Septic Arthritis

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Septic arthritis

Septic arthritis is an infection in a joint. Symptoms include pain and tenderness over a joint, pain on moving the joint, fever sweating and feeling unwell. It is an uncommon, but serious, infection. Urgent treatment is needed which includes antibiotics and usually drainage of infected fluid from the joint to prevent permanent joint damage. Septic arthritis is an infection in a joint. Many different types of bacteria can cause septic arthritis. But, infection with a bacterium called Staphylococcus aureus is the most common cause.

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 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 or as in the case of the knee and foot near a joint.
- **During surgery.** Infection is an uncommon complication if you have joint surgery or joint investigations (such as arthroscopy). Infection is an occasional but very serious complication of joint replacement.

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 non-infective 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.

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, with other joints being rarely affected. In most cases, just one joint is affected. But 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.

**Symptoms**

- **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 TB bacteria (tuberculosis) the symptoms may develop more slowly.

**Investigations**

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 medical laboratory 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 which are then ineffective.

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.

**Treatment**

**Antibiotics**

Antibiotics are started as soon as possible. At first, high doses are given straight into the vein. The antibiotics chosen are ones which 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 and which antibiotic are most effective against that particular bacterium. The symptoms often settle quite quickly after you start taking antibiotics. But, 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 further 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. 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.

**Physiotherapy**

At first, any movement of the joint is very painful. However, 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 and reduced mobility in the affected joint.

**If the infection is in an artificial joint**

Urgent action is needed to remove all the infected material from the joint. If treated quickly with antibiotics and drainage, or if the components were inserted without cement then it is possible in some cases to eradicate the infection. However where the diagnosis has been delayed or cement has been used in the joint then eradication without complete removal of the new joint replacement is more difficult. In these cases the artificial joint often has to be completely removed. But, in many cases once the infection has been eradicated a new joint can be inserted with a good chance of success. This can occasionally be undertaken at the same time as removal but it is often more successful if the joint is replaced again at a later date.

**Prognosis**

If the infection is treated promptly before lasting damage occurs, 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 the joint surface. The articular surface and the cells which make up that surface called chondrocytes are readily damaged or killed by infection. Once the articular surface is damaged it does not re-grow and a permanent problem results. This may lead to long term pain, reduced movement of the joint, deformity and some disability. Occasionally the joint may be obliterated completely or sometimes a subsequent joint replacement may prove necessary.
Stiffness of joint after infection is common. As soon as the infection is under control gentle movement and stretching of the joint is necessary. This is then slowly increased to minimise any long term joint stiffness.

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. Whilst the vast majority of infections are caused by bacteria which are sensitive to the wide array of available antibiotics. Some are difficult to eradicate. These include pseudomonas aeruginosa, various fungi and other unusual organisms. However recently various multiple resistant strains of Staphylococcus aureous have become problematical. These are resistant to many antibiotics and tend to be sensitive to the antibiotic Methicillin. These strains are known as Methicillin resistant Staphylococcus aureus; MRSA for short. The drug Vancomycin is usually reserved for use in this eventuality. However over the last decade more problems have been associated with further strains developing and becoming more common which are resistant even to Vancomycin. More information is available in the Orthopaedic100 information sheet on MRSA.

Further Patient Information: http://orthopaedics.org.uk/index2.php/services/
Recommended braces, supports, aids, equipment: http://orthopaedics.org.uk/index2.php/shop/

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