About Oral Cavity and Oropharyngeal Cancer

Overview and Types

If you've been diagnosed with oral cavity or oropharyngeal cancer or are worried about it, you likely have a lot of questions. Learning some basics is a good place to start.

- What Are Oral Cavity and Oropharyngeal Cancers?

Research and Statistics

See the latest estimates for new cases of oral cavity and oropharyngeal cancers in the US and what research is currently being done.

- Key Statistics for Oral Cavity and Oropharyngeal Cancers
- What's New in Oral Cavity and Oropharyngeal Cancer Research?

What Are Oral Cavity and Oropharyngeal Cancers?

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

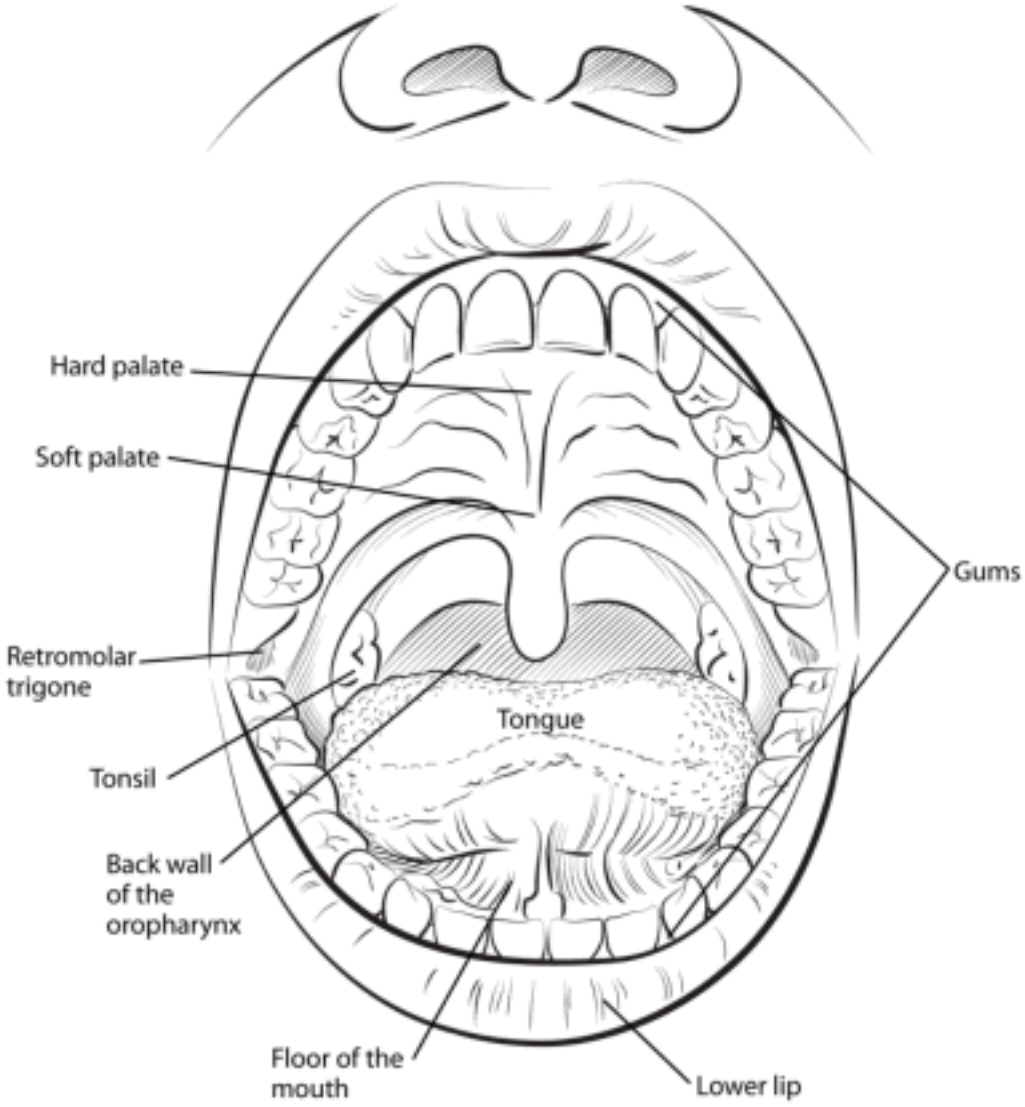
Oral cavity cancer, or just oral cancer, is cancer that starts in the mouth (also called the *oral cavity*). Oropharyngeal cancer starts in the oropharynx. This is the part of the throat just behind the mouth. Most cancers that form here are a type of cancer called *squamous cell carcinoma.* But other types of cancer, and other benign growths and tumors, can also form.

The oral cavity (mouth) and oropharynx (throat)

To understand these cancers, it helps to know the parts of the mouth and throat.

The oral cavity includes the lips, the inside lining of the lips and cheeks (*buccal mucosa*), the teeth, the gums, the front two-thirds of the tongue, the floor of the mouth below the tongue, and the bony roof of the mouth (hard palate). The area behind the wisdom teeth (called the *retromolar trigone*) can be included as a part of the oral cavity, but it's often thought of as part of the oropharynx.

The oropharynx is the part of the throat just behind the mouth. It starts where the oral cavity stops. It includes the base of the tongue (the back third of the tongue), the soft palate (the back part of the roof of the mouth), the tonsils, and the side and back walls of the throat.



The oral cavity and oropharynx help you breathe, talk, eat, chew, and swallow. Minor salivary glands throughout the oral cavity and oropharynx make saliva that keeps your mouth and throat moist and helps you digest food.

Tumors and growths in the oral cavity and oropharynx

Many types of tumors (abnormal growths of cells) can develop in the oral cavity and oropharynx. They fit into 3 general categories:

- **Benign growths** are not cancer. They do not invade other tissues and do not spread to other parts of the body.
- **Pre-cancerous conditions** are harmless growths that can turn into cancer over time.
- **Cancer** tumors are growths that can grow into nearby tissues and spread to other parts of the body.

Benign (not cancer) tumors

Many types of benign tumors and tumor-like changes can start in the mouth or throat, such as these:

- Eosinophilic granuloma
- Fibroma
- Granular cell tumor
- Keratoacanthoma
- Leiomyoma
- Osteochondroma
- Lipoma
- Schwannoma
- Neurofibroma
- Papilloma
- Condyloma acuminatum
- Verruciform xanthoma
- Pyogenic granuloma
- Rhabdomyoma
- Odontogenic tumors (tumors that start in tooth-forming tissues)

These non-cancerous tumors start from different kinds of cells and have a variety of causes. Some of them may cause problems, but they're not likely to be life-threatening. The usual treatment for these types of tumors is surgery to remove them completely since they are unlikely to recur (come back).

Leukoplakia and erythroplakia (possible pre-cancerous conditions)

Leukoplakia and erythroplakia are terms used to describe certain types of tissue changes that can be seen in the mouth or throat:

- Leukoplakia is a white or gray patch.

- Erythroplakia is a flat or slightly raised, red area that often bleeds easily if it's scraped.
- Erythroleukoplakia is a patch with both red and white areas.

Your dentist or dental hygienist may be the first person to find these white or red patches. They may be cancer, they may be a pre-cancerous condition called *dysplasia*, or they could be a relatively harmless change.

Dysplasia is graded as mild, moderate, or severe, based on how abnormal the tissue looks under the microscope. Knowing the degree of dysplasia helps predict how likely it is to progress to cancer or go away on its own or after treatment. For example, severe dysplasia is more likely to become a cancer, while mild dysplasia is more likely to go away completely.

The most common causes of leukoplakia and erythroplakia are smoking and chewing tobacco. Poorly fitting dentures that rub against the tongue or the inside of the cheeks can also cause these changes. But sometimes, there's no clear cause. Dysplasia will often go away if the cause is removed.

A biopsy is the only way to know for certain if an area of leukoplakia or erythroplakia contains dysplastic (pre-cancerous) cells or cancer cells. (See Tests for Oral Cavity and Oropharyngeal Cancers.) But other tests may be used first to help determine if they might be cancers (and will need a biopsy) or to choose the best area to sample for a biopsy. These tests are described in Can Oral Cavity and Oropharyngeal Cancers Be Found Early?

Most cases of leukoplakia do not turn into cancer. But some leukoplakias are either cancer when first found or have pre-cancerous changes that can progress to cancer if not properly treated.

Erythroplakia and erythroleukoplakia are less common, but are usually more serious. Most of these red lesions turn out to be cancer when they are biopsied or will develop into cancer later.

Still, it's important to note that most oral cancers do not develop from pre-existing lesions (either leukoplakia or erythroplakia).

Oral cavity and oropharyngeal cancers

The different parts of the oral cavity and oropharynx are made up of many types of cells. Different cancers can start in each type of cell. These differences are important, because they can impact a person’s treatment options and prognosis (outlook).

Squamous cell carcinomas

Almost all (more than 90%) of the cancers in the oral cavity and oropharynx are squamous cell carcinomas, also called *squamous cell cancers*. These cancers start in early forms of squamous cells, which are flat, scale-like cells that form the lining of the mouth and throat.

The earliest form of squamous cell cancer is called *carcinoma in situ*. Thismeans that the cancer cells are only in the layer of cells called the *epithelium*. This is different from invasive squamous cell carcinoma, where the cancer cells have grown into deeper layers of the oral cavity or oropharynx.

Verrucous carcinoma is a type of squamous cell carcinoma that makes up less than 5% of all oral cancers. It's a low-grade (slow growing) cancer that rarely spreads to other parts of the body, but it can grow deeply into nearby tissue.

If not treated, areas of ordinary squamous cell cancer may develop inside some verrucous carcinomas. And some verrucous carcinomas may already have areas of ordinary squamous cell cancer in them that aren't seen in the biopsy sample. Cells from these areas of squamous cell carcinoma may then spread to other parts of the body.

For all of these reasons, verrucous carcinomas should be removed right away, along with a wide margin (edge) of surrounding normal tissue.

Other types of cancer in the oral cavity and oropharynx

Minor salivary gland carcinomas: these cancers can start in the glands in the lining of the mouth and throat. There are many types of minor salivary gland cancers, including adenoid cystic carcinoma, mucoepidermoid carcinoma, and polymorphous low-grade adenocarcinoma. To learn more about these cancers, as well as benign salivary gland tumors, see Salivary Gland Cancer.

Lymphomas: the tonsils and base of the tongue contain immune system (lymphoid) tissue, where cancers called *lymphomas* can start. For more information about these cancers, see Non-Hodgkin Lymphoma, Non-Hodgkin Lymphoma in Children, and Hodgkin Disease.

Cancers in other parts of the throat

Cancers can also start in other parts of the throat, but these cancers aren’t covered

here:

- Cancers of the nasopharynx (the part of the throat behind the nose and above the oropharynx) are covered in Nasopharyngeal Cancer.
- Cancers that start in the larynx (voice box) or the hypopharynx (the part of the throat below the oropharynx) are covered in Laryngeal & Hypopharyngeal Cancer.
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Last Medical Review: March 9, 2018 Last Revised: March 9, 2018

Key Statistics for Oral Cavity and Oropharyngeal Cancers

The American Cancer Society's most recent estimates for oral cavity and oropharyngeal cancers in the United States are for 2018:

- About 51,540 people will get oral cavity or oropharyngeal cancer.
- An estimated 10,030 people will die of these cancers.

These cancers are more than twice as common in men as in women. They are about equally common in blacks and in whites.

In recent years, the overall rate of new cases of human papillomavirus (HPV)-negative

oral cavity and oropharyngeal cancers has been dropping. But there's been an ongoing rise in cases of oropharyngeal cancer linked to HPV infection in both men and women.

The death rate for these cancers has been decreasing over the last 30 years.

Oral cavity and oropharyngeal cancers occur most often in the following sites:

- The tongue
- The tonsils and oropharynx
- The gums, floor of the mouth, and other parts of the mouth

The rest are found in the lips, the minor salivary glands (which often occur in the roof of the mouth), and other sites.

The average age of most people diagnosed with these cancers is 62, but they can occur in young people. They are rare in children, but a little more than one-quarter occur in patients younger than 55.

The rates of these cancers vary among countries. For example, they are much more common in Hungary and France than in the United States and much less common in Mexico and Japan.

When patients newly diagnosed with oral and oropharyngeal cancers are carefully examined, a small portion will have another cancer in a nearby area such as the larynx (voice box), the esophagus (the tube that carries food from the throat to the stomach), or the lung. Some who are cured of oral or oropharyngeal cancer will develop another cancer later in the lung, mouth, throat, or other nearby areas. For this reason, people with oral and oropharyngeal cancer will need to have follow-up exams for the rest of their lives. They also need to avoid using tobacco and alcohol, which increase the risk for these second cancers.

For statistics related to survival, see Survival Rates for Oral Cavity and Oropharyngeal Cancer by Stage.

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

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What's New in Oral Cavity and Oropharyngeal Cancer Research?

Research on oral and oropharyngeal cancers is taking place in many university hospitals, medical centers, and other institutions around the world. Each year, scientists find out more about what causes these diseases, how to prevent them, and how to better treat them. Most experts agree that treatment in a clinical trial should be considered for any type or stage of cancer in the head and neck areas. This way people can get the best treatment available now and may also get the new treatments that are thought to be even better. The new and promising treatments discussed here are only available in clinical trials.

DNA changes

A great deal of research is being done to learn about the DNA changes that cause the cells in the oral cavity and oropharynx to become cancer.

One of the changes often found in DNA of oral cancer cells is a mutation of the *TP53* gene. The protein produced by this gene (called p53) normally helps keep cells from growing too much and helps to destroy cells that are too damaged to be fixed. Changes in the *TP53* gene can lead to increased growth of abnormal cells and cancer.

Some studies suggest that tests to find these gene changes might help find oral and oropharyngeal cancers early. These tests may also be used to better find cancer cells that might have been left behind after surgery and to determine which tumors are most likely to respond to chemo or radiation therapy. The use of p53 gene therapy as a treatment for these cancers is also being studied in early phase clinical trials.

Discoveries about how changes in the DNA of cells in the mouth and throat cause these cells to become cancer are also being applied to experimental treatments intended to reverse these changes. Another type of gene therapy boosts the immune system so it can better find and kill cancer cells. These forms of treatment are still in very early stages of study, so it will be several years before we know if any of them are effective.

Prevention

Some studies are looking at drugs that might help prevent oral cavity and oropharyngeal cancers in people at high risk for them, such as those with pre-cancerous conditions or a history of one of these cancers. Erlotinib (Tarceva®), a drug that keeps the epidermal growth factor receptor (EGFR) from signaling cells to grow, is one drug being tested. Metformin, a drug already used to treat diabetes, is also under study. This drug may help keep pre-cancerous changes from turning into cancers.

Several other types of drugs are now being tested to help prevent these cancers. Some early research has found that certain extracts of black raspberries might even help prevent these cancers. All of these drugs and compounds need further study.

Treatment

Oral cavity and oropharyngeal cancers that are linked with HPV tend to have a better outcome than those that are HPV negative (HPV-). Clinical trials are starting to look at these HPV+ and HPV- cancers separately. For instance, studies are being done to see if HPV+ cancers can be treated with less chemo and radiation without reducing survival. Researchers are also working on treatments aimed at HPV infections or that target HPV-infected cancer cells. Studies are also looking for better ways to treat HPV- cancers, too, as well as the best ways to use the treatments we already have.

A great deal of research is focusing on improving results from chemotherapy (chemo) for people with these cancers. This includes figuring out which combinations of drugs work best and determining how best to use these drugs along with other forms of treatment. Researchers also continue to develop new chemo drugs that might be more effective against advanced oral and oropharyngeal cancers. They're also looking at whether drugs approved to treat other kinds of cancer might work for these cancers.

Doctors are always looking at newer ways of focusing radiation on tumors more precisely to help them get more radiation to the tumor while limiting side effects to nearby areas. This is especially important for head and neck tumors like oral cavity and oropharyngeal cancers, where there are often many important structures very close to

the tumor.

Clinical trials are studying targeted therapies that might block the action of substances (such as growth factors and growth factor receptors) that cause head and neck cancers to grow and spread. Drugs that target the epidermal growth factor receptor (EGFR) may help treat oral and oropharyngeal cancers. For example, the drug erlotinib (Tarceva®) has shown promising results in early phase trials. Drugs that block the growth of blood vessels tumors need to survive, such as bevacizumab (Avastin®), are now being studied for use against these cancers as well.

PDT or photodynamic therapy involves using a drug that the cancer cells absorb. The drug is then exposed to a special light which "turns it on" so it kills the cancer cells. This treatment has been used since the 1980s, but there's been a renewed research interest in how it might be used to treat oral and orophayngeal cancers. PDT is less damaging than surgery, and because there are many important structures very close to these tumors, it might be useful in early stage cancers and those that come back (recur) after treatment.

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February 22, 2018.

Last Medical Review: March 9, 2018 Last Revised: March 9, 2018

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1-800-227-2345 or www.cancer.org