CONDITION

Salivary duct stones

Salivary duct stones are mineral deposits that block the flow of saliva into the mouth.

WHAT IT IS
Mineral stones blocking a salivary duct

BODY SYSTEM
Mouth and salivary glands

MAIN SYMPTOMS
Meal-time pain, swelling, tenderness, reduced saliva

WHAT CAUSES IT
Mineral buildup in slow or blocked saliva

HOW IT IS DIAGNOSED
Mouth examination and ultrasound or CT imaging

MAIN TREATMENT
Saliva stimulation and stone removal

CAN IT BE CURED?
Yes - stone removal usually clears blockage

IS IT AN EMERGENCY?
Sometimes - breathing or swallowing difficulty

LONG-TERM OUTLOOK
Usually good, though stones can return

Overview

Salivary duct stones are hard mineral deposits that form in the tubes carrying saliva into your mouth. The medical name is sialolithiasis . Saliva helps keep your mouth moist, starts digestion and protects your teeth.

You have three main pairs of salivary glands. The submandibular glands sit beneath the jaw, the parotid glands are in front of the ears, and the sublingual glands are under the tongue. Each gland releases saliva through a narrow tube called a duct.

Most stones form in the duct from a submandibular gland. This duct is relatively long and carries saliva upward into the mouth, which can make blockage more likely.

A stone may partly or completely stop saliva from leaving the gland. The gland can then swell and hurt, especially when eating because meals increase saliva production. Ongoing blockage

can sometimes lead to inflammation or a bacterial infection.

Salivary duct stones are not usually dangerous. Small stones may pass into the mouth, while others need to be removed. Modern procedures can often remove a stone without removing the salivary gland.

Symptoms

The most typical symptom is pain or swelling that starts or becomes worse around mealtimes. You may feel it under your jaw, beneath your tongue or in front of your ear, depending on which gland is affected.

Symptoms can include:

Symptoms may come and go if saliva can sometimes pass around the stone. A complete blockage may cause more persistent pain and swelling.

If the gland becomes infected, the area may become increasingly painful, warm or red. Pus may drain from the duct, and you may develop a fever or feel unwell. Infection of a salivary gland is called sialadenitis .

Not every lump or episode of facial swelling is caused by a stone. Dental infections, swollen lymph nodes, cysts and other salivary gland conditions can cause similar symptoms.

- Pain or pressure while eating
- Swelling beneath the jaw, under the tongue or near the cheek
- Tenderness over the affected gland
- A hard lump in the floor of the mouth
- Less saliva coming from the affected duct
- An unpleasant taste or discharge in the mouth

Causes and risk factors

A stone develops when minerals in saliva collect around a small piece of mucus, cells or other material within a duct. The exact reason this happens is often unclear.

Submandibular saliva is relatively thick and contains minerals that can form deposits. Its duct is also long and has to carry saliva against gravity. These features help explain why stones commonly form beneath the jaw.

Anything that reduces saliva flow may contribute. Possible risk factors include:

Do not stop a prescribed medicine because you think it may be causing dry mouth. A pharmacist or prescriber can review whether the medicine is contributing and discuss appropriate options.

Salivary duct stones are not generally considered an inherited condition. They are also different from kidney stones or gallstones. Having one type does not mean that stones are forming throughout your body.

- Dehydration or regularly drinking too little fluid
- Dry mouth
- Reduced food or fluid intake during illness
- Some medicines that reduce saliva production
- Previous inflammation, injury or narrowing of a salivary duct
- A history of salivary duct stones

Diagnosis

A healthcare professional will ask when the swelling happens, whether eating triggers it and whether you have signs of infection. They will examine your mouth and the area around the affected gland.

A stone near the opening of the submandibular duct may be visible beneath the tongue. It may also be felt by gently examining the floor of the mouth. Pressing over the gland can show whether clear saliva or pus comes from the duct.

Imaging may be needed when a stone cannot be seen or felt. Ultrasound can show many stones without exposing you to radiation. A CT scan provides more detail and can find small or deeply placed stones. Ordinary X-rays can miss stones, so they are not always enough to exclude one.

In selected cases, other imaging may be used to examine the duct and nearby soft tissues. Sialendoscopy involves passing a very small camera into the duct. It can confirm the blockage and may allow the stone to be removed during the same procedure.

Tests can also help distinguish a stone from an abscess, a narrowed duct or another cause of salivary gland swelling.

Treatment and management

Treatment depends on the stone's size, position, symptoms and whether infection is present.

Small stones may pass when saliva flow increases. Drinking enough water, gently massaging the gland toward the duct opening and applying a warm compress may help. Sugar-free sour sweets or similar foods can stimulate saliva, although they may briefly increase pain if the duct is tightly blocked.

Use pain medicines only as directed on the label or by a healthcare professional. Some products are not suitable for everyone, particularly if you have certain medical conditions or take other medicines.

Do not insert needles, pins or other sharp objects into the duct. This can cause bleeding, infection, scarring or a deeper injury. Forceful squeezing can also damage the duct.

If the stone remains stuck, removal options include:

These treatments aim to preserve the salivary gland whenever possible. Removing the entire gland is now usually reserved for stones that cannot be managed by less invasive methods, repeated severe blockage, or substantial gland damage.

A bacterial infection may require antibiotics like amoxicillin or doxycycline . An abscess, which is a pocket of pus, may need drainage. Antibiotics treat the infection but do not remove the stone that caused the blockage.

- Gently releasing a stone located near the duct opening
- Making a small opening inside the mouth to remove an accessible stone
- Using sialendoscopy to grasp or break up the stone
- Using shock waves or other methods to fragment selected stones
- Combining endoscopy with a small surgical procedure for a deeper stone

Complications

Repeated or long-lasting blockage can cause recurring inflammation and infection. The gland may become firm or produce less saliva over time.

Possible complications include narrowing or scarring of the duct, an abscess and repeated episodes of pain with meals. An untreated infection can rarely spread into tissues under the tongue or into the neck.

Procedures also have risks, such as bleeding, infection, duct scarring or injury to nearby nerves. The exact risks depend on the stone's location and the procedure being considered.

Most people continue to make enough saliva even if one gland works less well. If a gland must

be removed, the remaining glands often compensate, although some people notice ongoing dryness.

Prevention

There is no proven way to prevent every salivary duct stone. Some form without a clear avoidable cause.

Keeping well hydrated may help maintain saliva flow. Regular dental care and good mouth hygiene may reduce problems from dry mouth and bacterial buildup, although they cannot guarantee that a stone will not form.

If you often have a dry mouth, a clinician or pharmacist can review possible causes, including medicines. They may suggest ways to relieve dryness without changing necessary treatment on your own.

After a stone is removed, follow any advice about gland massage, hydration or follow-up care. A removed stone does not grow back, but a new stone can form in the same or another duct.

Living with it and what to expect

A small stone may pass into your mouth on its own. Until it passes or is removed, swelling may repeatedly appear during meals and settle afterward. There is no reliable way to predict how quickly an individual stone will pass.

Once the blockage has been cleared, pain and swelling usually improve. Recovery time depends on whether the stone passed naturally, was removed through the duct or required surgery. Infection and long-term inflammation can make recovery slower.

Many people have only one episode. Others develop another stone months or years later. Returning meal-time swelling should be assessed rather than repeatedly managed at home, especially if the gland remains enlarged between meals.

Sialendoscopy and other gland-preserving techniques mean that many stones can be treated without lasting changes to eating, speaking or daily life. More complicated stones may require several appointments or a combined procedure.

Routine follow-up may be needed after a procedure to check healing, saliva flow and whether the duct remains open. Follow-up is also appropriate for persistent dry mouth, recurring swelling or a lump that does not settle.

When to get medical help

Arrange a routine appointment if you have repeated swelling or pain around meals, can feel a hard lump under your tongue, or have symptoms that do not settle. A persistent lump should be examined even if it is not painful.

Seek urgent same-day medical help if:

Call emergency services if swelling beneath the tongue or in the neck makes it difficult to breathe or swallow, if you cannot swallow your saliva, or if swelling is spreading quickly. These symptoms can indicate a serious infection or pressure on the airway.

- Swelling or pain is rapidly worsening
- You have a fever or feel significantly unwell
- Pus or a foul-tasting discharge comes from the duct
- The skin over the gland becomes red and hot
- You cannot eat or drink enough because of the pain

Common questions

Can a salivary duct stone go away by itself?

A small stone near the duct opening may pass when saliva flow increases. Larger, deeper or firmly stuck stones are less likely to pass and may need a procedure.

Can I remove a salivary stone at home?

Gentle massage may help a small stone move, but you should not cut the duct or use tweezers, needles or other tools. A clinician can assess the stone's position and remove it more safely.

Are salivary stones related to kidney stones?

They are different conditions. Salivary stones form from substances in saliva, while kidney stones form from substances in urine. Having one does not automatically mean you will develop the other.

Are salivary duct stones contagious?

No. You cannot catch a stone from another person or pass one to someone else.

How long does a salivary stone take to pass?

There is no fixed timeframe. Some small stones pass quickly, while others remain in place and cause repeated symptoms. Persistent or recurring blockage should be assessed.

Is a lump in a salivary gland always a stone?

No. Infection, a cyst, duct narrowing and other growths can also cause a lump. A lump that persists, grows, feels hard or is associated with weakness or numbness needs medical assessment.

Sources

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