

Septic Arthritis

Septic arthritis is an infection in a joint. Symptoms include pain and tenderness over a joint, pain on moving the joint, and feeling unwell. It is an uncommon infection, but serious. Urgent treatment is needed. This includes antibiotics, and drainage of infected fluid from the joint to prevent permanent joint damage.

What is septic arthritis?

Septic arthritis is an infection in a joint. Many different types of bacteria (germs) can cause septic arthritis. Infection with a bacterium called *Staphylococcus aureus* is the most common cause.

How do you get septic arthritis?

If some bacteria settle on a small section of a joint, they can multiply and cause infection. Bacteria can get to a joint:

- **Via the bloodstream.** This is the most common cause, particularly in children. Bacteria may get into the blood from an infection in another part of the body and travel to a bone. Even if you are healthy, bacteria sometimes get into the blood from the nose or gut.
- **From an injury.** Bacteria can get into a joint if you have a wound that cuts into a joint.
- **During surgery.** Infection is an uncommon complication if you have joint surgery or joint investigations (such as arthroscopy).

Who is at risk of developing septic arthritis?

Anyone at any age can develop septic arthritis. However, you have an increased risk if you:

- Have certain types of arthritis such as rheumatoid arthritis. If the joints are already inflamed, they are at greater risk of becoming infected. It can be difficult to tell the difference between a flare-up of noninfective arthritis and infective (septic) arthritis. As a rule, if you already have arthritis and symptoms suddenly get worse, and you feel unwell, septic arthritis is a possibility. Tests can confirm, or rule out, an infection.
- Have recently had an injury to a joint.
- Have a joint prosthesis (such as an artificial hip or knee).
- Have recently had surgery to a joint.
- Have a poor immune system. For example, if you have AIDS, if you are taking chemotherapy, if you are seriously ill with another disease, etc.
- Inject street drugs which can be contaminated with bacteria.
- Have gonorrhoea. This is a sexually transmitted disease. If untreated, the gonococcus bacteria can spread in the bloodstream and may cause a septic arthritis.
- Have an infection of bone (osteomyelitis) near to a joint.

Which joints can be affected?

The knee is the site of infection in more than half of cases. The hip is affected in about 1 in 5 cases. The rest are usually the shoulder, wrist, elbow and ankle. Other joints are rarely affected. In most cases, just one joint is affected. However, in about 1 in 5 cases the bacteria from one joint spread in the blood to another, and two or more joints may be affected at the same time.

What are the symptoms of septic arthritis?

- **Pain** from the affected joint. The pain tends to be severe and usually develops quite quickly. Any movement of the joint is usually very painful.
- **Swelling** usually develops over the affected joint which is usually very tender.
- **Redness of the overlying skin** is typical if the joint is near to the skin surface.
- **Feeling generally unwell with fever** (high temperature) is common.

In most cases of septic arthritis the symptoms develop quickly, within a few days. However, with an infection in an artificial joint the symptoms may not be so dramatic and pain and fever may be mild at first before gradually becoming worse. Also, in cases caused by the tuberculosis (TB) bacterium, the symptoms may develop more slowly.

Are any tests needed?

Tests to confirm the diagnosis

If you have typical symptoms coming from a joint near to the skin surface then the diagnosis may be fairly clear. However, pain coming from deeper joints such as the hip may be due to a number of causes. Certain blood tests can help to confirm that you have severe inflammation 'somewhere' in the body, which may be septic arthritis.

A plain X-ray is not so useful to diagnose the early stages of septic arthritis. However, it may be a useful test to rule out other causes of joint pain. A scan of the joint may help to confirm the diagnosis.

Tests to find which bacterium is causing the infection

The blood often contains some bacteria from the infected joint. Samples of blood are sent to the 'lab' to identify which type of bacterium is causing the infection. This is important as it will help to decide which is the best treatment. (Some bacteria are resistant to some antibiotics.) Also, if septic arthritis is suspected, a sample of fluid from the joint is taken by a fine needle. Tests on the fluid can usually confirm the diagnosis, and identify the bacterium which is causing the infection.

What is the treatment for septic arthritis?

Antibiotics

Antibiotics are started as soon as possible. At first, high doses are given straight into the vein. The antibiotics chosen are ones that are likely to kill the bacteria which commonly cause septic arthritis. However, the antibiotics are sometimes changed to different ones when the results of the tests confirm which bacterium is causing the infection. (Some bacteria are resistant to some antibiotics.) The symptoms often settle quite quickly after starting antibiotics. However, you need to continue taking the antibiotics for several weeks. This is to make sure all infection has gone from the joint.

Draining the joint fluid

Infected fluid is drained from the affected joint. This helps to stop damage to the joint while the antibiotics clear the infection. With an infection in a knee, elbow or shoulder joint the drainage may be relatively easy to do with a needle. However, deeper joints such as a hip joint are more difficult and may need a small operation to drain the infected fluid. The joint may need to be drained several times until infected fluid stops building up.

Splinting

The affected joint may need to be splinted, as movement can be very painful at first.

Physiotherapy

Once the infection has been treated, as soon as possible when symptoms begin to settle it is important to get the affected joint moving again. This may help to prevent long-term stiffness in the affected joint.

If the infection is in an artificial joint

The most common artificial joints to get infected are elbow, shoulder and ankle joints, followed by knee and hip joints. The joint often has to be removed to treat the infection properly. However, in many cases a new joint can be inserted with a good chance of success.

What is the outlook (prognosis)?

If the infection is treated promptly, then there is a good chance of complete cure with no long-term problems.

If there is delay in treatment, the infection can quickly destroy parts of the joint. This may lead to long-term pain, reduced movement of the joint, and some disability. In some cases the infection becomes severe and leads to blood poisoning (septicaemia). This is a serious complication which can be fatal, but is now rare in the UK since antibiotics became available.

References

- British Society for Antimicrobial Therapy; Septic Arthritis, 2008.

- Bruschi J; Septic Arthritis eMedicine, Jan 2010
- Surgical Tutor; Septic Arthritis, 2010.

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