Salivary Gland Disease and Tumors

The salivary glands produce saliva to moisten the mouth, to help protect teeth from decay and to digest food. The three major salivary glands are the parotid gland, submandibular gland (also called the submaxillary gland), and sublingual glands. Saliva drains into the mouth through small tubes called ducts.

- The parotid gland makes 25% of the saliva and drains into the mouth near the upper teeth.
- The submandibular gland makes 70% of the saliva and drains into the mouth from under the tongue.
- The sublingual gland makes 5% of the saliva and drains into the floor of the mouth.

In addition, 600-1000 tiny glands (the minor salivary glands) are located in the lips, inner cheek, and in the lining of the mouth and throat.

The most common cause of problems in the salivary gland occurs when the ducts become blocked and saliva cannot drain.

Problems with the ducts

Sialolithiasis (sigh a lo THIGH a sis) is a condition where tiny salivary stones form in the glands. The stones, called sialoliths, are made of calcium.

Some stones do not cause any symptoms, but some stones block the ducts. The saliva flow is partially or completely stopped. The gland might enlarge and an infection can develop.

Sialadenitis (sigh a la dent I tis) is a painful infection of a salivary gland. Staphylococcus, streptococcus, Haemophilus influenzae or anaerobic bacteria are usually the cause. The condition is common with elderly adults who have salivary gland stones, but infants can also develop sialadenitis during the first few weeks of life.

Sialadenitis can become a severe infection if not treated properly.

Viral infections such as mumps, flu, Coxsackie viruses, echovirus and cytomegalovirus can cause the salivary glands enlarge.

Cysts can develop in the salivary glands after injuries, infections, stones or tumors. Sometimes babies are born with cysts in the parotid gland because of a problem with early development of the ears.

Tumors

Most salivary tumors are benign (non-cancerous), but they can also be cancerous. The parotid is the most common gland for salivary tumors to grow.

Pleomorphic adenomas are the most common parotid tumor. It grows slowly and is benign. A pleomorphic adenoma begins as a painless lump at the back of the jaw, just below the earlobe. These are more common in women.

Benign pleomorphic adenomas can also grow in the submandibular gland and minor salivary glands, but less often than in the parotid.

Warthin's tumor is the second most common benign tumor of the parotid gland. It is more common in older men and can grow on both sides of the face.

Cancerous (malignant) tumors are rare in the salivary glands and usually occur between
Other salivary gland conditions

**Sjögren's syndrome** is chronic disease. White blood cells attack the moisture-producing glands such as the salivary glands, the tear-producing glands, and sometimes the sweat and oil glands. Middle-aged women are most affected. Sjögren's syndrome is frequently seen in people who have rheumatoid arthritis, lupus, scleroderma and polymyositis.

**Sialadenosis** is a painless enlargement of the salivary gland without a known cause. The parotid is usually the affected gland.

<table>
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<tr>
<th>Symptoms</th>
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<tr>
<td>Sialolithiasis usually begins as a painful lump under the tongue. The stone blocks the flow of saliva so pain might increase while eating.</td>
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<tr>
<td>Sialadenitis creates a painful lump in the cheek or under the chin. Foul-tasting pus drains into the mouth. Fever can occur.</td>
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<td>Generalized viral infections cause fever, headache, muscle aches and joint pain in the entire body. If the virus settles in the parotid glands, both sides of the face enlarge in front of the ears.</td>
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<td>A mucocele, a common cyst on the inside of the lower lip, can burst and drain yellow mucous. Other cysts can hinder eating, speaking or swallowing.</td>
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<td>With tumors, a cancerous or non-cancerous lump can grow in the roof of the mouth, the cheek, on the tongue or under the chin. It often glows slowly and is painful.</td>
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<td>Sjögren’s syndrome causes decreased moisture in glands. Dry mouth, tooth decay, mouth sores, enlarged salivary glands, sialoliths, and recurrent salivary gland infections are possible symptoms. The syndrome also effects moisture in the eyes, which might cause chronic eye infections, corneal ulcers and vision loss.</td>
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<td>Sialadenosis is usually painless, but the parotid glands enlarge.</td>
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**Causes and Risk Factors**

The exact cause of stone formation is not known, but certain factors might contribute to the condition:

- Dehydration, which thickens the saliva
- Decreased food intake that lowers the demand for saliva
- Antihistamines, blood pressure medications, psychiatric medications and other medication can decrease saliva production

**Factors that increase the risk to develop sialadenitis:**

- Dehydration, malnutrition, eating disorders
- Recent surgery, chronic illness, cancer, prematurity
- Antihistamines, diuretics, psychiatric medications, blood pressure medications, barbiturates
- History of Sjögren’s syndrome
- Air blowing occupations (trumpet playing, glass blowing)

**Risk factors for pleomorphic adenomas:**

- Radiation exposure
- Smoking

**The risk factors for salivary gland cancers:**

- Sjögren's syndrome
- Exposure to radiation
Smoking

Sialadenosis is more likely to develop in people who are obese, pregnant or breastfeeding, are malnourished or have eating disorders, alcoholics with liver cirrhosis, and those who have kidney failure or thyroid problems.

Diagnosis

Your doctor will ask questions about your symptoms and medical history. During the physical, the doctor will examine your head, neck and the inside of your mouth for lumps or areas of pain.

The doctor might order:

- An X-ray, CT scan or MRI to look for stones or tumors
- A fine needle biopsy (FNA) is needed to determine if a tumor is cancerous.
- Salivary function tests, eye tests and blood tests to diagnosis Sjögren's syndrome
- A sialogram X-ray that uses dye to look for problems in the salivary ducts

Treatments

Small stones might pass out of the duct without treatment. A doctor might be able to remove a stone by pressing on it if the stone is close to the opening of a duct.

Ultrasound waves can be used to shatter large stones into small pieces.

Deep or large stones are more difficult. If they cannot be removed, and symptoms of pain or infection persist, the entire salivary gland may need to be removed.

Bacterial infections require taking antibiotics and extra fluid either by mouth or intravenously (IV). Warm compresses are placed on the infected gland. Chewing sour candies encourages the flow of saliva. Surgery may be needed to drain the gland.

Antibiotics do not help cure a viral infection. The body must use its own defense system to clear itself of a virus. Bed rest, increased fluids, and acetaminophen for fever are the best ways to help the body cure itself.

Small cysts may drain without treatment. Large cysts might need surgery.

Benign tumors usually require surgery to remove them. Some are treated with radiation to prevent recurrence.

Malignant tumors require surgery if possible. Some tumors need surgery only; others require radiation and chemotherapy in addition to surgery. Radiation and chemotherapy are also used for tumors that are inoperable.

Prescribed medications help decrease dry mouth.