CONDITION

Infectious arthritis

Infectious arthritis is an infection inside a joint that can quickly damage cartilage.

WHAT IT IS
Infection and inflammation inside a joint

BODY SYSTEM
Joints and bones

MAIN SYMPTOMS
Joint pain, swelling, warmth, limited movement

WHAT CAUSES IT
Bacterial, viral, fungal, or mycobacterial infection

HOW IT IS DIAGNOSED
Joint fluid testing and culture

MAIN TREATMENT
Antimicrobial medicine and joint drainage

CAN IT BE CURED?
Sometimes - prompt treatment clears many infections

IS IT AN EMERGENCY?
Yes - sudden hot, swollen joint needs urgent assessment

LONG-TERM OUTLOOK
Often good, but permanent joint damage is possible

Overview

Infectious arthritis is an infection within a joint. It is often called septic arthritis when bacteria are involved. Viruses, fungi, and mycobacteria, including the bacteria that cause tuberculosis, can also infect joints.

A joint is the place where two bones meet. Most joints contain a small amount of lubricating fluid called synovial fluid. Germs in this fluid can trigger intense inflammation. This may damage cartilage, the smooth tissue covering the ends of bones.

Bacterial infectious arthritis can worsen quickly, sometimes within hours or days. A new hot, swollen, painful joint therefore needs urgent medical assessment. Early treatment can control the infection and limit joint damage.

The knee is affected most often, but infection can occur in the hip, shoulder, ankle, wrist,

elbow, spine, or smaller joints. Usually one joint is involved. Some infections can affect several joints.

An artificial joint can also become infected. This is called a prosthetic joint infection. Its symptoms may appear suddenly, but some infections develop gradually with increasing pain or loosening of the implant.

Symptoms

Symptoms often begin suddenly in bacterial infectious arthritis. The affected joint may be:

You may also have a fever, chills, tiredness, or a general feeling of being unwell. However, fever is not always present. Older adults, young babies, and people with weakened immune systems may have less obvious symptoms.

Infection in a deep joint, such as the hip, may not cause visible swelling. Pain in the groin, thigh, or buttock and difficulty walking may be the main signs. A child may limp, refuse to walk, or avoid moving a limb.

Symptoms can be slower and less intense with fungal, tuberculosis-related, or some artificial-joint infections. Pain and stiffness may build over weeks or months.

A gonococcal infection, caused by the bacterium that causes gonorrhoea, can sometimes spread through the bloodstream. It may cause pain that moves between joints, inflamed tendons, or a small skin rash. Some people have no genital symptoms.

Viral arthritis often affects several joints. It may occur with a rash or other symptoms of a viral infection. Its course and treatment differ from bacterial arthritis, but medical assessment may still be needed to identify the cause.

- Very painful, including when resting
- Swollen, warm, or red
- Stiff or difficult to move
- Too painful to put weight on

Causes and risk factors

Most bacterial cases happen when germs travel through the bloodstream from another part of the body. The original infection may be in the skin, urinary tract, lungs, mouth, or elsewhere. Sometimes no starting point is found.

Germs can also enter a joint directly through an injury, bite, operation, injection, or other procedure. Less often, an infection in nearby bone or tissue spreads into the joint.

Common bacterial causes include Staphylococcus aureus and streptococcal bacteria. The likely germ differs with age, health conditions, exposure, and whether the joint is natural or artificial. Sexually transmitted gonorrhoea is another possible cause.

Anyone can develop infectious arthritis. Factors that increase risk include:

Having a risk factor does not mean that joint pain is infectious arthritis. Gout, injuries, inflammatory arthritis, and bleeding into a joint can cause similar symptoms.

- An artificial joint or recent joint operation
- Rheumatoid arthritis or another long-term joint condition
- Medicines or conditions that weaken the immune system
- Diabetes, serious kidney disease, or serious liver disease
- A recent skin infection, wound, or injection into a joint
- Injecting non-prescribed drugs
- A bloodstream infection
- Exposure to a sexually transmitted infection

Diagnosis

Infectious arthritis cannot be confirmed from symptoms alone. The key test is joint aspiration, also called arthrocentesis. A clinician uses a sterile needle to remove synovial fluid from the affected joint. Ultrasound or another imaging method may help guide the needle when a joint is deep or difficult to reach.

The fluid is usually examined for:

A culture allows germs to grow in a laboratory so they can be identified. It can also show which antimicrobial medicines are likely to work. A negative culture does not completely exclude infection, especially if antibiotics like amoxicillin or doxycycline were taken before the sample or if the germ is difficult to grow.

Finding crystals does not always rule out an infection. Rarely, crystal arthritis and infectious arthritis occur together.

Blood tests can look for inflammation and other effects of infection. Blood cultures may find bacteria circulating in the bloodstream. Testing for gonorrhoea or other infections may be appropriate based on symptoms and exposure.

X-rays can show existing joint damage or another explanation for pain, but they may look normal early on. Ultrasound can detect fluid. MRI can help when infection in a deep joint, bone, spine, or surrounding tissue is suspected. Imaging supports the diagnosis, but it does not usually replace joint fluid testing.

If you are seriously unwell, treatment may need to start before every test result is available. When it is safe, joint fluid and blood samples are usually collected before antibiotics begin.

- Bacteria or other germs using staining and culture
- White blood cells, which increase with inflammation
- Crystals associated with gout or calcium pyrophosphate arthritis

Treatment and management

Bacterial infectious arthritis is generally treated in hospital, at least at first. Treatment has two main parts: antimicrobial medicine to control the germ and drainage to remove infected fluid.

Antibiotics are often given into a vein initially. The choice is guided by the likely bacteria, where the infection may have started, allergy history, kidney and liver function, and local resistance patterns. Treatment can be adjusted when culture results identify the germ. Some people later change to tablets.

Treatment length is not the same for everyone. It is influenced by the organism, joint involved, response to treatment, and whether bone, an artificial joint, or nearby tissue is also infected.

Infected fluid may be removed by repeated needle aspiration. Other people need keyhole surgery, called arthroscopy, to wash out the joint. Open surgery may be needed for certain joints, extensive infection, or infection that does not settle.

An infected artificial joint often requires specialist orthopaedic and infection care. Depending on the timing and type of infection, surgery may clean the joint while keeping the implant, or some or all of the implant may need to be removed or replaced.

Fungal and tuberculosis-related infections usually need specialist treatment over a longer period. Viral arthritis often improves as the viral infection settles and does not benefit from antibiotics. Treatment may focus on pain and inflammation after bacterial infection has been excluded.

Pain relief, short-term rest, and careful positioning may help during the acute infection. Once treatment is working, gradual movement and physiotherapy can reduce stiffness and rebuild strength. The timing should be guided by the treating team because prolonged immobility and overly forceful exercise can both cause problems.

Complications

Inflammation inside a joint can damage cartilage and the underlying bone. This may lead to lasting pain, stiffness, reduced movement, or osteoarthritis. Damage is more likely when treatment is delayed or the infection is difficult to clear.

Other possible complications include:

Some people need further surgery or long-term rehabilitation. Severe infection can be life-threatening, particularly when it enters the bloodstream, but prompt treatment improves the chance of recovery.

- Infection spreading into nearby bone
- An abscess, which is a pocket of infected fluid
- Infection returning after treatment
- Loosening or failure of an artificial joint
- Reduced growth near an infected joint in a child
- Sepsis, a dangerous whole-body response to infection

Prevention

Infectious arthritis cannot always be prevented. It often develops after bacteria enter the bloodstream without an obvious warning.

You can reduce some risks by cleaning and covering cuts, following wound-care instructions, and seeking care for skin infections that are spreading or not healing. Do not inject non-prescribed drugs. Never share needles or injection equipment.

Using condoms or other barrier protection lowers the chance of gonorrhoea, which can occasionally spread to joints. Testing and treatment are important after a possible exposure because gonorrhoea may cause few or no genital symptoms.

If you have had joint surgery, follow the instructions for keeping the wound clean and watching for infection. Increasing wound drainage, redness, fever, or new joint pain should be reported promptly.

Antibiotics before dental work are not routinely needed by everyone with an artificial joint. Individual decisions may be different for people with particular medical histories, so discuss this with the relevant dental and joint specialists rather than taking leftover antibiotics.

Living with it and what to expect

The first days usually focus on controlling the infection and draining the joint. Pain and swelling should begin to improve with effective treatment, but movement and strength often recover more slowly. Blood tests and symptoms may be followed to check that treatment is working.

Recovery can take weeks or months. Physiotherapy may help restore movement, muscle strength, balance, and walking. Some people return to their previous level of activity, while others have lasting stiffness or pain because cartilage was damaged.

Viral arthritis often settles without permanent joint damage, although symptoms can sometimes last for weeks or longer. Fungal, tuberculosis-related, and artificial-joint infections usually have a longer and less predictable course.

After treatment, keep planned follow-up appointments even if the joint feels better. Follow-up may include an examination, blood tests, rehabilitation review, or checks of an artificial joint. This is routine monitoring rather than an emergency.

New swelling, increasing warmth, wound drainage, or worsening pain after initial improvement may mean that infection has returned or has not fully cleared. These changes need prompt reassessment.

When to get medical help

Seek urgent same-day medical care for a joint that suddenly becomes very painful, swollen, hot, or difficult to move. This is especially important if you have a fever, an artificial joint, a weakened immune system, a recent operation, or a recent joint injection.

Do not wait for redness or fever to appear. Deep-joint infections and infections in people with reduced immune responses may not cause either sign.

Call emergency services if joint symptoms occur with signs of severe infection, such as:

Arrange routine follow-up for stiffness or reduced strength that is stable or gradually improving after treatment. Contact the treating service sooner if pain or swelling starts increasing, a surgical wound drains, fever returns, or prescribed treatment cannot be taken.

- Confusion, unusual drowsiness, or difficulty waking
- Severe breathing difficulty
- Fainting, collapse, or cold and blotchy skin
- Rapid worsening with extreme weakness

Common questions

Is infectious arthritis the same as septic arthritis?

Septic arthritis usually means a joint infection caused by bacteria, although the term is sometimes used more broadly. Infectious arthritis also includes viral, fungal, and mycobacterial infections.

Can infectious arthritis go away on its own?

Some viral forms settle as the viral infection clears. Bacterial infectious arthritis should not be watched at home to see whether it improves. It usually requires urgent antibiotics and drainage because joint damage can develop quickly.

Is infectious arthritis contagious?

The arthritis itself does not spread from one person to another. The infection causing it sometimes can. For example, gonorrhoea can spread through sexual contact, and some viruses spread through respiratory droplets, bodily fluids, or contaminated food.

How can doctors tell infectious arthritis from gout?

Both can cause sudden severe pain, redness, warmth, and swelling. Testing fluid from the joint can look for germs and for gout crystals. Finding crystals does not completely exclude a simultaneous infection.

Will I always need surgery?

No. Some joints can be drained with a needle, sometimes more than once. Surgery is more likely when a joint is difficult to drain, the infection is extensive, an artificial joint is involved, or symptoms are not improving.

Can infectious arthritis come back?

It can return, particularly if infected material remains, the germ is difficult to treat, or an artificial joint is involved. New swelling, warmth, drainage, or increasing pain after improvement should be assessed promptly.

Sources

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