Oral Cavity and Oropharyngeal Cancer

What are oral cavity and oropharyngeal cancers?

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, which is the part of the throat just behind the mouth. To understand these cancers, it helps to know the parts of the mouth and throat.

The oral cavity (mouth) and oropharynx (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, although it is often considered part of the oropharynx.

The oropharynx is the part of the throat just behind the mouth. It begins 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 wall 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 moist and helps you digest food.

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

Cancers can also start in other parts of the throat, but these cancers aren’t discussed in this document:
- Cancers of the nasopharynx (the part of the throat behind the nose and above the oropharynx) are discussed in the American Cancer Society document Nasopharyngeal Cancer.
- Cancers that start in the larynx (voice box) or the hypopharynx (the part of the throat below the oropharynx) are discussed in the American Cancer Society document Laryngeal & Hypopharyngeal Cancer.

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:
- Some are benign, or non-cancerous, which means they do not invade other tissues and do not spread to other parts of the body.
- Some growths start off harmless but can later develop into cancer. These are known as pre-cancerous conditions.
- Other tumors are cancerous. They can grow into surrounding tissues and spread to other parts of the body.

Benign (non-cancerous) tumors

Many types of benign tumors and tumor-like conditions can start in the mouth or throat:
- 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 are not likely to be life-threatening. The usual treatment is to surgically remove them 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 abnormal tissue 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 is scraped.
- Erythroleukoplakia is a patch with both red and white areas.

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

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 to 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 frequent 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 conditions. But sometimes, there may be no obvious 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. For a biopsy, a sample of tissue from the abnormal area is removed and then looked at under the microscope. But other tests may be used first to help determine if they might be cancers (and therefore will need a biopsy) or to choose the best area to sample for a biopsy. These tests are described in the section “Can oral cavity and oropharyngeal cancers be found early?”

Most cases of leukoplakia do not develop into cancer. But as many as 1 out of 5 leukoplakias is either cancerous when first found or has pre-cancerous changes that eventually 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.

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

Oral cavity and oropharyngeal cancers

Several types of cancers can start in the mouth or throat.

Squamous cell carcinomas

More than 9 of 10 cancers of the oral cavity and oropharynx are squamous cell carcinomas, also called squamous cell cancers. These cancers begin in early forms of squamous cells, which are flat, scale-like cells that normally form the lining of the mouth and throat.
The earliest form of squamous cell cancer is called carcinoma in situ, meaning that the cancer cells are present only in the outer 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**

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

If they are not treated, areas of ordinary squamous cell cancer may develop within some verrucous carcinomas. Some verrucous carcinomas may already have areas of ordinary squamous cell cancer that are not recognized 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 promptly, along with a wide margin of surrounding normal tissue.

**Minor salivary gland carcinomas**

Minor salivary gland cancers can develop in the glands in the lining of the mouth and throat. There are several types of minor salivary gland cancers, including adenoid cystic carcinoma, mucoepidermoid carcinoma, and polymorphous low-grade adenocarcinoma. For more information about these cancers and benign salivary gland tumors, see the American Cancer Society document 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 refer to the American Cancer Society documents Non-Hodgkin Lymphoma, Non-Hodgkin Lymphoma in Children, and Hodgkin disease.

**What are the risk factors for oral cavity and oropharyngeal cancers?**

A risk factor is anything that changes a person’s chance of getting a disease such as cancer. Different cancers have different risk factors. For example, exposing skin to strong sunlight is a risk factor for skin cancer. Smoking is a risk factor for many cancers.

There are different kinds of risk factors. Some, such as your age or race, can’t be changed. Others may be related to personal choices such as smoking, drinking, or diet. Some factors influence risk more than others. But risk factors don’t tell us everything. Having a risk factor, or even several, does not mean that a person will get the disease. Also, not having any risk factors doesn’t mean that you won’t get it, either.

Some people who have oral cavity or oropharyngeal cancer have few or no known risk factors, and others who have several risk factors never develop the disease. Even if someone does have risk factors, it is impossible to know for sure how much they contributed to causing the cancer.

**Tobacco and alcohol**
Tobacco and alcohol use are among the strongest risk factors for oral cavity and oropharyngeal cancers.

**Tobacco use**

Most people with oral cavity and oropharyngeal cancers use tobacco, and the risk of developing these cancers is related to how much and how long they smoked or chewed.

Smokers are many times more likely than non-smokers to develop these cancers. Tobacco smoke from cigarettes, cigars, or pipes can cause cancers anywhere in the mouth or throat, as well as causing cancers of the larynx (voice box), lungs, esophagus, kidneys, bladder, and several other organs.

Pipe smoking is a particularly significant risk for cancers in the area of the lips that touch the pipe stem.

It is important for smokers who have been treated for oral cavity or oropharyngeal cancer to quit smoking, even if their cancer seems to be cured. Continuing to smoke greatly increases their risk of developing a second cancer of the mouth, throat, larynx (voice box), or lung.

Oral tobacco products (snuff or chewing tobacco) are linked with cancers of the cheek, gums, and inner surface of the lips. Using oral tobacco products for a long time poses an especially high risk. These products also cause gum disease, destruction of the bone sockets around teeth, and tooth loss. It is also important for people who have been treated for oral cavity or oropharyngeal cancer to give up any oral tobacco products.

Please call us for help quitting tobacco. You can also learn more in Questions About Smoking, Tobacco, and Health, our Guide to Quitting Smoking, and our Guide to Quitting Smokeless Tobacco. All of these, and a lot more information about tobacco, can be read online or mailed to you.

**Drinking alcohol**

Drinking alcohol increases the risk of developing oral cavity and oropharyngeal cancers. The risk goes up even more for people who use both tobacco and alcohol. About 7 out of 10 patients with oral cancer are heavy drinkers.

**Heavy drinking and smoking**

According to some studies, the risk of these cancers in heavy drinkers and smokers may be as much as 100 times more than the risk of these cancers in people who don’t smoke or drink.

**Betel quid and gutka**

In Southeast Asia, South Asia, and certain other areas of the world, many people chew betel quid, which is made up of areca nut and lime wrapped in a betel leaf. Many people in these areas also chew gutka, a mixture of betel quid and tobacco. People who chew betel quid or gutka have an increased risk of cancer of the mouth.

**Human papilloma virus infection**

Human papilloma virus (HPV) is a group of more than 150 types of viruses. They are called papilloma viruses because some of them cause a type of growth called a papilloma. Papillomas are not cancers, and are more commonly called warts.
Infection with certain types of HPV can also cause some forms of cancer, including cancers of the penis, cervix, vulva, vagina, anus, and throat. Other types of HPV cause warts in different parts of the body.

HPV can be passed from one person to another during skin-to-skin contact. One way HPV is spread is through sex, including vaginal and anal intercourse and even oral sex.

HPV types are given numbers. The type linked to throat cancer (including cancer of the oropharynx) is HPV16.

Most people with HPV infections of the mouth and throat have no symptoms, and only a very small percentage develop oropharyngeal cancer. Oral HPV infection is more common in men than in women. The risk of oral HPV infection is linked to certain sexual behaviors, such as open mouth kissing and oral-genital contact (oral sex). The risk also increases with the number of sexual partners a person has. Smoking also increases the risk of oral HPV infection. At this time, there is no test for HPV infection of the mouth and throat that is approved by the US Food and Drug Administration.

The number of oropharyngeal cancers linked to HPV has risen dramatically over the past few decades. HPV DNA (a sign of HPV infection) is now found in about 2 out of 3 oropharyngeal cancers and in a much smaller fraction of oral cavity cancers. The reason for the rising rate of HPV-linked cancers is unclear, although some think that it could be due to changes in sexual practices in recent decades, in particular an increase in oral sex.

People with oral and oropharyngeal cancer linked with HPV infection tend to be younger and are less likely to be smokers and drinkers.

Oropharyngeal cancers that contain HPV DNA tend to have a better outlook than those without HPV.

**Gender**

Oral and oropharyngeal cancers are about twice as common in men as in women. This might be because men have been more likely to use tobacco and alcohol in the past. While this is changing, the recent rise in HPV-linked cancers has been mainly among younger men, so the difference in occurrence in genders is likely to remain in the near future.

**Age**

Cancers of the oral cavity and oropharynx usually take many years to develop, so they are not common in young people. Most patients with these cancers are older than 55 when the cancers are first found. But this may be changing as HPV-linked cancers become more common. People with cancers linked to HPV infection tend to be younger.

**Ultraviolet (UV) light**

Sunlight is the main source of UV light for most people. Cancers of the lip are more common in people who have outdoor jobs where they have prolonged exposure to sunlight.

**Poor nutrition**
Several studies have found that a diet low in fruits and vegetables is linked with an increased risk of cancers of the oral cavity and oropharynx.

**Weakened immune system**

Oral cavity and oropharyngeal cancers are more common in people who have a weak immune system. A weak immune system can be caused by certain diseases present at birth, the acquired immunodeficiency syndrome (AIDS), and certain medicines (such as those given after organ transplants).

**Graft-versus-host disease**

Graft-versus-host disease (GVHD) is a condition that sometimes occurs after a stem cell transplant. During this medical procedure, blood stem cells from a donor are used to replace bone marrow that has been destroyed by disease, chemotherapy, or radiation. GVHD occurs when the donor stem cells recognize the patient’s cells as foreign and launch an attack against them. GVHD can affect many tissues of the body, including those in the mouth. This increases the risk of oral cancer, which can occur as early as 2 years after GVHD.

**Genetic syndromes**

People with certain syndromes caused by inherited defects (mutations) in certain genes have a very high risk of mouth and throat cancer.

- Fanconi anemia is a condition that can be caused by inherited defects in several genes that contribute to repair of DNA. People with this syndrome often have blood problems at an early age, which may lead to leukemia or aplastic anemia. They also have a very high risk of cancer of the mouth and throat.
- Dyskeratosis congenita is a genetic syndrome that can cause aplastic anemia, skin rashes, and abnormal fingernails and toenails. People with this syndrome also have a very high risk of developing cancer of the mouth and throat at an early age.

More information about Fanconi anemia and dyskeratosis congenita can be found in our document Aplastic Anemia.

**Lichen planus**

This disease occurs mainly in middle-aged people. Most often it affects the skin (usually as an itchy rash), but it sometimes affects the lining of the mouth and throat, appearing as small white lines or spots. A severe case may slightly increase the risk of oral cancer.

**Uncertain, unproven or controversial risk factors**

**Mouthwash**

Some studies have suggested that mouthwash with a high alcohol content might be linked to a higher risk of oral and oropharyngeal cancers. But recent research has questioned these results. Studying this possible link is complicated by the fact that smokers and frequent drinkers (who already have an increased risk of these cancers) are more likely to use mouthwash than people who neither smoke nor drink.

**Irritation from dentures**
It has been suggested that long-term irritation of the lining of the mouth caused by poorly fitting dentures is a risk factor for oral cancer. But many studies have found no increased risk in denture wearers overall.

Poorly fitting dentures can tend to trap agents that have been proven to cause oral cancer, such as alcohol and tobacco particles, so denture wearers should have them checked by a dentist regularly to ensure a good fit. All denture wearers should remove their dentures at night and clean and rinse them thoroughly every day.

**What should you ask your doctor about oral cavity and oropharyngeal cancers?**

As you cope with cancer and cancer treatment, we encourage you to have honest, open discussions with your doctor. Ask any question on your mind, no matter how small it might seem. Here are some questions you might want to ask. Nurses, social workers, and other members of the treatment team may also be able to answer many of your questions.

- What kind of oral cavity or oropharyngeal cancer do I have?
- Where is my cancer located?
- Has my cancer spread beyond the main (primary) site?
- What is the stage of my cancer? What does the stage mean in my case?
- Are there other tests that need to be done before we can decide on treatment?
- Are there other doctors I need to see?
- How much experience do you have treating this type of cancer?
- What treatment choices do I have? Which do you recommend? Why?
- What is the goal of the treatment?
- What are the chances my cancer can be cured with treatment?
- How quickly do we need to decide on treatment?
- What should I do to be ready for treatment?
- How long will treatment last? What will it involve? Where will it be done?
- How would treatment affect my daily activities?
- What risks and side effects can I expect? How long are they likely to last?
- Will this treatment affect my appearance? If so, what options for reconstruction do I have?
- What are our options if the treatment doesn’t work or if the cancer recurs?
- What type of follow-up will I need after treatment?
- Where can I find more information and support?

In addition to these sample questions, be sure to write down some of your own. For instance, you might want more information about recovery times so you can plan your work or activity schedule. Or you may want to ask about second opinions or about clinical trials for which you may qualify. You can find more information about communicating with your health care team in our document Talking With Your Doctor.

The information in the rest of this document about oral cavity and oropharyngeal cancer refers only to squamous cell carcinoma.

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