important nerves. Our surgeons focus on protecting these nerves when removing the cancer. In cases where a nerve is involved, nerve repair can often be successful to help restore some of the function of the nerve. Surgery may be followed by radiation with or without chemotherapy. For these patients, Jefferson's radiation oncologists utilize intensity modulated radiation therapy (IMRT) to spare remaining salivary gland function. Several national clinical trials of chemotherapeutic agents and/or targeted systemic therapies are being conducted for salivary gland cancer. If you qualify for one of these trials, our doctors will discuss the options with you.

Sinonasal Cancer

Sinonasal cancers are rare tumors that constitute approximately three percent of tumors in the upper respiratory tract. These cancers occur inside the nose (nasal cavity) or in the hollow, air-filled spaces around the inside of the nose (sinuses). The most common type of sinonasal cancer involves the maxillary sinuses located in the cheeks. Cancer can also occur in the frontal and ethmoid sinuses, located above and between the eyes, and in the sphenoid sinuses, located behind the ethmoid sinuses. Causes of sinonasal cancers can include exposure to cigarette smoke, industrial fumes, wood dust, nickel refining, and leather tanning. Sinonasal cancers are a diverse group of diseases that respond to different types of treatments.

The mainstay of treatment of sinonasal cancers is surgery. Many of these tumors can be removed surgically through the nostrils, even when the tumors are large. Combination of surgery and radiation therapy with or without chemotherapy is given in situations where the tumor is advanced. Radiation and chemotherapy may be used for tumors that are unable to be removed surgically, and for certain types of cancer that respond very well to radiation alone. When radiation is given, IMRT is used to minimize radiation to the eyes, brain and other vital structures.

Thyroid Cancer

The thyroid is a butterfly-shaped gland in the neck that produces hormones to regulate the body's metabolism and temperature. Cancer in the thyroid is an uncommon type of cancer and the cure rates of thyroid cancer are extremely high. The causes of thyroid cancer are unknown, but, like other cancers, changes in DNA seem to play a role. These changes can be inherited or occur as you get older. People who are exposed to high doses of radiation have a greater chance of getting thyroid cancer.

Treatment for most thyroid cancers involves surgically removing all or part of the thyroid. In many cases, lymph nodes near the gland are also removed at the same setting. Surgery is sometimes followed by planned treatment with radioactive iodine, a pill form of radiation that targets thyroid cells. Rarely will thyroid cancer require radiation therapy or chemotherapy. The treatment you need will depend on your age, the type of thyroid cancer you have and the stage of your disease. Thyroid cancer has become a fertile area for targeted systemic therapies, which appear to be highly effective.

Reconstruction

While many of the head and neck cancers can be removed through the nose or mouth to eliminate visible scarring, open surgery is sometimes necessary. For these patients, Jefferson's renowned reconstructive surgery team uses the latest techniques to restore physical appearance, function and confidence. The team includes four surgeons with experience in complex reconstruction and three surgeons dedicated to facial plastic surgery. Their expertise allows cancer survivors to enjoy a better quality of life. Our surgeons are known for their creativity in using tissue from other parts of the body to replace skin, muscle or mucosa that has been removed. For example, a section of bone from the leg may be taken and reshaped to form a new jaw. Also, skin and muscle from the thigh or skin and fascia (connective tissue) from the forearm may be transferred to the neck. The blood vessels are then reconnected using advanced microsurgical techniques to ensure the long-term health of the graft. Jefferson's success rates for this type of surgery, called free tissue transfer, are among the best in the world. The surgeons are combining new techniques in the treatment

of facial paralysis with nerve grafting and free-tissue transfer to reconstruct patients after surgery for tumors of the parotid gland, skull base and other areas where facial nerve function is affected. These methods allow for restoration of facial function and contour in the same operation in which the tumor is removed. Reconstruction may begin at the time the tumor is removed or after healing has taken place. It is not uncommon to perform additional reconstructions over time, either in the office or in the operating room, to help patients meet their goals. The surgeons' expertise helps patients achieve the best possible results.

Rehabilitation

Jefferson's head and neck cancer team does everything possible to avoid or minimize treatments that may affect speech or swallowing. When speech and swallowing is impacted to any degree, rehabilitation plays a key role in recovery. Speech and swallowing therapy can help patients maintain or regain function following surgery, radiation or chemotherapy. In addition, to construction experts and therapists, the rehabilitation team includes social workers and case managers, who help ensure that care continues as long as necessary. When patients live a great distance from Jefferson, they can arrange for rehabilitation services closer to home. Physical therapy is also used to help patients regain physical abilities temporarily lost during treatment-for example, when arm function is weakened from nerves disturbed during neck surgery. Physical therapy can also be helpful when muscle is taken from a leg or abdomen to replace tissue removed in the neck, or when a leg or hip bone is removed to make a new jaw.

Audiology

Hearing tests are recommended prior to and following any chemotherapy and/or radiation treatment to the head and neck. These treatments can cause varying degrees of temporary or permanent hearing loss in one, or both of your ears. We recommend the hearing tests so we can monitor for hearing changes, develop a management plan, and determine a strategy for your communication needs at the end of your cancer treatment.

Jefferson Center for Head and Neck Surgery is Dedicated to the Care of Patients with Head and Neck Cancers.

- Patients are seen within 24 hours of call or referral.
- Partnering with the patients' physician to ensure continuum of care is a priority.
- Collaborative, multidisciplinary team approach.

For appointments and referrals, please call 1-800-JEFF-NOW.

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