Erythema Nodosum

Erythema nodosum is a condition that causes red rounded lumps (nodules) to form just below the skin surface, most commonly on the shins. In most people, no specific cause or trigger can be found. But in some people a trigger (commonly a streptococcal infection or sarcoidosis) can be identified. Usually, the nodules heal within six to eight weeks with no treatment needed. However, it is important to look for a possible underlying trigger, as this may need treatment.

What is erythema nodosum?

Erythema nodosum is a type of panniculitis. Panniculitis occurs when there is inflammation of the layer of fat lying underneath the skin. The inflammation causes red rounded lumps (nodules) to form just below the skin surface, which are tender. Erythema nodosum most commonly affects both shins.

What causes erythema nodosum?

In over half of people who develop erythema nodosum, no cause for the inflammation is found. Doctors call this idiopathic erythema nodosum (as idiopathic means of unknown cause).

However, in some people there may be something that triggers the inflammation. In such cases it is thought that erythema nodosum is caused by the immune system over-reacting (becoming hypersensitive) to the trigger. Such triggers include various infections and other conditions. So, sometimes erythema nodosum may be the first sign of a serious underlying condition that needs to be identified and treated.

Some of the more common triggers for erythema nodosum include:

- **Streptococcal infection.** This is a type of germ (bacterial) infection. It is the most common trigger for erythema nodosum in children. A streptococcal sore throat is the usual infection. Streptococcal infections are also a common trigger for erythema nodosum in adults.
- **Sarcoidosis.** This is a condition where inflammation causes tiny lumps of cells to form in various organs in your body, most commonly in the lungs and lymph glands. The lumps are called granulomas. Sarcoidosis is another common trigger for erythema nodosum in adults. See the separate leaflet called Sarcoidosis for more details.
- **Tuberculosis (TB).** This is a bacterial infection that usually affects the lungs. In addition to causing the symptoms of infection, TB can also trigger erythema nodosum. See the separate leaflet called Tuberculosis for more details.
- **Other infections.** Infections such as chlamydia, *Mycoplasma pneumoniae*, *Yersinia enterocolitica* (a bacterial infection that causes diarrhoea and tummy (abdominal) pain), *Salmonella* spp. and *Campylobacter* spp., are other, less common, triggers.
- **Certain medicines.** A reaction to certain medicines may trigger erythema nodosum in some people - for example, reactions to some antibiotics or the combined oral contraceptive pill.
- **Inflammatory bowel disease.** People with an inflammatory bowel condition such as ulcerative colitis and Crohn's disease may also develop erythema nodosum. See the separate leaflets called Ulcerative Colitis and Crohn's Disease for more details.
- **Pregnancy.** Occasionally, pregnancy can trigger erythema nodosum.
- **Certain cancers,** including lymphoma and leukaemia, can also be triggers.

Who develops erythema nodosum?

Erythema nodosum is rare. It affects between 2 and 3 in every 10,000 people per year. It is most common in women between the ages of 20 and 30 years but it can occur at any age. In children, it affects boys and girls equally.

What are the symptoms of erythema nodosum?

**Flu-like symptoms**

Before the rounded lumps (nodules) appear, you may feel generally unwell for a few weeks. You may have a high temperature (fever), a cough and may lose weight during this time. You may also have aching joints, stiffness and general aches and pains. Your joints may become swollen. Ankle, knee and wrist joints are most commonly affected but any joint can be painful. Aching legs and joints can last for a number of weeks, or even months, after the nodules have appeared.

**Painful nodules**

The nodules that occur in erythema nodosum can measure between 2-6 cm across. The outlines (margins) of the nodules are not very well defined. The shins are the most common site. Other common sites are on the arms, thighs and trunk but nodules can occur anywhere on the body.
Each nodule tends to last for about two weeks but new nodules can continue to appear for up to six weeks. When the nodule first appears it is usually red, hot and firm to the touch. It then becomes squishy (fluctuant). As the nodule begins to fade, it looks more like a bruise, turning blue and then yellowish. It usually takes some weeks for the nodules to heal completely. They do not leave any scarring.

You may have as few as two nodules, or as many as 50 or more.

**Symptoms due to the underlying trigger**

These depend on the trigger. For example, the nodules of erythema nodosum can appear two to three weeks after a streptococcal throat infection. People with inflammatory bowel disease may have tummy (abdominal) pain and diarrhoea. People with TB may have a cough and breathing problems.

**How is erythema nodosum diagnosed?**

Your doctor will usually diagnose erythema nodosum by its typical appearance. However, if they are unsure, your doctor may suggest that they refer you to a specialist for a **biopsy**. During a biopsy, a small sample of tissue is taken from one of the rounded lumps (nodules). The tissue sample is then sent to the laboratory to be examined under a microscope. Erythema nodosum has a typical appearance under a microscope and the diagnosis can usually be confirmed.

**Investigations to look for any underlying trigger**

If your doctor diagnoses erythema nodosum, they will usually suggest some tests to look for an underlying trigger. The tests that they suggest may depend on any other symptoms that you may have. Tests may include:

- **Blood tests** to look for signs of inflammation.
- **Tests for streptococcal infection.** For example, a sample (swab) may be taken from your throat. The swab is then sent to the laboratory to see if infection is present. A special blood test can also show if you have had a recent streptococcal infection.
- **Chest X-ray.** If your doctor suspects that you may have TB or sarcoidosis, they may suggest that you have a chest X-ray.
- **Other investigations for TB.** Your doctor may suggest a special test called a tuberculin skin test. The test involves having a small injection into your arm. It is used to see if you have TB. If you have a cough, your doctor may suggest that a sample of your phlegm (sputum) be sent to the laboratory to look for TB infection.
- **Other investigations for sarcoidosis.** If your doctor suspects that you may have sarcoidosis, they may refer you to a lung specialist for further investigations. These may include special tests that look at your breathing (respiratory function tests). They may also include a **CT scan** or **MRI scan** of your lungs or a **bronchoscopy**. During a bronchoscopy a special camera is inserted through your nose and mouth to look at your airways and lungs.
- **Stool (faeces) specimens.** These can detect infections such as *Salmonella* spp. and *Campylobacter* spp. Your doctor may suggest these tests if you have erythema nodosum and diarrhoea or tummy (abdominal) pain.
- **Bowel investigations.** If your doctor suspects that you may have underlying inflammatory bowel disease such as ulcerative colitis or Crohn's disease, they may suggest that you have investigations to look for this. For example, you may have an examination of your bowel with a camera (a colonoscopy).

**What is the treatment for erythema nodosum?**

**Treatment for the nodules of erythema nodosum**

The rounded lumps (nodules) of erythema nodosum tend to go away by themselves and often do not need any treatment. However, they may be very tender or painful and certain treatments may be suggested to help relieve these symptoms.

So, treatments may include:

- **Painkiller medication.** Non-steroidal anti-inflammatory drugs (NSAIDs) - for example, ibuprofen - are commonly used to help relieve pain. Sometimes stronger painkillers are needed.
- **Bed rest and keeping your legs raised** above the level of your heart may help with pain relief.
- **Wearing firm, supportive bandages or stockings** on your legs is another option. You can ask your doctor to advise about this.
- **Cool wet compresses** over the nodules may also help to relieve pain.
- **Potassium iodide**. In some people with erythema nodosum, this liquid taken by mouth may help relieve the pain in the nodules and also the joint pains. It is not certain exactly how this works and it is not effective in everyone.
- **Steroids**. Steroid tablets are sometimes used provided erythema nodosum is not thought to have been triggered by an infection or a cancer. Steroids work by reducing inflammation. However, most of the time steroid treatment is not needed.

**Treatment of any underlying trigger**
If an underlying trigger for erythema nodosum has been found, this may need to be treated. The treatment depends on the trigger.

**What is the outlook (prognosis) for erythema nodosum?**
For most people with erythema nodosum the rounded lumps (nodules) tend to heal, with no scarring, within six weeks. However, in some people with idiopathic erythema nodosum, nodules may last for up to six months or more. Generally, the outlook for erythema nodosum is very good and most people do not have further problems. Persistent (chronic) or repeated (recurrent) erythema nodosum can occur in some people but this is rare.

As mentioned above, erythema nodosum may be the first sign of an underlying condition such as inflammatory bowel disease or sarcoidosis that needs specific treatment. Each of these conditions has a different outlook.

**Further reading & references**
- Erythema nodosum; DermNet NZ

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