CONDITION

HANE

HANE is an inherited condition that causes repeated episodes of swelling in the skin, digestive tract, or airway.

WHAT IT IS
Inherited condition causing repeated swelling attacks

BODY SYSTEM
Skin, digestive system, and airway

MAIN SYMPTOMS
Skin swelling, abdominal pain, nausea, throat swelling

WHAT CAUSES IT
Inherited changes disrupting bradykinin control

HOW IT IS DIAGNOSED
C4 and C1 inhibitor tests; sometimes genetic testing

MAIN TREATMENT
On-demand swelling treatment and preventive medicines

CAN IT BE CURED?
No - inherited tendency remains lifelong

IS IT AN EMERGENCY?
Sometimes - throat swelling or breathing trouble

LONG-TERM OUTLOOK
Lifelong, usually manageable with an individual action plan

Overview

HANE stands for hereditary angioneurotic edema. The condition is now more commonly called hereditary angioedema, or HAE. Despite the older word "neurotic," HANE is not a mental health condition.

HANE causes repeated attacks of swelling beneath the skin or in the tissues lining the digestive tract and airway. The swelling is caused by excess activity of bradykinin, a natural substance that makes blood vessels leak fluid into nearby tissue.

Attacks can affect the hands, feet, face, genitals, abdomen, tongue, or throat. Swelling in the digestive tract can cause intense abdominal pain, vomiting, or diarrhea. Throat swelling can block the airway and is a medical emergency.

Unlike most allergic swelling, HANE usually does not cause itchy hives. Antihistamines and corticosteroids like prednisone or hydrocortisone generally do not control it because histamine-the chemical involved in many allergies-is not the main cause.

HANE is lifelong, but treatments can stop attacks and reduce how often they happen. An emergency plan is important because the timing and location of an attack can be unpredictable.

Symptoms

Symptoms usually occur in separate attacks. Some people have long periods without swelling, while others have more frequent episodes. An attack often builds over several hours and may last for several days without effective treatment.

Common symptoms include:

The skin swelling is usually not itchy. It may feel tight, painful, or uncomfortable. Swelling can move from one area to another during the same attack.

Some people notice warning symptoms before visible swelling begins. These may include unusual tiredness, tingling, muscle aches, mood changes, or the characteristic non-itchy rash. Not everyone has a warning.

Abdominal attacks can resemble appendicitis, gallbladder problems, or another urgent abdominal condition. A person can also have HANE and an unrelated abdominal illness, so new or unusual pain still needs appropriate assessment.

- Swelling of a hand, foot, arm, leg, face, or genital area
- Severe, cramping abdominal pain
- Nausea, vomiting, or diarrhea
- Swelling of the tongue or throat
- A tight throat, hoarse voice, or trouble swallowing
- A non-itchy, ring-shaped rash called erythema marginatum

Causes and risk factors

HANE results from an inherited change that disrupts the control of bradykinin. Bradykinin makes small blood vessels more permeable, allowing fluid to enter surrounding tissues.

In the most common forms, a change in the `SERPING1` gene causes too little C1 inhibitor or

prevents it from working properly. C1 inhibitor is a blood protein that helps control several chemical systems, including the pathway that produces bradykinin.

Some people have HANE even though their C1 inhibitor level and function are normal. Certain families have changes in other genes involved in swelling pathways, while the cause remains unidentified in some cases.

HANE is usually inherited in an autosomal dominant pattern. This means one changed copy of a relevant gene can cause the condition. However, someone may be the first person in their family to have it because a new genetic change can occur.

Having the genetic change creates the underlying tendency, but particular events may trigger an attack. Possible triggers include:

Sometimes an attack has no clear trigger. A trigger that affects one person may not affect another.

- Dental treatment, surgery, injury, or pressure on the skin
- Illness or infection
- Emotional stress
- Menstrual or hormonal changes
- Medicines containing estrogen
- Angiotensin-converting enzyme inhibitors like lisinopril or ramipril, known as ACE inhibitors

Diagnosis

Diagnosis begins with the pattern of swelling. Clues include repeated swelling without itchy hives, unexplained abdominal attacks, throat swelling, and relatives with similar symptoms. A lack of family history does not rule it out.

Blood tests usually measure:

Abnormal results are often confirmed with repeat testing. The timing of testing and the person's age can affect interpretation.

If C1 inhibitor testing is normal but hereditary angioedema is still suspected, genetic testing may help identify certain forms. Genetic testing does not find a cause in every affected person.

Other conditions can cause swelling. These include allergic reactions, medicine-related swelling, and acquired C1 inhibitor deficiency, which is not inherited. A test called C1q and other investigations may help distinguish acquired swelling from HANE.

During an abdominal attack, imaging may show temporary bowel-wall swelling or fluid in the abdomen. These findings can support the diagnosis but do not replace the relevant blood or genetic tests.

- C4, a protein in the complement immune system
- The amount of C1 inhibitor in the blood
- How well the C1 inhibitor works

Treatment and management

Treatment has three main aims: stopping an active attack, preventing attacks around known risks, and reducing attacks over the longer term.

On-demand treatment is taken as early as possible when an attack begins. Depending on age, location, availability, and local approval, options may include:

Some treatments can be used at home after training. Others must be given in a healthcare setting. A throat attack still requires emergency assessment, even if treatment has already been used, because airway swelling may continue or return.

When recommended treatments are unavailable, healthcare teams may use other approaches based on the situation and local guidance. Severe airway swelling may require a procedure to keep the airway open.

Short-term preventive treatment may be planned before dental work, surgery, or another procedure that could trigger swelling. The need for it depends on the procedure, previous attacks, and access to emergency treatment.

Long-term preventive treatment may be considered when attacks are frequent, severe, unpredictable, or disruptive. Options include C1 inhibitor replacement and medicines that reduce kallikrein, an enzyme involved in making bradykinin. Examples include lanadelumab and berotralstat. Availability and approval differ by country and age group.

Older hormone-based medicines called attenuated androgens are still used in some settings, but they can cause important side effects and require monitoring. Treatment choices may also change during pregnancy or breastfeeding.

Antihistamines like cetirizine or loratadine , corticosteroids, and adrenaline do not usually stop a confirmed HANE attack. However, adrenaline may still be used when an allergic emergency is possible or the cause of swelling is unclear.

A written action plan should explain which medicine to use, when to seek emergency care, and how to obtain replacement supplies. Many people also carry medical identification and

information explaining that their swelling is bradykinin-mediated rather than allergic.

- C1 inhibitor replacement
- Icatibant, which blocks the effect of bradykinin
- Ecallantide, which blocks an enzyme involved in bradykinin production

Complications

The most serious complication is swelling that narrows or closes the airway. It may begin with voice changes, trouble swallowing, or a feeling of tightness before breathing becomes difficult.

Abdominal attacks can cause dehydration through vomiting or diarrhea. They may also lead to repeated emergency visits or unnecessary surgery if HANE has not yet been recognized.

Frequent attacks can disrupt school, work, sleep, travel, and relationships. Fear of an unexpected attack may affect emotional well-being. Preventive treatment, reliable access to on-demand medicine, and support from people familiar with the condition can reduce this burden.

Treatments can also have side effects. Regular follow-up helps check whether the benefits still outweigh the risks.

Prevention

HANE itself cannot currently be prevented because the underlying tendency is inherited. Genetic counseling can explain inheritance, family testing, and reproductive options without directing personal decisions.

Not every attack can be prevented. You may be able to reduce risk by identifying your own triggers and planning ahead for dental work, surgery, travel, or pregnancy.

Do not stop or change prescribed medicines on your own. If estrogen-containing treatment or an ACE inhibitor appears to worsen swelling, discuss alternatives with the relevant healthcare professional.

Relatives may benefit from testing when a genetic change or C1 inhibitor deficiency has been confirmed in the family. Earlier recognition allows an emergency plan to be prepared before a serious attack occurs.

Living with it and what to expect

HANE is a lifelong condition, but its pattern may change over time. Attack frequency, severity, and location can shift with age, hormones, health events, or treatment. A quiet period does not mean the condition has gone away.

Some people have occasional mild swelling. Others need regular preventive treatment because attacks are frequent or have involved the airway. It is not possible to predict an individual course from a single attack.

Hormonal changes may influence symptoms. Attacks can change around puberty, menstrual periods, pregnancy, or menopause. Pregnancy does not affect everyone in the same way, so treatment and delivery planning should be reviewed in advance.

Many people learn to recognize their early symptoms and treat attacks promptly. Keeping a record of attacks, possible triggers, treatments, and response can make follow-up more useful.

It is sensible to keep on-demand treatment accessible rather than packed in checked luggage or stored somewhere difficult to reach. Before travel, check how to transport the medicine, where emergency care is available, and whether you have enough supply for delays.

Routine specialist follow-up is used to review attacks, treatment effectiveness, side effects, and whether the action plan still fits your circumstances. With effective treatment and planning, many people can work, study, travel, exercise, and take part in family life, although occasional disruption may still occur.

When to get medical help

Call emergency services immediately for:

Use prescribed on-demand treatment immediately if your plan directs you to do so, but do not wait at home to see whether airway symptoms improve. Tell emergency staff that you have, or may have, hereditary angioedema.

Seek urgent medical assessment for severe or persistent abdominal pain, repeated vomiting, faintness, or signs of dehydration. These symptoms may be an abdominal HANE attack, but other urgent conditions can look similar.

Arrange routine follow-up if attacks are becoming more frequent, treatment is not working as expected, or side effects are causing problems. Review your plan before dental work, surgery, pregnancy, or a long trip.

A first episode of unexplained facial, tongue, or throat swelling also needs prompt medical assessment, especially if the cause is uncertain.

- Tongue or throat swelling
- A hoarse or changing voice
- Trouble swallowing, speaking, or breathing
- Noisy breathing, blue or grey lips, collapse, or severe weakness

Common questions

Is HANE the same as an allergy?

No. HANE swelling is mainly driven by bradykinin, while allergic swelling is usually driven by histamine. HANE usually occurs without itchy hives and often does not respond to antihistamines or corticosteroids.

It is still possible to have both HANE and an allergy. Emergency staff may treat for an allergic reaction when the cause of sudden swelling is unclear.

Is HANE contagious?

No. It cannot spread through touch, food, coughing, sex, or shared living spaces. It is caused by an inherited change in the body's control of swelling.

Can HANE skip a generation?

The genetic change can be passed through a family, but symptoms may differ greatly between relatives. Someone with mild or unrecognized symptoms may make it appear that the condition skipped a generation. Genetic testing and C1 inhibitor tests can help clarify who is affected.

Can stress cause a HANE attack?

Stress may trigger attacks in some people, but it is not the underlying cause. Attacks also happen without stress or any identifiable trigger. Having an attack does not mean you failed to manage stress properly.

Can I have HANE if nobody else in my family has it?

Yes. Relatives may have mild or unrecognized symptoms, or the genetic change may have started with you. A negative family history does not exclude the condition.

Why are throat symptoms treated as an emergency?

Swelling can narrow the airway and may progress unpredictably. Early HANE treatment can help, but emergency assessment is still needed because additional airway support may be required.

Sources

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