CONDITION

Localized epidermolysis bullosa

Localized epidermolysis bullosa is an inherited condition that causes friction-triggered blisters, mainly on the hands and feet.

WHAT IT IS
Inherited skin fragility causing friction blisters on hands and feet

BODY SYSTEM
Skin

MAIN SYMPTOMS
Palm and sole blisters, pain, thickened skin, sweating

WHAT CAUSES IT
Inherited gene changes affecting skin strength

HOW IT IS DIAGNOSED
Genetic testing; specialized skin biopsy when needed

MAIN TREATMENT
Friction reduction, blister care, dressings, pain control

CAN IT BE CURED?
No - inherited skin fragility remains lifelong

IS IT AN EMERGENCY?
Sometimes - fever with rapidly spreading skin redness

LONG-TERM OUTLOOK
Lifelong blistering, often easier to manage with age

Overview

Localized epidermolysis bullosa is an inherited condition that makes the skin unusually fragile. It is usually a localized form of epidermolysis bullosa simplex, often shortened to localized EBS.

The outer layer of skin can separate after friction, pressure, or heat. This produces blisters, most often on the palms and soles. Walking, running, gripping tools, or wearing warm footwear may trigger an episode.

"Localized" means that blistering mainly affects particular areas rather than large parts of the body. The condition does not usually affect general health or shorten life. However, painful foot blisters can limit walking, exercise, school, work, and everyday activities.

Localized EBS is lifelong because the underlying gene change remains present. Symptoms

may become easier to manage with age, but the course is different for each person. Blistering can still return during hot weather or after increased activity.

Symptoms

Blisters most often develop where the skin experiences repeated rubbing or pressure. Common sites include the soles, toes, heels, palms, and fingers.

Symptoms can include:

Symptoms often begin when a young child starts crawling or walking, although they may not become obvious until later. Some people first notice the condition after taking part in sport, starting a job that involves standing, or spending time in a hot climate.

Heat and sweating can make blistering worse because moist skin is more vulnerable to friction. Tight shoes, long walks, running, repetitive hand movements, and rough seams in clothing or footwear are common triggers.

Blisters usually heal without the deep scarring seen in some other types of epidermolysis bullosa. Nail changes can occur but are not usually a major feature. Blistering inside the mouth or elsewhere on moist internal surfaces is uncommon in localized EBS.

- Clear or blood-filled blisters after friction or activity
- Burning, tenderness, or pain before and during blistering
- Thickened skin, called hyperkeratosis, on the palms or soles
- Excessive sweating of the hands or feet
- Temporary changes in skin colour after a blister heals

Causes and risk factors

Localized EBS is caused by a change in a gene involved in keeping the outer layer of skin strong. Changes in the KRT5 or KRT14 gene are common causes. These genes provide instructions for making keratin proteins, which act like an internal support framework for skin cells.

When this framework is less stable, skin cells can break apart under mechanical stress. This causes separation within the outer skin layer and allows a blister to form.

Localized EBS is often inherited in an autosomal dominant pattern. This means one altered copy of the gene can cause the condition. A parent with the condition may pass the gene

change to a child, although symptoms can be milder or more noticeable in different family members.

Sometimes the gene change is new in the affected person, with no previous family history. Less commonly, related forms can follow a different inheritance pattern. Genetic testing can clarify the cause in a particular family.

The condition is not caused by poor hygiene, an allergy, or anything done during pregnancy. Friction, heat, and sweating trigger blisters, but they do not cause the inherited skin fragility.

Diagnosis

A clinician may suspect localized EBS from the pattern of blistering, its connection with friction or heat, and any family history. It is important to distinguish it from infections, eczema, contact reactions, and other inherited blistering conditions.

Genetic testing can identify a disease-causing change in genes such as KRT5 or KRT14 . A confirmed result can establish the subtype, explain the inheritance pattern, and help with family planning discussions. Testing does not find the cause in every person.

A specialized skin biopsy may be used when genetic results are uncertain or unavailable. A very small sample is taken from the edge of a newly induced or fresh blister. Techniques such as immunofluorescence mapping show where skin proteins are located and where the layers have separated. Electron microscopy can examine skin structures at very high magnification.

An ordinary biopsy of an old or damaged blister may not provide the information needed. Testing is therefore usually arranged through a dermatology or specialist epidermolysis bullosa service.

Treatment and management

There is currently no routine treatment that removes the inherited cause of localized EBS. Management focuses on preventing avoidable friction, caring for blisters, controlling pain, and keeping the person active.

Footwear is especially important. Well-fitting shoes with soft linings and few internal seams may reduce rubbing. Cushioned insoles, moisture-managing socks, and a change of socks during the day may help some people. A podiatrist familiar with epidermolysis bullosa can assess pressure points, thickened skin, and footwear needs.

Blisters may become larger and more painful if fluid remains trapped. A specialist team may

recommend carefully draining appropriate blisters while leaving the blister roof in place as a natural cover. The area can then be protected with a non-stick dressing. Adhesive tapes and dressings can damage fragile skin when removed, so dressing choice matters.

Open areas should be kept clean and monitored for infection. A clinician can advise whether an antiseptic or antibiotic like amoxicillin or doxycycline is needed. Antibiotics are not required for every blister and should not be used routinely without a reason.

Pain relief may be useful during flare-ups or before dressing changes. The appropriate option depends on age, other health conditions, and the level of pain. Persistent pain deserves review rather than simply being accepted as part of the condition.

Excessive sweating can increase blistering. Management may include specialist antiperspirants, iontophoresis, medicines, or botulinum toxin injections in selected cases. These treatments have different risks and are not suitable for everyone.

Activity does not always need to stop. Planning shorter periods of walking, taking rest breaks, cooling the feet, and changing footwear may allow continued participation. Occupational therapy can help if hand blistering interferes with writing, tools, or work tasks.

Complications

Most complications are related to repeated blistering rather than damage to internal organs. Painful foot lesions can temporarily affect walking, balance, exercise, and sleep. Avoiding activity for long periods may also affect fitness and independence.

Broken skin can become infected. Warning signs include increasing warmth, swelling, pus, worsening pain, a bad smell, or redness spreading beyond the blister. Fever or feeling generally unwell may indicate a more significant infection.

Repeated pressure can cause thick callus-like areas on the palms or soles. These areas may add pressure and discomfort rather than protecting the skin. They should be assessed before filing, cutting, or using strong callus-removing products, which can injure fragile skin.

Ongoing pain and uncertainty about flare-ups can affect mood, confidence, work, and social activities. Children may need practical adjustments for physical education, school trips, or long walks between classes.

Severe scarring, fusion of fingers or toes, and aggressive skin cancer are associated mainly with other, more severe forms of epidermolysis bullosa. They are not typical features of localized EBS.

Prevention

The inherited tendency to localized EBS cannot currently be prevented after a person is born. It is not the result of lifestyle choices.

Some blistering episodes can be reduced by limiting avoidable friction and overheating. Helpful measures may include:

These steps reduce triggers but cannot guarantee that blisters will not form.

People who want information about the chance of passing the condition to a child can ask for genetic counselling. If the family's gene change is known, a genetics service can explain available reproductive testing options without directing the person toward a particular choice.

- Choosing soft, well-fitting footwear and checking for rough seams
- Keeping hands and feet cool and as dry as practical
- Using suitable non-stick coverings over vulnerable pressure points
- Building up new activities gradually rather than suddenly
- Taking planned breaks during prolonged walking or repetitive tasks

Living with it and what to expect

Localized EBS usually follows a long-term pattern of flare-ups and quieter periods. Symptoms may be worse in summer, during travel, after increased exercise, or when work involves prolonged standing or repeated hand use.

In many people, blistering becomes less troublesome from adolescence into adulthood as the skin thickens and daily triggers become easier to anticipate. This improvement is not guaranteed, and heat or heavy friction may continue to cause episodes throughout life.

Blisters generally heal without permanent deep scars. Once a flare settles, normal activity can often resume. The time needed depends on the blister's size, location, pain, and whether infection develops.

Most people with localized EBS can attend school, work, exercise, travel, and have families. Practical planning may be needed. This can include carrying dressings, arranging breaks, selecting suitable shoes, or requesting adjustments when long periods of walking or standing are expected.

Routine follow-up may be occasional when symptoms are stable. More frequent review can be useful for persistent pain, repeated infection, troublesome thickened skin, sweating, or

difficulty finding workable footwear. Children may need changing support as they grow and become more active.

When to get medical help

Arrange a routine appointment if blisters are recurring without a confirmed diagnosis, are becoming more frequent, or interfere with walking, sleep, school, work, or normal activity. Review is also appropriate for ongoing pain, thickened skin, nail changes, or sweating that is difficult to manage.

Seek prompt medical advice if an open blister develops increasing redness, warmth, swelling, pus, a bad smell, or worsening pain. These can be signs of infection and may need treatment.

Get urgent medical help if redness is spreading quickly, especially with fever, chills, marked drowsiness, confusion, or feeling seriously unwell. Emergency assessment is also appropriate if a serious infection is suspected or pain prevents safe movement and cannot be controlled.

A new widespread blistering episode, blisters in the mouth or eyes, or breathing or swallowing problems is not typical of localized EBS and needs urgent assessment.

Common questions

Is localized epidermolysis bullosa contagious?

No. It is caused by an inherited change affecting skin strength. It cannot spread through touch, shared towels, footwear, blood, or other contact.

Is localized epidermolysis bullosa an autoimmune condition?

No. In localized EBS, the immune system is not attacking the skin. The blisters form because inherited changes make skin cells vulnerable to friction.

Will my child grow out of it?

The underlying gene change does not disappear. Symptoms often become easier to manage with age, but blistering may continue, particularly with heat, sweating, or heavy activity.

Can I exercise with localized epidermolysis bullosa?

Many people can remain active by choosing activities and equipment that limit friction. Swimming or lower-impact exercise may be easier during a flare. Footwear, temperature, surface, and duration can all affect blistering.

Should I pop the blisters?

Large, tense blisters may spread if fluid stays trapped, but opening fragile skin can introduce infection. An epidermolysis bullosa team can demonstrate safe blister care and recommend suitable sterile equipment and dressings. The blister roof is generally preserved when drainage is advised.

Can localized epidermolysis bullosa affect pregnancy?

The skin condition does not usually prevent pregnancy. Extra planning may help manage friction, mobility, dressings, and delivery care. Genetic counselling can explain the chance of passing the gene change to a child.

Sources

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