CONDITION

Ludwig angina

Ludwig angina is a rapidly spreading bacterial infection beneath the tongue and lower jaw that can block the airway.

WHAT IT IS
Rapid bacterial infection beneath the tongue and lower jaw

BODY SYSTEM
Mouth, jaw, and upper airway

MAIN SYMPTOMS
Jaw swelling, tongue elevation, trouble swallowing, breathing difficulty

WHAT CAUSES IT
Bacterial infection, usually from an infected lower tooth

HOW IT IS DIAGNOSED
Physical examination; contrast CT when the airway is stable

MAIN TREATMENT
Airway support, intravenous antibiotics, and surgical or dental care

CAN IT BE CURED?
Yes - prompt treatment can clear the infection

IS IT AN EMERGENCY?
Yes - swelling can quickly block breathing

LONG-TERM OUTLOOK
Usually full recovery with rapid hospital treatment

Overview

Ludwig angina is a serious bacterial infection in the floor of the mouth. This is the area beneath the tongue and between the lower jaw and upper neck. The infection usually spreads through tissue on both sides rather than forming one small, contained pocket of pus.

Despite its name, Ludwig angina is not related to the chest pain called angina. Here, "angina" is an older term linked to choking or tightening.

The infection can cause firm swelling under the jaw and push the tongue upward or backward. This matters because the swelling may narrow or block the airway. The airway is the passage through which air reaches the lungs.

Ludwig angina needs emergency hospital assessment. Treatment focuses first on protecting

breathing, then controlling the infection with antibiotics and treating its source. With prompt care, many people recover fully.

Symptoms

Symptoms may worsen over hours or a few days. They often begin with tooth pain or swelling around the lower jaw.

Common symptoms include:

The swelling may feel hard or "woody" rather than soft. Obvious pus may be absent because Ludwig angina often spreads through tissue instead of beginning as a single abscess.

A person with worsening breathing may sit upright, lean forward, appear restless, or struggle to speak in full sentences. Noisy breathing, especially a high-pitched sound when breathing in, is a sign that the airway may be dangerously narrow.

Not everyone has every symptom. Fever may be absent, particularly in older people or those with a weakened immune system.

- Painful, firm swelling beneath the jaw or chin
- Swelling in the floor of the mouth
- A tongue that appears raised or pushed backward
- Difficulty or pain when swallowing
- Drooling or difficulty managing saliva
- A muffled or unusually thick-sounding voice
- Neck pain, stiffness, or swelling
- Fever, chills, weakness, or feeling unwell
- Difficulty opening the mouth
- Fast or difficult breathing

Causes and risk factors

Ludwig angina is usually caused by bacteria spreading from an infected lower tooth. Infections involving the second or third lower molars are common sources because their roots lie close to the spaces beneath the tongue and jaw.

The infection is often caused by several bacteria together. Many of these bacteria normally live

in the mouth. They can enter deeper tissue through tooth decay, a dental abscess, gum disease, or an opening caused by injury.

Less common starting points include:

Anyone can develop Ludwig angina. Factors that may make severe dental or deep-neck infection more likely include poor dental health, uncontrolled diabetes, heavy alcohol use, malnutrition, and medicines or conditions that weaken the immune system.

Ludwig angina is not generally considered contagious. It usually develops when a person's own mouth bacteria spread into deeper tissue rather than through ordinary contact with another person.

- A recent tooth extraction or other dental procedure
- An injury or cut inside the mouth
- An infected salivary gland
- An infected jawbone
- Tongue piercing or another penetrating mouth injury

Diagnosis

Ludwig angina is mainly diagnosed from the symptoms and a physical examination. A clinician examines the mouth, tongue, jaw, and neck while paying close attention to breathing, voice changes, swallowing, and saliva control.

Airway assessment comes before imaging. If there are signs that the airway is narrowing, treatment to protect breathing should not be delayed for a scan.

A contrast-enhanced CT scan may be used once the airway is considered stable. Contrast is a substance given into a vein to make infected tissue and blood vessels easier to see. The scan can show how far the infection has spread and whether there is an abscess that may need drainage.

Blood tests can look for signs of infection and check how the kidneys and other organs are functioning. Blood cultures may identify bacteria if the infection has entered the bloodstream. If fluid or pus is drained, a sample may be tested to help select the most suitable antibiotic like amoxicillin or doxycycline .

Other problems can cause mouth or neck swelling, including a dental abscess, infected salivary gland, allergic swelling, a deep-neck abscess, or a tumour. The examination and imaging help distinguish these conditions.

Treatment and management

Ludwig angina is treated in hospital. Care may involve emergency medicine, anaesthesia, ear, nose and throat surgery, oral and maxillofacial surgery, dentistry, or intensive care.

Protecting the airway is the first priority. Oxygen and continuous monitoring may be used. If swelling threatens breathing, a breathing tube may need to be placed while the person is still awake. A surgical opening into the windpipe may be necessary when a tube cannot be placed safely through the mouth or nose.

Airway procedures can be technically difficult because swelling may distort the normal structures of the mouth and throat. They are performed by teams with appropriate airway equipment and experience.

Antibiotics are given into a vein. They are selected to cover the mixture of bacteria commonly found in mouth and dental infections. Treatment may be adjusted after laboratory results are available. Once the infection is clearly improving and swallowing is safe, treatment may sometimes continue with antibiotic tablets or liquid.

Surgery may be needed to drain infected spaces, especially if imaging shows an abscess, pressure is building, or the infection is not responding adequately to antibiotics. Because an infected tooth is often the source, dental treatment or tooth removal may also be necessary.

Fluids, pain relief, and nutritional support may be provided. Some hospital teams use medicine to reduce airway swelling in selected cases, but this is an additional measure and does not replace airway protection, antibiotics, or drainage when needed.

Complications

The most immediate complication is airway obstruction. Swelling beneath the tongue can push it backward and prevent enough air from reaching the lungs.

The infection can also spread beyond the mouth and jaw. Possible complications include:

These complications are not inevitable. Early airway management, antibiotics, and control of the dental or surgical source reduce the risk.

- An abscess in the neck or beneath the tongue
- Infection spreading into the chest
- Pneumonia after saliva or infected material enters the lungs
- Sepsis, a dangerous whole-body response to infection

- Infection or clotting in nearby veins
- Damage to nearby tissue
- Kidney or other organ injury during severe infection

Prevention

Not every case can be prevented. However, because many cases begin with a dental infection, prompt dental care can lower the chance of infection spreading.

Brush with fluoride toothpaste, clean between the teeth, and attend dental check-ups at intervals appropriate for your needs. Seek dental care for persistent toothache, a broken tooth, gum swelling, or a bad taste caused by drainage.

A dental abscess does not usually clear permanently without treating its source. Antibiotics alone may ease part of the infection but cannot repair a decayed tooth or remove infected dental tissue.

If you have diabetes, keeping it as well controlled as possible may support the body's ability to handle infection. Follow aftercare instructions following tooth extraction, oral surgery, or tongue piercing, and report increasing pain, swelling, fever, or difficulty swallowing.

Living with it and what to expect

Ludwig angina is usually a sudden illness rather than a long-term condition. The first hours and days focus on breathing safely and stopping the infection. Some people need close observation in intensive care, while others can be managed on a hospital ward.

Swelling and swallowing problems should begin to improve as treatment takes effect, but recovery time is not the same for everyone. A more extensive infection, an abscess, delayed treatment, or other health conditions may lead to a longer hospital stay.

After discharge, tiredness, jaw discomfort, or reduced mouth opening may continue for a time. Follow-up may include checking that the infection has cleared, monitoring wound healing, and completing dental treatment. Finish any prescribed antibiotic course according to the discharge instructions.

Ludwig angina does not usually become chronic once the infection and its source have been treated. It can happen again if another dental or mouth infection spreads into the same tissue spaces. Ongoing dental care is therefore an important part of recovery.

Most people can return to their usual activities after healing. The care team can advise when

eating normally, exercising, working, or returning to school is reasonable based on the extent of the infection and any procedures performed.

When to get medical help

Call emergency services immediately for:

Do not try to examine or press down the tongue if breathing is difficult. Do not lie flat if that makes breathing worse. Emergency transport is safer than driving because airway swelling can progress during the journey.

Go to an emergency department urgently if you have mouth or lower-jaw swelling together with fever, a raised tongue, a muffled voice, difficulty swallowing, or trouble opening your mouth. Breathing may still seem normal early in the illness.

After hospital treatment, routine follow-up is used to check healing and address the dental source. Contact the treating service promptly if fever returns, swelling increases, a wound begins draining more, or pain worsens instead of improving.

- Difficulty breathing or rapidly worsening shortness of breath
- Noisy, high-pitched, or laboured breathing
- Rapidly increasing swelling beneath the tongue, jaw, or neck
- Inability to swallow saliva or severe drooling
- Blue, grey, or very pale lips or skin
- Confusion, collapse, or difficulty staying awake

Common questions

Is Ludwig angina the same as a dental abscess?

No. A dental abscess is a pocket of infection around a tooth or gum. Ludwig angina is a spreading infection beneath the tongue and lower jaw. A dental abscess can be the source of Ludwig angina.

Why is it called angina if it does not affect the heart?

"Angina" comes from an older word associated with choking or tightening. In Ludwig angina, the concern is tightening of the airway from mouth and neck swelling, not reduced blood flow to the heart.

Can Ludwig angina go away with antibiotic tablets at home?

It should not be managed at home. Swelling can threaten the airway, and treatment usually requires hospital monitoring and antibiotics given into a vein. Dental or surgical treatment may also be needed.

How quickly does Ludwig angina develop?

It can progress over hours or several days. The speed is not predictable from tooth pain alone. New difficulty swallowing, tongue elevation, drooling, voice change, or breathing trouble needs urgent assessment.

Will I need surgery?

Not everyone needs the same procedure. Surgery is more likely if there is an abscess, pressure in the infected spaces, a dental source that must be removed, or inadequate improvement with antibiotics. An airway procedure may be needed if breathing is at risk.

Can Ludwig angina come back?

It can return if another dental or mouth infection spreads into the deep tissues. Treating the original source and maintaining dental care can reduce this risk, although recurrence cannot always be prevented.

Sources

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