About Laryngeal and Hypopharyngeal Cancer

Overview and Types

If you have been diagnosed with laryngeal or hypopharyngeal cancer or are worried about it, you likely have a lot of questions. Learning some basics is a good place to start.

- What Are Laryngeal and Hypopharyngeal Cancers?

Research and Statistics

See the latest estimates for new cases of laryngeal and hypopharyngeal cancers and deaths in the US and what research is currently being done.

- What Are the Key Statistics About Laryngeal and Hypopharyngeal Cancers?
- What’s New in Laryngeal and Hypopharyngeal Cancers Research and Treatment?

What Are Laryngeal and Hypopharyngeal Cancers?

Laryngeal and hypopharyngeal cancers start in the lower part of the throat. Cancer starts when cells in the body begin to grow out of control. Cells in nearly any part of the body can become cancer, and can spread to other areas of the body. To learn more about how cancers start and spread, see What Is Cancer?

To understand these cancers, it helps to know a little about the larynx and hypopharynx.
What is the larynx?

The larynx, often called the voice box, is one of the organs that helps us speak. It contains the vocal cords. It is in the neck, above the opening of the trachea (windpipe). There, it helps keep food and fluids from entering the trachea. The larynx is divided into 3 sections:

- The supraglottis is the area above the vocal cords. It contains the epiglottis, which closes off the larynx when you swallow to keep food and fluids from going into your lungs.
- The glottis is the area containing the vocal cords.
- The subglottis is the area below the vocal cords.

Cancer that starts in the larynx (laryngeal cancer) is treated differently based on which section it starts in.
Your larynx and vocal cords have several functions:

- The larynx produces sound for speaking. The vocal cords move and come together
to change the sound and pitch of your voice.
- The larynx protects your airway when you swallow. The epiglottis and vocal cords close tightly when you swallow to keep food and fluids from entering your lungs.
- The vocal cords open naturally when you breathe so that air can get in and out of your lungs.

What is the hypopharynx?

The hypopharynx is the part of the throat (pharynx) that lies beside and behind your larynx. The hypopharynx is the entrance into the esophagus (the tube that connects the throat to the stomach). When foods and liquids are swallowed, they pass through the mouth and throat, through the hypopharynx and esophagus, and then into the stomach. The structure of the hypopharynx helps make sure that food goes around the larynx and into the esophagus.

Cancers of the larynx and hypopharynx

Cancers that start in the larynx are called laryngeal cancers. Cancers that start in the hypopharynx are called hypopharyngeal cancers. Both types of cancers are discussed here because these 2 structures are so close to each other.

Squamous cell carcinomas

Almost all cancers in the larynx or hypopharynx develop from thin, flat cells called squamous cells, which are in the epithelium, the innermost layer lining these 2 structures. Cancer that starts in this layer of cells is called squamous cell carcinoma or squamous cell cancer.

Most squamous cell cancers of the larynx and hypopharynx begin as a pre-cancerous condition called dysplasia. When seen under a microscope, these cells look abnormal but not quite like cancer cells. Most of the time, dysplasia doesn’t turn into cancer. It often goes away without any treatment, especially if the underlying cause (like smoking) is stopped. (See What are the risk factors for laryngeal and hypopharyngeal cancers?) Most pre-cancerous conditions of the larynx and hypopharynx do not cause symptoms unless they are on the vocal cord(s).

Sometimes dysplasia will progress to a condition called carcinoma in situ (CIS). In CIS, the cancer cells are only seen in the epithelium lining the larynx or hypopharynx. They have not grown into deeper layers or spread to other parts of the body. CIS is the
earliest form of cancer. Most of these early cancers can be cured, but if CIS is not treated, it can develop into an invasive squamous cell cancer that will destroy nearby tissues and spread to other parts of the body.

**Other cancers**

Other rare types of cancer can also start in the larynx or hypopharynx.

**Minor salivary gland cancers:** Some areas of the larynx and hypopharynx have tiny glands known as *minor salivary glands* beneath their lining layer. These glands make mucus and saliva to lubricate and moisten the area. Cancer rarely develops from the cells of these glands, but when it does, these cancers have names such as:

- Adenocarcinoma
- Adenoid cystic carcinoma
- Mucoepidermoid carcinoma

These cancers are discussed in [Salivary Gland Cancers](#).

**Sarcomas:** The shape of the larynx and hypopharynx depends on a framework of connective tissues and cartilage. Cancers like *chondrosarcomas* or *synovial sarcomas* can develop from connective tissues of the larynx or hypopharynx, but this is extremely rare.

**Melanomas:** These cancers usually start in the skin, but in rare cases they can start on inner (mucosal) surfaces of the body, such as in the larynx or hypopharynx.

These rare cancers of the larynx or hypopharynx are not discussed further here. **The rest of this information refers only to squamous cell cancer.**

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- References
  See all references for Laryngeal and Hypopharyngeal Cancer

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What Are the Key Statistics About Laryngeal and Hypopharyngeal Cancers?

The American Cancer Society’s most recent estimates for laryngeal cancer in the United States for 2017 are:

- About 13,360 new cases of laryngeal cancer (10,570 in men and 2,790 in women)
- About 3,660 people (2,940 men and 720 women) will die from laryngeal cancer

About 60% of laryngeal cancers start in the glottis (the area containing the vocal cords themselves), while about 35% develop in the supraglottic area (above the vocal cords). The rest develop in either the subglottis (below the vocal cords) or overlap more than one area so that it is hard to tell where they started.

The rate of new cases of laryngeal cancer is falling by about 2% to 3% a year, most likely because fewer people are smoking.

About 3,000 cancers will start in the hypopharynx.

Survival statistics for these cancers are discussed in Survival rates for laryngeal and hypopharyngeal cancers by stage.

Visit the American Cancer Society’s Cancer Statistics Center for more key statistics.

- References
See all references for Laryngeal and Hypopharyngeal Cancer

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What’s New in Laryngeal and Hypopharyngeal Cancers Research and
Treatment?

Research into the causes, prevention, and treatment of laryngeal and hypopharyngeal cancers is now being done at many medical centers, university hospitals, and other institutions around the world.

Gene changes in laryngeal and hypopharyngeal cancers

A great deal of research is being done to learn how changes in certain genes cause cells in the larynx or hypopharynx to become cancerous.

The TP53 tumor suppressor gene is often altered in these cancers. Changes in this gene play a role in many head and neck cancers. Tests to detect TP53 gene changes may someday help find laryngeal and hypopharyngeal cancers early. These tests may also be used to better define surgical margins (check to see if all cancer cells have been removed) and to tell which tumors may respond better to surgery or radiation therapy. These tests are still experimental and are not used in the routine care of cancer patients at this time.

Changes in several other genes of have been found in cancers of the larynx or hypopharynx. These include the p16, NOTCH1, and cyclin D1 genes. Researchers hope this information might lead to better tests for early detection and to new targeted treatments.

Chemoprevention

Chemoprevention is the use of drugs to stop cancer from developing or from recurring once it has been treated.

Researchers are now trying to find out if certain drugs, vitamins, or other supplements can help prevent precancerous lesions from developing into cancers, but so far studies have not been successful.

In people whose cancer has been removed or destroyed with treatment, development of a second tumor in the head and neck area remains an important risk. Various drugs and supplements are being tested to see if they can reduce the risk of developing a new cancer. Retinoid analogs (chemicals related to vitamin A) have been studied for this
purpose, but the results so far have been disappointing.

**Treatment**

Promising new forms of treatment are likely to make therapy more effective and less burdensome in the coming years.

**Surgery and radiation therapy**

Doctors continue to refine surgery techniques to try to limit the amount of normal tissue that is removed along with the tumor. This may help limit the side effects after treatment.

One new surgery technique now being studied for some early-stage cancers is *transoral robotic surgery*. In this approach, the surgeon operates by precisely moving robotic arms holding long surgical tools that are passed down the throat. This technique uses smaller incisions, so if it proves successful it might lessen the side effects from surgery. This approach is most commonly being used to treat pharyngeal tumors.

A newer approach to radiation therapy is *proton beam therapy*, which uses a beam of protons rather than x-rays to kill cancer cells. Unlike x-rays, which release energy both before and after they hit their target, protons cause little damage to tissues they pass through and then release their energy after traveling a certain distance. Doctors can use this property to, at least in theory, deliver more radiation to the tumor with less damage to nearby normal tissues. Proton beam therapy requires highly specialized equipment and is not widely available. Most doctors still consider its use to be experimental for laryngeal and hypopharyngeal cancers.

**Chemotherapy and chemoradiotherapy**

For advanced laryngeal and hypopharyngeal cancers, new chemotherapy delivery systems, such as direct injection into arteries feeding the cancer, are being tested in combination with radiation therapy in an attempt to improve how well they work. Newer chemotherapy drugs are also being tested.

*Clinical trials* are also studying ways to best combine chemotherapy drugs and to combine chemotherapy with radiation therapy. For example, studies are comparing chemotherapy given before, during, and/or after radiation therapy.

**Targeted therapy**
Newer targeted therapy drugs attack specific substances in or around cancer cells that help them grow. These drugs work differently from standard chemo drugs. They may work in some cases when chemo drugs don't, and they often have less severe side effects.

**EGFR inhibitors:** Squamous cell cancers of the larynx and hypopharynx (and other head and neck cancers) often have abnormally high levels of epidermal growth factor receptor (EGFR). Cetuximab (Erbitux), an antibody that blocks EGFR, is sometimes used to treat cancers of larynx and hypopharynx. Other EGFR blockers are under study for use in head and neck cancers, including panitumumab (Vectibix®), lapatinib (Tykerb®), and erlotinib (Tarceva®).

These drugs seem to work best when combined with other treatments, such as radiation and chemotherapy.

**Angiogenesis inhibitors:** Tumors need a large blood supply to grow, so they release chemicals that cause new blood vessels to form. Drugs that turn off these signals are called *angiogenesis inhibitors*. Drugs such as bevacizumab (Avastin®) and sunitinib (Sutent®) have helped treat other cancers, and are now being studied for treating head and neck cancers as well.

**Photodynamic therapy**

In this treatment, the patient is given a substance that makes the cancer cells more sensitive to light, and then the cancer is exposed to laser light a day later. This is being studied as a treatment for very early-stage laryngeal cancer.

- **References**
  See all references for Laryngeal and Hypopharyngeal Cancer

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