

## BASIC INFORMATION

### Description

Septic arthritis occurs when one or more joints become infected, usually with bacteria. The infection may spread to the joint via the bloodstream from some other area in the body (hematogenous or blood-borne infection). More commonly, the joint may become contaminated from an external source of infection during surgery, joint fluid sampling or injections, or following trauma. Young animals that do not have well-developed immune systems and animals that are immunocompromised or have arthritic joints are more likely to develop bacterial arthritis. Septic arthritis is a serious condition that requires immediate and aggressive therapy to avoid destruction of the joint cartilage by enzymes released by bacteria and white blood cells.

### Causes

The bacteria that most commonly cause septic arthritis are staphylococci (staph), streptococci (strep), and coliform bacteria (such as *Escherichia coli*). Certain generalized fungal infections may infect bones and secondarily invade joints. The bacterium that causes Lyme disease, *Borrelia burgdorferi*, can also infect joints. In some cases of Lyme disease, however, joint inflammation arises more from an immune-mediated response rather than direct damage from the bacteria. Likewise, arthritis can be a component of ehrlichiosis and Rocky Mountain spotted fever, which are acquired from ticks. Other bacterial agents are less commonly involved.

### Clinical Signs

Joint swelling, lameness, and severe pain in the joint are the most common signs. The skin over the joint may feel warm and may be reddened. The animal may be lethargic and may have a fever and decreased appetite. If the infection has spread through the bloodstream, several joints are commonly involved, and other signs of infection are often present. External sources of infection typically affect only one joint and uncommonly produce systemic signs.

### Diagnostic Tests

A tentative diagnosis may sometimes be based on the history and clinical signs. Laboratory tests and x-rays may be recommended to evaluate the joints and other organs and to search for evidence of infection. Definitive diagnosis requires analysis of fluid retrieved from the joint. Cultures of joint fluid, blood, and other sites may be recommended if a widespread infection is suspected. Special laboratory tests may be needed to test for tick-borne diseases and to determine the specific bacteria or fungus involved.

## TREATMENT AND FOLLOW-UP

### Treatment Options

For bacterial infections, antibiotic therapy is started as soon as laboratory samples have been submitted, because some tests take several days to return. Some animals initially require hospitalization for administration of injectable antibiotics. Oral antibiotics may be continued for several weeks. Antifungal drugs are started for fungal infections. Other treatments and supportive care may be needed for widespread infections. Nonsteroidal anti-inflammatory drugs and medications for pain may also be considered.

Severely affected single joints may be opened and drained surgically, particularly those contaminated during surgery or from bite wounds, and in cases that do not respond to antibiotics within 2-3 days. The joint may be irrigated, with all abnormal tissue removed, and then left open to drain or closed after placement of a surgical drain. Joints that are not surgically closed require daily, sterile bandage changes until the infection resolves and the joint can be surgically closed. Alternatively, the joint may be irrigated using large needles or arthroscopic methods. Surgery is generally not indicated when multiple joints are affected.

### Follow-up Care

Antibiotics are commonly given for at least 4 weeks, or for 2 weeks past resolution of all clinical signs. Once pain and swelling have subsided, physical therapy exercises may be recommended to prevent stiffness and encourage healing. Frequent rechecks are needed initially to monitor response to treatment and to make adjustments in therapy. Other methods of monitoring treatment progress, such as laboratory tests and repeated x-rays, depend on the underlying cause and whether the infection is affecting other organs.

### Prognosis

Prognosis with septic arthritis is variable. If it is discovered early and treated aggressively, bacterial arthritis may respond well to therapy. Fungal infections, in general, are more difficult to treat. Widespread, severe bacterial infections (sepsis) have a poor prognosis.

Septic arthritis that requires surgery has a poorer prognosis, because chronic osteoarthritis (degenerative joint disease) is more likely to result. Osteoarthritis can develop as a long-term consequence of septic arthritis in any joint and may cause joint deformity, decreased joint mobility (restricted range of motion), and lameness. (See also the handout on **Osteoarthritis: Medical Management.**)