CANCER FACTS

National Cancer Institute • National Institutes of Health
Department of Health and Human Services

Head and Neck Cancer: Questions and Answers

1. What is cancer?

Cancer is a disease that begins in cells, the body's basic unit of life. Normally, cells grow and divide to form new cells in an orderly way. They perform their functions for a while, and then they die. Sometimes, however, cells do not die. Instead, they continue to divide and create new cells that the body does not need. The extra cells form a mass of tissue, called a growth or tumor. Tumors can be benign (not cancer) or malignant (cancer). Cancer can spread to other parts of the body through a process called metastasis.

2. What kinds of cancers are considered cancers of the head and neck?

Most head and neck cancers begin in the squamous cells that line the structures found in the head and neck. Because of this, head and neck cancers are often referred to as squamous cell carcinomas. Some head and neck cancers begin in other types of cells. For example, cancers that begin in glandular cells are called adenocarcinomas.

Cancers of the head and neck are further identified by the area in which they begin:

Oral cavity—The oral cavity includes the lips, the front two-thirds of the tongue, the gums (gingiva), the lining inside the cheeks and lips (buccal mucosa), the bottom (floor) of the mouth under the tongue, the bony top of the mouth (hard palate), and the small area behind the wisdom teeth.

Salivary glands—The salivary glands are in several places: under the tongue, in front of the ears, and under the jawbone, as well as in other parts of the upper digestive tract.

Paranasal sinuses and nasal cavity—The paranasal sinuses are small hollow spaces in the bones of the head surrounding the nose. The nasal cavity is the hollow space inside the nose.

Pharynx—The pharynx is a hollow tube about 5 inches long that starts behind the nose and leads to the esophagus (the tube that goes to the stomach) and the trachea (the tube that goes to the lungs). The pharynx has three parts:

Nasopharynx—The nasopharynx, the upper part of the pharynx, is behind the nose.

Oropharynx—The oropharynx is the middle part of the pharynx. The oropharynx includes the soft palate (the back of the mouth), the base of the tongue, and the tonsils.

Hypopharynx—The hypopharynx is the lower part of the pharynx.

Larynx—The larynx, also called the voicebox, is a short passageway formed by cartilage just below the pharynx in the neck. The larynx contains the vocal cords. It also has a small piece of tissue, called the epiglottis, which moves to cover the larynx to prevent food from entering the air passages.

Lymph nodes in the upper part of the neck—Sometimes, squamous cancer cells are found in the lymph nodes of the upper neck when there is no evidence of cancer in other parts of the head and neck. When this happens, the cancer is called *metastatic squamous neck cancer with unseen (occult) primary.*

Cancers of the brain, eye, and thyroid usually are not included in the category of head and neck cancers. Cancers of the scalp, skin, muscles, and bones of the head and neck are also usually not considered cancers of the head and neck.

3. How common are head and neck cancers?

Head and neck cancers account for 3 percent of all cancers in the United States. These cancers are more common in men and in people over age 50. It is estimated that almost 38,000 men and women in this country will develop head and neck cancers in 2002.

4. What causes head and neck cancers?

Tobacco (including smokeless tobacco) and alcohol use are the most important risk factors for head and neck cancers, particularly those of the oral cavity, oropharynx, hypopharynx, and larynx. Eighty-five percent of head and neck cancers are linked to tobacco use. People who use both tobacco and alcohol are at greater risk for developing these cancers than people who use either tobacco or alcohol alone.

Other risk factors for cancers of the head and neck include the following:

Oral cavity—Sun exposure (lip); human papillomavirus (HPV) infection.

Salivary glands—Radiation to the head and neck. This exposure can come from diagnostic x-rays or from radiation therapy for noncancerous conditions or cancer.

Paranasal sinuses and nasal cavity—Certain industrial exposures, such as wood or nickel dust inhalation. Tobacco and alcohol use may play less of a role in this type of cancer.

Nasopharynx—Asian, particularly Chinese, ancestry; Epstein-Barr virus infection; occupational exposure to wood dust; and consumption of certain preservatives or salted foods.

Oropharynx—Poor oral hygiene, mechanical irritation such as from poorly fitting dentures, and use of mouthwash that has a high alcohol content.

Hypopharynx—Plummer-Vinson (also called Paterson-Kelly) syndrome, a rare disorder that results from nutritional deficiencies. This syndrome is characterized by severe anemia and leads to difficulty swallowing due to webs of tissue that grow across the upper part of the esophagus.

Larynx—Exposure to airborne particles of asbestos, especially in the workplace.

People who are at risk for head and neck cancers should talk with their doctor about ways they can reduce their risk. They should also discuss how often to have checkups.

5. What are common symptoms of head and neck cancers?

Symptoms that are common to several head and neck cancer sites include a lump or sore that does not heal, a sore throat that does not go away, difficulty swallowing, and a change or hoarseness in the voice. Other symptoms may include the following:

Oral cavity—A white or red patch on the gums, tongue, or lining of the mouth; a swelling of the jaw that causes dentures to fit poorly or become uncomfortable; and unusual bleeding or pain in the mouth.

Nasal cavity and sinuses—Sinuses that are blocked and do not clear, chronic sinus infections that do not respond to treatment with antibiotics, bleeding through the nose, frequent headaches, swelling or other trouble with the eyes, pain in the upper teeth, or problems with dentures.

Salivary glands—Swelling under the chin or around the jawbone; numbness or paralysis of the muscles in the face; or pain that does not go away in the face, chin, or neck.

Oropharynx and hypopharynx—Ear pain.

Nasopharynx—Trouble breathing or speaking, frequent headaches, pain or ringing in the ears, or trouble hearing.

Larynx—Pain when swallowing, or ear pain.

Metastatic squamous neck cancer—Pain in the neck or throat that does not go away.

These symptoms may be caused by cancer or by other, less serious conditions. It is important to check with a doctor or dentist about any of these symptoms.

6. How are head and neck cancers diagnosed?

To find the cause of symptoms, a doctor evaluates a person's medical history, performs a physical examination, and orders diagnostic tests. The exams and tests conducted may vary depending on the symptoms. Some exams and tests that may be useful are described below:

- **Physical examination** may include visual inspection of the oral and nasal cavities, neck, throat, and tongue using a small mirror and/or lights. The doctor may also feel for lumps on the neck, lips, gums, and cheeks.

- **Endoscopy** is the use of a thin, lighted tube called an endoscope to examine areas inside the body. The type of endoscope the doctor uses depends on the area being examined. For example, a laryngoscope is inserted through the mouth to view the larynx; an esophagoscope is inserted through the mouth to examine the esophagus; and a nasopharyngoscope is inserted through the nose so the doctor can see the nasal cavity and nasopharynx.

- **Laboratory tests** examine samples of blood, urine, or other substances from the body.

- **X-rays** create images of areas inside the head and neck on film.

- **CT (or CAT) scan** is a series of detailed pictures of areas inside the head and neck created by a computer linked to an x-ray machine.

- **Magnetic resonance imaging (or MRI)** uses a powerful magnet linked to a computer to create detailed pictures of areas inside the head and neck.

- **Biopsy** is the removal of tissue for examination under a microscope. A pathologist studies the tissue to make a diagnosis. A biopsy is the only sure way to tell whether a person has cancer.

If the diagnosis is cancer, the doctor will want to learn the stage (or extent) of disease. Staging is a careful attempt to find out whether the cancer has spread and, if so, to which parts of the body. Staging may involve surgery, x-rays and other imaging procedures, and laboratory tests. Knowing the stage of the disease helps the doctor plan treatment.

7. What health professionals treat patients with head and neck cancers?

Patients with head and neck cancers are usually treated by a team of specialists. The specialists vary, depending on the location and extent of the cancer. The medical team may include oral surgeons; ear, nose, and throat surgeons (also called otolaryngologists); pathologists; medical oncologists; radiation oncologists; prosthodontists; dentists; plastic surgeons; dietitians; social workers; nurses; physical therapists; and speech-language pathologists (sometimes called speech therapists).

8. How are head and neck cancers treated?

The treatment plan for an individual patient depends on a number of factors, including the exact location of the tumor, the stage of the cancer, and the person's age and general health. The patient and the doctor should consider treatment options carefully. They should discuss each type of treatment and how it might change the way the patient looks, talks, eats, or breathes.

- **Surgery.** The surgeon may remove the cancer and some of the healthy tissue around it. Lymph nodes in the neck may also be removed (lymph node dissection), if the doctor suspects that the cancer has spread. Surgery may be followed by radiation treatment.

  Head and neck surgery often changes the patient's ability to chew, swallow, or talk. The patient may look different after surgery, and the face and neck may be swollen. The swelling usually goes away within a few weeks. However, lymph node dissection can slow the flow of lymph, which may collect in the tissues; this swelling may last for a long time. After a laryngectomy (surgery to remove the larynx), parts of the neck and throat may feel numb because nerves have been cut. If lymph nodes in the neck were removed, the shoulder and neck may be weak and stiff. Patients should report any side effects to

their doctor or nurse, and discuss what approach to take. Information about rehabilitation can be found in question 10.

- **Radiation therapy**, also called radiotherapy. This treatment involves the use of high-energy x-rays to kill cancer cells. Radiation therapy affects the cancer cells only in the treated area. Radiation may come from a machine outside the body (external radiation therapy). It can also come from radioactive materials placed directly into or near the area where the cancer cells are found (internal radiation therapy).

  In addition to its desired effect on cancer cells, radiation therapy often causes unwanted effects. Patients who receive radiation to the head and neck may experience redness, irritation, and sores in the mouth; a dry mouth or thickened saliva; difficulty in swallowing; changes in taste; or nausea. Other problems that may occur during treatment are loss of taste, which may decrease appetite and affect nutrition, and earaches (caused by hardening of the ear wax). Patients may also notice some swelling or drooping of the skin under the chin and changes in the texture of the skin. The jaw may feel stiff and patients may not be able to open their mouth as wide as before treatment. Patients should report any side effects to their doctor or nurse and ask how to manage these effects.

  More information about radiation therapy is available in the NCI booklet *Radiation Therapy and You: A Guide to Self-Help During Treatment*. This booklet is available by calling the Cancer Information Service (CIS) at 1–800–4–CANCER (1–800–422–6237), or through the NCI Publications Locator Web site at http://cancer.gov/publications on the Internet.

- **Chemotherapy.** Anticancer drugs are used to kill cancer cells throughout the body. Drugs used to treat head and neck cancers are usually given by injection into the bloodstream (intravenous, or IV). Chemotherapy is widely used to treat certain stages of cancer of the nasopharynx, hypopharynx, and salivary glands. Its use in treating other head and neck cancers is being tested in clinical trials (research studies). Chemotherapy may be combined with radiation therapy to treat cancer of the nasopharynx.

  The side effects of chemotherapy depend on the drugs that are given. In general, anticancer drugs affect rapidly growing cells, including blood cells that fight infection, cells that line the mouth and the digestive tract, and cells in hair follicles. As a result, patients may have side effects such as lower resistance to infection, sores in the mouth and on the lips, loss of appetite, nausea, vomiting, diarrhea, and hair loss. They may also feel unusually tired

and experience skin rash and itching, joint pain, loss of balance, and swelling of the feet or lower legs. Patients should talk with their doctor or nurse about the side effects they are experiencing, and how to handle them.

The NCI booklet *Chemotherapy and You: A Guide to Self-Help During Treatment* has more information about this type of treatment. This booklet is available by calling the CIS (see below), or through the NCI Publications Locator at http://cancer.gov/publications/ on the Internet.

9. Are clinical trials (research studies) available for patients with head and neck cancers?

Clinical trials are research studies conducted with people who volunteer to take part. Participation in clinical trials is an option for many patients with head and neck cancers.

Treatment trials are designed to find more effective cancer treatments and better ways to use current treatments. In some studies, all patients receive the new treatment. In others, doctors compare different therapies by giving the new treatment to one group of patients and standard therapy to another group. Doctors are studying new types and schedules for delivering radiation therapy, new anticancer drugs, new drug combinations, and new ways of combining treatments. They are also studying ways to treat head and neck cancers using biological therapy (a type of treatment that stimulates the immune system to fight cancer) by itself or in combination with anticancer drugs or radiation therapy.

Scientists are also conducting clinical trials to find better ways to reduce the side effects of chemotherapy and radiation therapy for head and neck cancers. These clinical trials, called supportive care trials, explore ways to improve the comfort and quality of life of cancer patients and cancer survivors.

People interested in taking part in a clinical trial should talk with their doctor. Information about clinical trials is available from the CIS (see below) and the NCI booklet *Taking Part in Clinical Trials: What Cancer Patients Need To Know*. This booklet describes how research studies are carried out and explains their possible benefits and risks. In addition, the NCI's Web site, http://cancer.gov on the Internet, provides information about clinical trials. It also offers detailed information about specific ongoing studies by linking to PDQ®, a cancer information database developed by NCI. The CIS also provides information from PDQ.

10. What rehabilitation or support options are available for patients with head and neck cancers?

Rehabilitation is a very important part of treatment for patients with head and neck cancer. The goals of rehabilitation depend on the extent of the disease and the treatment a patient has received. The health care team makes every effort to help the patient return to normal activities as soon as possible.

Depending on the location of the cancer and the type of treatment, rehabilitation may include physical therapy, dietary counseling, speech therapy, and/or learning how to care for a stoma after a laryngectomy. A stoma is an opening into the windpipe through which a patient breathes after a laryngectomy.

Sometimes, especially with cancer of the oral cavity, a patient may need reconstructive and plastic surgery to rebuild the bones or tissues of the mouth. If this is not possible, a prosthodontist may be able to make an artificial dental and/or facial part (prosthesis) to restore satisfactory swallowing and speech. Patients will receive special training to use the device.

Patients who have trouble speaking after treatment, or who have lost their ability to speak, may need speech therapy. Often, a speech-language pathologist will visit the patient in the hospital to plan therapy and teach speech exercises or alternative methods of speaking. Speech therapy usually continues after the patient returns home.

Eating may be difficult after treatment for head and neck cancer. Some patients receive nutrients directly into a vein (IV) after surgery, or need a feeding tube until they can eat on their own. A feeding tube is a flexible plastic tube that is passed into the stomach through the nose or an incision (cut) in the abdomen. A nurse or speech-language pathologist can help patients learn how to swallow again after surgery. The NCI booklet *Eating Hints for Cancer Patients: Before, During, and After Treatment* contains many useful suggestions and recipes. This booklet is available from the CIS (see below), and through the NCI Publications Locator at http://cancer.gov/publications on the Internet.

11. Is followup treatment necessary? What does it involve?

Regular followup care is very important after treatment for head and neck cancer to make sure the cancer has not returned, or that a second primary (new) cancer has not developed. Depending on the type of cancer, medical checkups could include exams of the stoma, mouth, neck, and throat. Regular dental exams may also be necessary. From time to time, the doctor may perform a complete physical exam, blood tests, x-rays, and CT or MRI scans. The doctor may continue to monitor thyroid and pituitary gland function, especially if the head or neck was treated with radiation. Also, the doctor is

likely to counsel patients to stop smoking. Research has shown that continued smoking may reduce the effectiveness of treatment and increase the chance of a second primary cancer (see question 12).

The NCI fact sheet *Questions and Answers About Followup Care* has more information about this topic. This fact sheet is available from the CIS (see below), and through the NCI Publications Locator at http://cancer.gov/publications on the Internet.

12. What can people who have had head and neck cancer do to reduce the risk of developing a second primary (new) cancer?

People who have been treated for head and neck cancer have an increased chance of developing a new cancer, usually in the head and neck, esophagus, or lungs. The chance of a second primary cancer varies depending on the original diagnosis, but is higher for people who smoke. Patients who do not smoke should never start. Those who smoke should do their best to quit. Studies have shown that continuing to smoke increases the chance of a second primary cancer for up to 20 years after the original diagnosis.

Information about smoking cessation is available from the CIS (see below) and in the NCI fact sheet *Questions and Answers About Smoking Cessation.* The fact sheet is available from the CIS (see below), and through the NCI Publications Locator at http://cancer.gov/publications on the Internet.

Some research has shown that isotretinoin (13–*cis*–retinoic acid), a substance related to vitamin A, may reduce the risk of a second primary cancer in patients who have been successfully treated for cancers of the oral cavity, oropharynx, and larynx. However, treatment with isotretinoin has not been shown to improve survival.

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Sources of National Cancer Institute Information

Cancer Information Service

Toll-free: 1–800–4–CANCER (1–800–422–6237)
TTY (for deaf and hard of hearing callers): 1–800–332–8615

NCI Online

Internet

Use http://cancer.gov to reach the NCI's Web site.

LiveHelp
Cancer Information Specialists offer online assistance through the *LiveHelp* link on the NCI's Web site.

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