Cellulitis and Erysipelas

Cellulitis and erysipelas are infections of the skin and the tissues just below the skin surface. Erysipelas is a less serious version of cellulitis that often affects the face. For the purposes of this leaflet, cellulitis and erysipelas will be discussed as if they are the same thing.

Any area of the skin can be affected but the leg is the most common site. A course of antibiotic medication will usually clear the infection. If you have cellulitis of your leg, as much as possible keep your foot raised higher than your hip. This helps to prevent excess swelling, which may ease pain.

What are cellulitis and erysipelas?

- **Cellulitis** is an infection of the deep layer of skin (dermis) and the layer of fat and tissues just under the skin (the subcutaneous tissues).
- **Erysipelas** is an infection of the skin which is nearer to the skin surface (more superficial) than cellulitis.

In reality, it is difficult to tell how deep an infection is, so cellulitis and erysipelas are much the same thing.

What causes cellulitis?

Cellulitis is mainly caused by two bacteria: *Staphylococcus aureus* and beta-haemolytic streptococcus.

We all have bacteria, including these ones, living harmless on our skin. Cellulitis occurs if the skin is broken and the bacteria can delve down deep into the skin.

Who gets cellulitis?

Cellulitis is quite common but often things that aren't cellulitis are misdiagnosed as it. In theory it can affect anyone but is very rare in children and healthy young adults. There are some things that can make you more prone to cellulitis. For example, if you:

- Are elderly.
- Have swollen legs (for various reasons) or are overweight or obese.
- Have previously had an episode of cellulitis.
- Have a weak immune system - for example, if you take steroids or chemotherapy.
- Are pregnant.
- Have poorly controlled diabetes.
- Are an intravenous drug user.
- Have severe eczema or other skin conditions that cause cracks in the skin, like athlete’s foot.
What are the symptoms of cellulitis?

- Redness in the skin, usually the lower leg.
- The redness gets worse over a day or two, becoming painful.
- The skin will look a bit shiny.
- The skin is smooth; it is not bumpy or raised.
- **Cellulitis is not normally itchy** until it starts to go away and the skin heals. Cellulitis is not itchy in the early stages of the infection.
- You may feel unwell, with a raised temperature (fever).
- If the cellulitis becomes very bad you may feel shivery and weak.

What does cellulitis look like?

Here is a photo of severe cellulitis on a child's eyelid, after they were bitten by a dog:

![Image of severe cellulitis on a child's eyelid](image-source: Open-i (Gonzalez MO et al) see Further reading reference below)

This photo shows the slightly less serious infection, erysipelas, on a lady's face. Erysipelas is more likely on the face than cellulitis, and often goes across the nose and cheeks:

![Image of erysipelas on a lady's face](image-source: Open-i (Gonzalez MO et al) see Further reading reference below)
This photo shows cellulitis in the foot of someone with diabetes. A doctor or nurse has drawn around the infection with a pen, to assess if it has spread further the following day:

![Photo showing cellulitis in the foot of someone with diabetes.](image)

Image source: Open-i (Edmonds M) - see Further reading below

This photo shows cellulitis just under the scar from breast reconstruction surgery as part of treatment for breast cancer.

![Photo showing cellulitis just under the scar from breast reconstruction surgery.](image)

Image source: Open-i (Nguyen MD et al) - see Further reading below

Where does cellulitis occur?

- Cellulitis mainly starts on the lower leg, just around the ankle.
- It can also occur on the face, particularly around the eyelids when it is called periorbital cellulitis.
- Sometimes very bad sinusitis can spread into the eye, causing it to bulge out. This is very serious and is called orbital cellulitis.
- Sometimes it can occur on the back of the elbow, from leaning on the elbow too much (this is similar to olecranon bursitis, also called student's elbow).

Is there anything else cellulitis could be?

- A lot of conditions look like cellulitis but aren't: it's important the diagnosis of cellulitis is correct, otherwise you'd be taking antibiotics for no reason.
- Insect bites often give a red circle of skin around where the bite was: a lot of people (and doctors) think it is cellulitis and give antibiotics. It's actually very rare for insect bites to become infected. The redness around an insect bite is just a normal histamine reaction: it will go away in a few days and you can take antihistamines to help. The key difference between insect bites and cellulitis is that insect bites are itchy, but cellulitis isn't (at least, not until it is healing and the skin is flaky). Also, the redness around an insect bite comes on quickly - often overnight. Cellulitis takes a few days to spread.
A lot of elderly people have varicose eczema: this causes red legs and can make a lot of people think they have cellulitis. The key difference is, varicose eczema usually affects both legs, whereas cellulitis affects only one at a time. Varicose eczema also isn’t painful, whereas cellulitis is. And elderly people have usually had varicose eczema for years; cellulitis comes on over a few days and gets worse and worse.

Why is cellulitis so painful?
The infection in the skin causes swelling. It is this swelling that is painful, because it presses the skin out.

Is cellulitis serious?
In general, cellulitis can be treated effectively at an early stage with antibiotics and does not normally become a serious problem in developed countries. If the person has a particularly weak immune system - for example, from medications that suppress the immune system, or from HIV - then it could become serious.

Possible complications of untreated cellulitis include:

- Blood poisoning (septicaemia) which can be life-threatening.
- A ball of pus (an abscess) forming in the infected area.
- Muscle or bone infections which can be serious.
- Cellulitis around an eye, which can spread to infect the brain.
- Bacteria that get into the bloodstream and which can cause an infection of the heart valves.

So, the 'take home message' is: if you have a patch of skin that is red, warm and seems to be getting larger, see a doctor as soon as possible. With treatment, most people with cellulitis make a full recovery without any complications developing.

What is the treatment for cellulitis?

**Antibiotics**
A course of antibiotic tablets will usually clear cellulitis.

The antibiotics that usually work for cellulitis are:

- Flucloxacillin.
- Penicillin.
- Cefalexin (which is used more in the USA for cellulitis).

Usually it is sufficient to take a week of antibiotic tablets. The usual course would be a week, followed by a second week if it hadn't cleared.

Sometimes it will be necessary to be given antibiotics through a vein (intravenous antibiotics). This would be necessary if you had a high temperature (fever) from the cellulitis, or had bad shivering. Your doctor will assess whether they think intravenous antibiotics are necessary.

**Elevation**
Raising (elevating) your affected body part uses gravity to help prevent excess swelling, which may also ease pain. Do this as much as possible until the infection clears.

If you have a cellulitis of the leg, 'raised' means that your foot is higher than your hip so gravity helps to reduce the swelling. When they are told to elevate a leg, many people put their leg on a chair or footstool. This is rarely sufficient (even if the chair reclines), as the ankle has to be higher than the hip for elevation to be useful. The easiest way to raise your leg is to lie on a sofa with your heel up on the arm of the sofa (but avoid pressure on the calf). Or, lie on a sofa with your foot on two or three thick cushions. When in bed, put your foot on several pillows so that it is higher than your hip. Alternatively, empty a deep drawer and put it under the mattress at the foot of your bed.

You may need to keep your foot elevated as much as possible for a few days. However, to aid circulation, you should go for short walks every now and then and wiggle your toes regularly when your foot is raised.

If you have cellulitis in a forearm or hand, a high sling can help to raise the affected area.

Other things that may help
These include:

- Painkillers such as paracetamol or ibuprofen, which can ease pain and reduce a fever.
- Treatment of athlete’s foot if it is present.
- Using a moisturiser cream and soap substitute on the affected area of skin until it heals. This helps to prevent the skin from becoming dry and damaged.
Drinking plenty of fluids to help prevent lack of fluid in the body (dehydration).

When do I need to worry with cellulitis?

- Cellulitis usually gets better with antibiotics: you should feel an improvement within two days of taking them.
- If the skin redness gets bigger and more painful, that is a sign that the antibiotics aren't working: see your doctor in case they think you need a higher dose or a different antibiotic.
- If you feel really unwell, with a high temperature (fever) and the shivers: this could be a sign the bacteria have spread into your bloodstream.
- If the skin, which was red, turns dark purple or black: this could be a sign you have dead tissue (which doctors call gangrene).
- This needs immediate hospital admission.
- If the pain of the cellulitis seems out of proportion to the size of the redness: this could be a sign the infection has spread deeper into your skin and you might be developing necrotising fasciitis, which is a very serious skin infection. This needs immediate hospital admission.

How can I prevent cellulitis?

Cellulitis may not always be preventable, particularly in the elderly or people with a weak immune system. However, the following may help to reduce your risk of developing cellulitis in some cases:

- If you have swollen legs, try to keep them elevated as high as possible while you're sitting down. This may well be the most important thing you can do to prevent skin infections in your lower legs.
- Clean any cuts or wounds that you may have. You can wash them under running tap water. You may want to use an antiseptic cream. You can also cover the cut or wound with a plaster. However, make sure that you change the plaster regularly (particularly if it becomes wet or dirty).
- Don't let your skin become too dry. Dry skin can crack easily and germs (bacteria) can enter through the skin cracks. Use a moisturiser regularly on your skin.
- Avoid scratching your skin if possible. Conditions such as eczema can make skin very itchy. If your fingernails are long, they can cause breaks in the skin when you are scratching. These breaks can be an entry point for germs. So, keep your fingernails short and avoid scratching as much as possible.
- If you have had episodes of cellulitis in the past then you may be given a long-term course of low-dose antibiotics. These have been shown to reduce future episodes of cellulitis.

How long does it take cellulitis to clear up?

- Mild cellulitis that is treated early could be completely clear in a week, particularly if you are otherwise healthy.
- In the elderly, or if the cellulitis has set in for a while before starting treatment, it is quite common to need two weeks of antibiotics.
- If you have had bad cellulitis requiring hospital admission you may find that the cellulitis doesn't quite go away completely for several months.

Is cellulitis contagious?

Thankfully not! The infection is deep in the skin, not on the surface. You can't catch cellulitis by touching it, nor do you have to wear gloves if touching the skin of someone with cellulitis.

How long do I need off work for cellulitis?

- If you have cellulitis it is important to rest, stay well hydrated and keep your legs elevated (or whichever part of your body has the cellulitis). If your work involves standing up for long periods of time (like a hairdresser or teacher) or if you are sitting in an office chair most of the day, you may well need to have a week off work.
- Most doctors would advise being off work until the cellulitis is completely better: probably a week at the minimum.
- Your doctor will be best placed to advise you on this.

Further reading & references

- Cellulitis - acute: NICE CKS, July 2015 (UK access only)

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