

Atopic Dermatitis and Eczema

"Eczema" is a general term for many kinds of skin problems. Atopic dermatitis is the condition people most commonly think of when they envision eczema. In atopic dermatitis, the skin becomes extremely itchy. Scratching leads to redness, swelling, cracking, "weeping" clear fluid and finally, crusting and scaling.

In most cases, there are periods when the disease is worse (called exacerbations or flares) followed by periods when the skin improves or clears up entirely (called remissions). As some children with atopic dermatitis grow older, their skin disease improves or disappears altogether, although their skin often remains dry and easily irritated. In others, atopic dermatitis continues to be a significant problem in adulthood.

Types of Eczema

In addition to atopic dermatitis, there are several other kinds of eczema:

- **Allergic contact eczema:** This is a red, itchy, weepy reaction where the skin has come into contact with a substance that the immune system recognizes as foreign, such as poison ivy or certain preservatives in creams and lotions.
- **Contact eczema:** This eczema is a localized reaction that includes redness, itching, and burning where the skin has come into contact with an allergen (an allergy-causing substance) or with an irritant such as an acid, cleaning agent or other chemical.
- **Dyshidrotic eczema:** Dyshidrotic eczema is an irritation of the skin on the palms of hands and soles of the feet characterized by clear, deep blisters that itch and burn.
- **Neurodermatitis:** This is a condition characterized by scaly patches of the skin on the head, lower legs, wrists or forearms caused by a localized itch (such as an insect bite) that become intensely irritated when scratched.
- **Nummular eczema:** These are coin-shaped patches of irritated skin-most common on the arms, back, buttocks and lower legs-that may be crusted, scaling and extremely itchy.
- **Seborrheic eczema:** This condition involves the development of yellowish, oily, scaly patches of skin on the scalp, face and occasionally other parts of the body.
- **Stasis dermatitis:** Stasis dermatitis is a skin irritation on the lower legs that is generally related to circulatory problems.

Cause

The cause of atopic dermatitis is not known, but the disease seems to result from a combination of genetic (hereditary) and environmental factors.

Children are more likely to develop the disorder if one or both parents have it or have had allergic conditions like asthma or hay fever. While some people outgrow skin symptoms, approximately three-fourths of children with atopic dermatitis go on to develop hay fever or asthma.

Environmental factors can bring on symptoms of atopic dermatitis at any time in individuals who have inherited the atopic disease trait.

Atopic dermatitis is also associated with malfunction of the body's immune system (the system that recognizes and helps fight bacteria and viruses that invade the body). Scientists have found that people with atopic dermatitis have a low level of a cytokine (a protein) that is essential to the healthy function of the body's immune system and a high level of other cytokines that lead to allergic reactions.

The immune system can become misguided and create inflammation in the skin even in the absence of a major infection. This can be viewed as a form of autoimmunity, where a body reacts against its tissues.

In the past, doctors thought that atopic dermatitis was caused by an emotional disorder. We now know that emotional factors, such as stress, can make the condition worse, but they do not cause the disease.

Frequency of Occurrence

More than 15 million people in the United States have symptoms of atopic dermatitis. It affects males and females and accounts for 10 - 20% of all visits to dermatologists (doctors who specialize in the care and treatment of skin diseases).

Although atopic dermatitis may occur at any age, it most often begins in infancy and childhood. Scientists estimate that 65% of patients develop symptoms in the first year of life, and 90% develop symptoms before the age of five.

Onset after age 30 is less common and is often due to exposure of the skin to harsh or wet conditions. Atopic dermatitis is a common cause of workplace disability. People who live in cities and in dry climates appear more likely to develop this condition.

Symptoms and Signs

Symptoms and signs of atopic dermatitis vary from person to person. The most common symptoms are dry, itchy skin and rashes on the face, inside the elbows, behind the knees and on the hands and feet.

Itching is the most obvious symptom of atopic dermatitis. Scratching and rubbing in response to itching irritates the skin, increases inflammation and increases itchiness. Itching is a particular problem during sleep when conscious control of scratching is lost.

The appearance of the skin that is affected by atopic dermatitis depends on the amount of scratching and the presence of secondary skin infections. The skin may be red and scaly, be thick and leathery, contain small raised bumps or leak fluid and become crusty and infected.

Atopic dermatitis may also affect the skin around the eyes, the eyelids, and the eyebrows and lashes. Scratching and rubbing the eye area can cause the skin to become red and swollen.

Some people with atopic dermatitis develop an extra fold of skin under their eyes. Patchy loss of eyebrows and eyelashes may also result from scratching or rubbing.

Diagnosing the Condition

Every person with atopic dermatitis experiences a unique combination of symptoms, which may vary in severity over time. Doctors will base their diagnosis on the symptoms the patient experiences. They may need to see the patient several times to make an accurate diagnosis and to rule out other diseases and conditions that might cause skin irritation.

In some cases, the family doctor or pediatrician may refer the patient to a dermatologist (doctor specializing in skin disorders) or allergist (allergy specialist) for further evaluation.

A medical history may help the doctor better understand the nature of a patient's symptoms, when they occur and their possible causes. The doctor may ask about family history of allergic disease; whether the patient also has diseases such as hay fever or asthma; and about exposure to irritants, sleep disturbances, any foods that seem to be related to skin flares, previous treatments for skin-related symptoms and use of steroids or other medications.

A preliminary diagnosis of atopic dermatitis can be made if the patient has three or more features from each of the two categories of the condition's features.

Major features of atopic dermatitis include:

- Intense itching
- A characteristic rash in locations typical of the disease
- Chronic or repeatedly occurring symptoms
- A personal or family history of atopic disorders such as eczema, hay fever or asthma

Minor features of atopic dermatitis include:

- Early age of onset
- Dry skin that may also have patchy scales or rough bumps
- High levels of the antibody immunoglobulin E (IgE) in the blood
- Numerous skin creases on the palms
- Hand or foot involvement
- Inflammation around the lips
- Nipple eczema
- Susceptibility to skin infection
- Positive allergy skin tests

Treatment

Doctors have two main goals when treating atopic dermatitis: to heal the skin and prevent flares. These may be assisted by developing skincare routines and avoiding substances that lead to skin irritation and trigger the immune system and the itch-scratch cycle.

It is important for the patient and family members to note any changes in the skin's condition in response to treatment, and to be persistent in identifying the treatment that seems to work best.

New medications known as immunomodulators have been developed that help control inflammation and reduce immune system reactions when applied to the skin.

Corticosteroid creams and ointments have been used for many years to treat atopic dermatitis and other autoimmune diseases affecting the skin. Sometimes over-the-counter preparations are used, but in many cases, the doctor will prescribe a stronger corticosteroid cream or ointment.

When topical corticosteroids are not effective, the doctor may prescribe a systemic corticosteroid, which is taken by mouth or injected instead of being applied directly to the skin. Typically, these medications are used only in resistant cases and only given for short periods.

The side effects of systemic corticosteroids can include:

- Skin damage
- Thinned or weakened bones
- High blood pressure
- High blood sugar
- Infections
- Cataracts

It can be dangerous to suddenly stop taking corticosteroids, so the doctor and patient must work together in changing the corticosteroid dose.

Antibiotics to treat skin infections may be applied directly to the skin in an ointment, but are usually more effective when taken by mouth. If viral or fungal infections are present, the doctor may also prescribe specific medications to treat those infections.

Phototherapy is also used to treat atopic dermatitis. Ultraviolet A or B light waves, alone or combined, can be an effective treatment for mild to moderate dermatitis in older children (over 12 years old) and adults.

Possible long-term side effects of this treatment include premature skin aging and skin cancer. If the doctor thinks that phototherapy may be useful to treat the symptoms of atopic dermatitis, they will use the minimum exposure necessary and monitor the skin carefully.

Prevention

Many factors or conditions can make symptoms of atopic dermatitis worse, further triggering the already overactive immune system, aggravating the itch-scratch cycle and increasing damage to the skin. These factors can be broken down into two main categories: irritants and allergens.

Irritants are substances that directly affect the skin and, when present in high enough concentrations with long enough contact, cause the skin to become red and itchy or to burn. Specific irritants affect people with atopic dermatitis to different degrees.

Over time, many patients and their family members learn to identify the irritants causing the most trouble. For example, frequent wetting and drying of the skin may affect the skin barrier function. Also, wool or synthetic fibers and rough or poorly fitting clothing can rub the skin, trigger inflammation and cause the itch-scratch cycle to begin.

Soaps and detergents may have a drying effect and worsen itching, and some perfumes and cosmetics may irritate the skin.

Exposure to certain substances, such as solvents, dust or sand, may also make the condition worse.

Cigarette smoke may irritate the eyelids. Because the effects of irritants vary from one person to another, each person can best determine what substances or circumstances cause the disease to flare.

Allergens are substances from foods, plants, animals or the air that inflame the skin because the immune system overreacts to the substance. Inflammation occurs even when the person is exposed to small amounts of the substance for a limited time.

Although it is known that allergens in the air, such as dust mites, pollens, molds and dander from animal hair or skin, may worsen the symptoms of atopic dermatitis in some people, scientists are not certain whether inhaling these allergens or their actual penetration of the skin causes the problems.

When people with atopic dermatitis come into contact with an irritant or allergen they are sensitive to, inflammation-producing cells become active. These cells release chemicals that cause itching and redness. As the person responds by scratching and rubbing the skin, further damage occurs.

Although the symptoms of atopic dermatitis can be difficult and uncomfortable, the disease can be successfully managed. People with atopic dermatitis can lead healthy, productive lives.

Resources

- American Academy of Dermatology: www.aad.org
- American Osteopathic College of Dermatology: www.aocd.org
- World Allergy Organization: www.worldallergy.org
- American Academy of Allergy: www.aaaai.org

Content on this page was gathered from documents found on the website for the National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS), one of the National Institutes of Health and part of the United States Department of Health and Human Services: www.niams.nih.gov

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