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## Osteomyelitis

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### Summary

- Osteomyelitis means an infection of bone, which can either be acute or chronic.
  - Bacteria are the most common infectious agents.
  - The two likely access methods include primary blood infection or secondary infection following an infection somewhere else in the body, and a wound or injury that permits bacteria to reach the bone.
  - Treatment options include antibiotics and surgery to clean and flush out the infected bone (debridement).
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Osteomyelitis means an infection of bone, which can either be acute (of recent onset) or chronic (longstanding). Bacteria are the usual infectious agents. The two likely access methods are by primary infection of the bloodstream (including secondary infection via the blood following an infection somewhere else in the body), and a wound or injury that permits bacteria to directly reach the bone. In adults, the pelvis and the spinal vertebrae are most vulnerable, while bone infections in children tend to target the long bones of the arms and legs. Without treatment, the infection and inflammation block blood vessels. The lack of oxygen and nutrients cause the bone tissue to die, which leads to chronic osteomyelitis. Other possible complications include blood poisoning and bone abscesses. Treatment options include intravenous and oral antibiotics, and surgical draining and cleaning of the affected bone tissue.

### Symptoms

The symptoms of osteomyelitis include:

- Localised bone pain
- Reduced movement of the affected body part
- The overlying skin may be red, hot and swollen
- The overlying skin may contain pus
- Spasms of associated muscles
- Unexplained weight loss
- General malaise
- High temperature
- Excessive sweating
- Chills.

### Events that can cause osteomyelitis

Bones are infected by blood-borne micro-organisms. In most cases, the micro-organisms are bacteria such as *Staphylococcus aureus*, but fungi can also cause osteomyelitis. Some of the conditions and events that can lead to osteomyelitis include:

- Bacteria introduced during bone surgery.
- Bacteria introduced by trauma to bone.
- Infection of bone fractures.
- Infection of prosthetic implants (such as an artificial hip joint).
- Infections elsewhere in the body that reach the bones via the bloodstream.
- A primary infection of the blood (septicaemia).

### Risk factors

Some of the risk factors that may increase a person's susceptibility to osteomyelitis include:

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- Long term skin infections.
- Inadequately controlled diabetes.
- Poor blood circulation (arteriosclerosis).
- Risk factors for poor blood circulation, which include high blood pressure, cigarette smoking, high blood cholesterol and diabetes.
- Immune system deficiency.
- Prosthetic joints.
- The use of intravenous drugs.
- Sickle cell anaemia.
- Cancer.

### **Acute osteomyelitis**

The main categories of acute osteomyelitis include:

- **Haematogenous osteomyelitis** - primary infection of the blood or infection from somewhere else in the body is delivered to the bone via the bloodstream. Children are at increased risk. The bacteria are drawn to areas of rich blood supply, which is why the infection tends to target the growing parts at the ends of the long bones.
- **Direct inoculation osteomyelitis** - bacteria are delivered direct to the bone tissue via surgery or trauma.

### **Chronic osteomyelitis**

An acute attack of osteomyelitis can lead to chronic osteomyelitis, characterised by dead areas of bone. This condition can fail to respond to treatment and recur for a long time. In many cases, chronic osteomyelitis is polymicrobial, which means more than one infectious agent is involved.

### **Complications**

Some of the complications of osteomyelitis include:

- Bone abscess (pocket of pus)
- Bone necrosis (bone death)
- Spread of infection
- Inflammation of soft tissue (cellulitis)
- Blood poisoning (septicaemia)
- Chronic infection that doesn't respond well to treatment.

### **Diagnosis methods**

Osteomyelitis is diagnosed using a number of tests including:

- Physical examination
- Medical history
- Blood tests
- X-rays
- Bone scan
- Computed tomography (CT) scan
- Magnetic resonance imaging (MRI)
- Bone tissue biopsy.

### **Treatment methods**

Treatment for osteomyelitis depends on the severity but may include:

- Hospitalisation and intravenous antibiotics.
- A long term (four to six weeks or more) course of antibiotics, either oral or intravenous.
- Pain-killing medication.

- Lifestyle changes, such as quitting cigarettes to improve blood circulation.
- Treatment for underlying cause, such as diabetes.
- Replacement of the infected prosthetic part, if needed.
- Surgery to clean and flush out the infected bone (debridement).
- Skin grafts, if necessary.
- Amputation, in severe cases.

### Long term outlook

Acute osteomyelitis is easier to treat than chronic osteomyelitis. The earlier the diagnosis and start of treatment, the better the outlook. If dead and diseased tissue needs to be surgically removed, the bone regenerates in a matter of weeks. Prevention of acute osteomyelitis includes proper management of wounds, and prompt medical attention for infections.

### Where to get help

- Your doctor

### Things to remember

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