



## Salivary Glands

### *Where Are Your Salivary Glands?*

The glands are found in and around your mouth and throat. We call the major salivary glands the parotid, submandibular, and sublingual glands.

They all secrete saliva into your mouth, the parotid through tubes that drain saliva, called salivary ducts, near your upper teeth, submandibular under your tongue, and the sublingual through many ducts in the floor of your mouth.

Besides these glands, there are many tiny glands called minor salivary glands located in your lips, inner cheek area (buccal mucosa), and extensively in other linings of your mouth and throat. Salivary glands produce the saliva used to moisten your mouth, initiate digestion, and help protect your teeth from decay.

As a good health measure, it is important to drink lots of liquids daily. Dehydration is a risk factor for salivary gland disease.

### *What Causes Salivary Gland Problems?*

Salivary gland problems that cause clinical symptoms include:

**Obstruction:** Obstruction to the flow of saliva most commonly occurs in the parotid and submandibular glands, usually because stones have formed. Symptoms typically occur when eating. Saliva production starts to flow, but cannot exit the ductal system, leading to swelling of the involved gland and significant pain, sometimes with an infection. Unless stones totally obstruct saliva flow, the major glands will swell during eating and then gradually subside after eating, only to enlarge again at the next meal. Infection can develop in the pool of blocked saliva, leading to more severe pain and swelling in the glands. If untreated for a long time, the glands may become abscessed.

It is possible for the duct system of the major salivary glands that connects the glands to the mouth to be abnormal. These ducts can develop small constrictions, which decrease salivary flow, leading to infection and obstructive symptoms.

**Infection:** The most common salivary gland infection in children is mumps, which involves the parotid glands. While this is most common in children who have not been immunized, it can occur in adults. However, if an adult has swelling in the area of the parotid gland only on one side, it is more likely due to an obstruction or a tumor.

Infections also occur because of ductal obstruction or sluggish flow of saliva because the mouth has abundant bacteria.

You may have a secondary infection of salivary glands from nearby lymph nodes. These lymph nodes are the structures in the upper neck that often become tender during a common sore throat. In fact, many of these lymph nodes are actually located on, within, and deep in the substance of the parotid gland or near the submandibular glands. When these lymph nodes enlarge through infection, you may have a red, painful swelling in the area of the parotid or submandibular glands. Lymph nodes also enlarge due to tumors and inflammation.

**Tumors:** Primary benign and malignant salivary gland tumors usually show up as painless enlargements of these glands. Tumors rarely involve more than one gland and are detected as a growth in the parotid, submandibular area, on the palate, floor of mouth, cheeks, or lips. An otolaryngologist-head and neck surgeon should check these enlargements.

Malignant tumors of the major salivary glands can grow quickly, may be painful, and can cause loss of movement of part or all of the affected side of the face. These symptoms should be immediately investigated.

**Other Disorders:** Salivary gland enlargement also occurs in autoimmune diseases such as HIV and Sjögren's syndrome where the body's immune system attacks the salivary glands causing significant inflammation. Dry mouth or dry eyes are common. This may occur with other systemic diseases such as rheumatoid arthritis. Diabetes may cause enlargement of the salivary glands, especially the parotid glands. Alcoholics may have salivary gland swelling, usually on both sides.

### ***How Does Your Doctor Make the Diagnosis?***

Diagnosis of salivary gland disease depends on the careful taking of your history, a physical examination, and laboratory tests.

If your doctor suspects an obstruction of the major salivary glands, it may be necessary to anesthetize the opening of the salivary ducts in the mouth, and probe and dilate the duct to help an obstructive stone pass. Before these procedures, dental x-rays may show where the calcified stones are located.

If a mass is found in the salivary gland, it is helpful to obtain a CT scan or a MRI (magnetic resonance imaging). Sometimes, a fine needle aspiration biopsy in the doctor's office is helpful. Rarely, dye will be injected through the parotid duct before an x-ray of the gland is taken (a sialogram).

A lip biopsy of minor salivary glands may be needed to identify certain autoimmune diseases.

### ***How Is Salivary Gland Disease Treated?***

Treatment of salivary diseases falls into two categories: medical and surgical. Selection of treatment depends on the nature of the problem. If it is due to systemic diseases (diseases that involve the whole body, not one isolated area), then the underlying problem must be treated. This may require consulting with other specialists. If the disease process relates to salivary gland



obstruction and subsequent infection, your doctor will recommend increased fluid intake and may prescribe antibiotics. Sometimes an instrument will be used to open blocked ducts.

If a mass has developed within the salivary gland, removal of the mass may be recommended. Most masses in the parotid gland area are benign (noncancerous). When surgery is necessary, great care must be taken to avoid damage to the facial nerve within this gland that moves the muscles face including the mouth and eye. When malignant masses are in the parotid gland, it may be possible to surgically remove them and preserve most of the facial nerve. Radiation treatment is often recommended after surgery. This is typically administered four to six weeks after the surgical procedure to allow adequate healing before irradiation.

The same general principles apply to masses in the submandibular area or in the minor salivary glands within the mouth and upper throat. Benign diseases are best treated by conservative measures or surgery, whereas malignant diseases may require surgery and postoperative irradiation. If the lump in the vicinity of a salivary gland is a lymph node that has become enlarged due to cancer from another site, then obviously a different treatment plan will be needed. An otolaryngologist—head and neck surgeon can effectively direct treatment.

Removal of a salivary gland does not produce a dry mouth, called xerostomia. However, radiation therapy to the mouth can cause the unpleasant symptoms associated with reduced salivary flow. Your doctor can prescribe medication or other conservative treatments that may reduce the dryness in these instances.

Salivary gland diseases are due to many different causes. These diseases are treated both medically and surgically. Treatment is readily managed by an otolaryngologist-head and neck surgeon with experience in this area.



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