CONDITION

Angioedema

Learn how angioedema causes deeper skin swelling, what can trigger it, how different forms are diagnosed and treated, and when swelling needs emergency care.

WHAT IT IS
Sudden deeper skin and tissue swelling

BODY SYSTEM
Skin and soft tissues

MAIN SYMPTOMS
Facial swelling, painful or burning skin, hives, abdominal pain

WHAT CAUSES IT
Immune reactions, medicines, inherited conditions, unknown

HOW IT IS DIAGNOSED
Clinical history and targeted blood or genetic tests

MAIN TREATMENT
Cause-specific medicines and trigger avoidance

CAN IT BE CURED?
Sometimes, when the cause is removed

IS IT AN EMERGENCY?
Sometimes, with tongue or throat swelling

LONG-TERM OUTLOOK
Attacks may recur, with airway obstruction the main risk

Overview

Angioedema is sudden swelling in the deeper layers of the skin or in the moist tissues lining areas such as the mouth, throat, and intestines. It often affects the lips, eyelids, face, hands, feet, or genitals. Unlike many surface rashes, the swelling may feel firm or painful rather than itchy.

Angioedema is not one single disease. It can happen as part of an allergic reaction, as a side effect of medicine, because of an inherited condition, or without an identifiable cause. Some forms involve histamine, a chemical released during allergic and immune reactions. Others involve bradykinin, a substance that widens blood vessels and allows fluid to move into nearby tissues.

This difference matters because treatments that help histamine-related swelling may not

work for bradykinin-related angioedema.

Most swelling outside the airway is not immediately dangerous, although it may be uncomfortable and disruptive. Swelling of the tongue, mouth, or throat can block breathing and requires emergency care. Severe abdominal attacks can also need urgent assessment.

Symptoms

Symptoms depend on where the swelling occurs and what is causing it. Angioedema may affect one area or several areas at the same time.

Common symptoms include:

Hives are raised, itchy welts on the surface of the skin. Angioedema occurs deeper under the skin. A person can have either condition alone or both together.

Angioedema affecting the digestive tract may cause cramping abdominal pain, nausea, vomiting, diarrhea, or a swollen abdomen. These symptoms can resemble other abdominal illnesses. Repeated episodes without hives may suggest a bradykinin-related form, but symptoms alone cannot confirm the cause.

Histamine-related swelling often develops quickly and may occur with itching, hives, wheezing, dizziness, or other signs of an allergic reaction. Bradykinin-related swelling usually develops more gradually, often lasts longer, and typically occurs without hives or itching.

Call emergency services immediately for:

These may be signs of airway obstruction or anaphylaxis, a severe allergic reaction. If an epinephrine auto-injector has been prescribed for possible allergic emergencies, use it as directed and call emergency services. Do not wait to see whether symptoms improve.

- Swelling of the lips, eyelids, face, hands, feet, or genitals
- A tight, warm, tingling, painful, or burning feeling in the swollen area
- Skin that looks normal or mildly red
- Swelling that is not very itchy
- Hives, also called urticaria, in some histamine-related cases
- Trouble breathing, noisy breathing, or a feeling that the throat is closing
- Swelling of the tongue or throat
- Difficulty speaking or swallowing saliva
- Faintness, confusion, collapse, or blue or gray lips

- Rapidly developing swelling with widespread hives, wheezing, vomiting, or dizziness

Causes and risk factors

Histamine-related angioedema can be triggered by foods, insect stings, medicines, latex, or another allergen. It may occur as part of anaphylaxis. In other cases, hives and swelling continue or return without a specific allergic trigger. This is sometimes called spontaneous angioedema.

Medicines can cause angioedema through different pathways. Angiotensin-converting enzyme inhibitors like lisinopril or ramipril, usually called ACE inhibitors, are blood pressure and heart medicines that can raise bradykinin levels. Swelling may begin soon after treatment starts or after months or years of use. It usually occurs without hives. A previous history of uneventful use does not rule it out.

Other medicines may occasionally contribute to swelling or allergic reactions. These include nonsteroidal anti-inflammatory drugs like ibuprofen or naproxen , or NSAIDs, such as ibuprofen and aspirin. The relationship between a medicine and swelling should be reviewed by a clinician rather than assumed.

Hereditary angioedema, or HAE, is a rare genetic condition. Most cases involve too little C1 inhibitor protein or a C1 inhibitor that does not work properly. C1 inhibitor helps control chemical pathways that produce bradykinin. Some people have hereditary angioedema even though standard C1 inhibitor test results are normal.

HAE attacks often affect the skin, abdomen, or airway and usually occur without hives. Attacks may happen without a clear cause. Possible triggers include injury, surgery, dental work, illness, emotional stress, hormonal changes, and certain medicines. Family history can be helpful, but a person may have HAE without known affected relatives.

Acquired C1 inhibitor deficiency is another uncommon cause. It is not inherited and usually begins later in life. It may be associated with certain immune system or blood disorders.

Sometimes no cause is found despite an appropriate evaluation. This may be described as idiopathic angioedema. "Idiopathic" means that the cause is unknown, not that the symptoms are imagined.

Diagnosis

Diagnosis begins with a detailed history and examination. A clinician may ask when the swelling began, how quickly it developed, how long it lasted, and whether hives or itching occurred.

Photographs taken during an episode can be useful if the swelling has resolved before the appointment.

Important details include:

There is no single test for every type of angioedema. Testing is guided by the pattern of symptoms.

When hereditary or acquired C1 inhibitor deficiency is suspected, blood tests may measure complement component 4, known as C4, along with the amount and function of C1 inhibitor. Abnormal results are often repeated to confirm them. A C1q level may help specialists investigate acquired forms. Genetic testing may be considered in selected cases, especially when standard blood results are normal but hereditary angioedema remains possible.

Blood tryptase may be measured after a suspected anaphylactic reaction. It can support the diagnosis in some cases, but a normal result does not exclude anaphylaxis.

Allergy testing is most useful when the history points to a particular trigger. Broad food or environmental testing without a matching history may produce results that do not explain the swelling.

Imaging is not routinely needed for skin swelling. During an abdominal attack, imaging may show bowel swelling or fluid, but these findings are not specific to angioedema.

- All prescription medicines, over-the-counter products, and supplements
- Recent foods, insect stings, illnesses, or exposures
- Previous episodes and their response to treatment
- Abdominal pain or vomiting during attacks
- Dental work, surgery, injury, or hormonal changes
- A family history of unexplained swelling or airway emergencies

Treatment and management

Treatment depends on the cause, severity, and location of the swelling. Airway symptoms take priority over determining the exact type.

Suspected anaphylaxis is treated promptly with epinephrine and emergency medical care. Antihistamines may help hives and itching, but they do not replace epinephrine. Corticosteroids like prednisone or hydrocortisone have a delayed effect and are not first-line treatment for anaphylaxis.

Histamine-related angioedema without anaphylaxis is often managed with antihistamines. A

clinician may adjust treatment when episodes continue or recur. Avoiding a confirmed trigger can reduce future reactions, but unnecessary food or medicine restrictions should be avoided.

Bradykinin-related angioedema does not usually respond to antihistamines, corticosteroids, or epinephrine. Epinephrine may still be given when the cause is uncertain and anaphylaxis is possible.

ACE inhibitor-related angioedema requires medical review and discontinuation of the ACE inhibitor. The medicine should generally not be restarted after it has been identified as the cause. Swelling may continue or occasionally recur for a period after the medicine is stopped. A clinician can select an alternative treatment for blood pressure or heart disease.

Hereditary angioedema is managed with a specialist treatment plan. On-demand medicines used for attacks may include C1 inhibitor replacement or drugs that block bradykinin production or action. Available products, approved uses, and methods of administration vary by age and location.

Some people with HAE are offered preventive treatment because of attack frequency, severity, access to emergency care, or effects on daily life. Preventive options may include C1 inhibitor replacement, lanadelumab, or berotralstat. Short-term prevention may be considered before certain dental or surgical procedures. Treatment choices should be made with a clinician experienced in HAE.

People at risk for recurrent serious attacks may need written instructions, access to rescue medicine, and training for family members. A medical identification card or bracelet can help emergency teams recognize the condition.

Medicines commonly used for this include clemastine and icatibant . Which one suits you, if any, is a decision for you and your doctor.

Complications

The main serious complication is airway obstruction from swelling of the tongue, throat, or voice box. This can occur in allergic, medicine-related, hereditary, or acquired angioedema. Previous mild attacks do not guarantee that future attacks will remain mild.

Abdominal angioedema can cause severe pain, vomiting, dehydration, and difficulty eating or drinking. Because it can resemble appendicitis or other surgical conditions, repeated unexplained attacks may lead to unnecessary procedures before the correct cause is recognized.

Visible swelling can interfere with work, school, sleep, speaking, eating, and social activities. Unpredictable attacks may also cause anxiety. A clear diagnosis and practical action plan can

reduce uncertainty and help people seek the right level of care.

Follow up

Routine follow-up is appropriate after a first unexplained episode, repeated swelling, or any episode linked to a medicine. Bring photographs, a symptom timeline, and a complete medicine list. Do not stop an important prescription medicine on your own unless emergency clinicians advise you to do so; contact the prescriber promptly for guidance.

Referral to an allergist or immunologist may be helpful when attacks recur, occur without hives, involve the abdomen, are linked to an ACE inhibitor, or raise concern for hereditary or acquired angioedema. Relatives of a person with confirmed HAE may be offered evaluation.

A follow-up plan may cover:

Seek urgent medical advice for significant abdominal pain, repeated vomiting, dehydration, or rapidly worsening swelling, even when breathing is normal. Tongue or throat swelling, breathing difficulty, faintness, or suspected anaphylaxis requires emergency services rather than routine follow-up.

- How to recognize an attack and when to use rescue treatment
- Which symptoms require emergency care
- Whether medicines or procedures may trigger attacks
- How and where emergency medicines should be stored
- Planning for travel, school, work, dental treatment, or surgery
- Whether family members should be tested

Sources

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