



Septic Arthritis

(Inflammation Due to Infection of the Joint)

Basics

OVERVIEW

- Disease-causing bacteria or other microorganisms present within the enclosed space of one or more joints leading to inflammation of the joint (arthritis)
- “Septic” refers to “sepsis,” which is presence of pus-forming bacteria and their poisons in the blood or tissues
- “Arthritis” is the medical term for inflammation of the joint

SIGNALMENT/DESCRIPTION OF PET

Species

- Dogs—most common
- Cats—rare

Breed Predilections

- Medium- to large-breed dogs—most commonly German shepherd dogs, Doberman pinschers, and Labrador retrievers

Mean Age and Range

- Any age; usually between 4 and 7 years of age

Predominant Sex

- Male

SIGNS/OBSERVED CHANGES IN THE PET

- Lameness involving a single joint (known as “monoarticular” arthritis) that is associated with soft-tissue swelling, heat, and pain; rarely lameness involving four or fewer joints (known as “pauciarticular” arthritis) or five or more joints (known as “polyarticular” arthritis)
- Lameness—sudden (acute) onset is most common, but can present as a long-term (chronic) lameness
- Sluggishness (lethargy)
- Lack of appetite (known as “anorexia”)
- Joint pain and swelling—commonly involving the carpus (joint between front paw and foreleg), stifle, hock, shoulder, or elbow joint
- Localized joint heat
- Decreased range of motion
- Fever

CAUSES

- Aerobic bacteria (bacteria that can live and grow in the presence of oxygen)—most common: staphylococci, streptococci, coliforms, and *Pasteurella*
- Anaerobic bacteria (bacteria that can live and grow in the absence of oxygen)—most common: *Propionibacterium*, *Peptostreptococcus*, *Fusobacterium*, and *Bacteroides*
- Spirochete—*Borrelia burgdorferi* (organism that causes Lyme disease)
- *Mycoplasma*
- Fungal agents—*Blastomyces*, *Cryptococcus*, and *Coccidioides*
- *Ehrlichia*
- *Leishmania*
- Feline calicivirus

RISK FACTORS

- Predisposing factors for blood-borne infection, such as diabetes mellitus; hypoadrenocorticism (also known as “Addison’s disease,” in which inadequate levels of steroids are produced by the adrenal glands); diseases or drug therapy that lead to an inability to develop a normal immune response (known as “immunosuppression”)
- Previous trauma (such as a dog bite) or injury that penetrated the joint or prior surgery of the joint
- Existing bony arthritis (osteoarthritis) or other joint damage
- Injection into the joint space itself (known as an “intra-articular injection”), particularly if steroid is injected

Treatment

HEALTH CARE

- Inpatient—initial stabilization; the veterinarian will initiate systemic antibiotic therapy as soon as joint fluid has been obtained for bacterial culture; the veterinarian may perform joint drainage and flushing (known as “lavage”) as soon as possible to minimize injury within the joint
- Identify and treat source, if blood-borne spread of the bacteria or microorganisms is suspected
- Outpatient—long-term management
- Alternating heat and cold packing—beneficial in promoting increased blood flow and decreased swelling
- Joint immobilization may enhance pet comfort; however, it should be used only for a limited time, as directed by your pet’s veterinarian

ACTIVITY

- Restricted until resolution of signs

SURGERY

- Sudden (acute) disease with minimal changes seen on x-rays (radiographs)—joint drainage and flushing (known as “lavage”) via a sterile needle inserted into the joint (procedure known as “arthrocentesis”); flushing of the joint via a special instrument or endoscope (arthroscopic lavage) that allows the veterinarian to actually see into the joint; or via a surgical incision into the joint (known as an “arthrotomy”); an irrigation catheter can be placed in larger joints to allow easier joint flushing
- Chronic disease—may require arthroscopy or open surgical incision into the joint (arthrotomy) with removal of abnormal tissue (known as “debridement”) of the joint lining (known as “synovium”) and copious flushing (lavage); if appropriate, an irrigation catheter may be placed to flush the joint postoperatively
- Flushing (lavage) of the joint—warmed physiologic saline or lactated Ringer’s solution to flush the joint until flushed fluid is clear
- Flushed fluid—monitored daily using a microscope to evaluate existence and character of bacteria and white blood cells (neutrophils)
- Removal of catheters—when flushed fluid has no bacteria and the white blood cells (neutrophils) appear healthy
- Evaluation of the joint via a special instrument or endoscope (arthroscopy) allows for visual assessment of joint cartilage, flushing (lavage) of the joint, and biopsy, and is a less invasive method of thorough joint lavage than arthrotomy

Medications

Medications presented in this section are intended to provide general information about possible treatment. The treatment for a particular condition may evolve as medical advances are made; therefore, the medications should not be considered as all inclusive

- While waiting for results of bacterial culture and antibiotic sensitivity, the veterinarian will prescribe antibiotics that kill bacteria (known as “bactericidal antibiotics”), such as first-generation cephalosporin or amoxicillin–clavulanic acid
- Choice of antibiotics (antimicrobial drugs) primarily depends on determination of antibiotic sensitivity; potential toxicity of the antibiotic, frequency of administration, route of administration, and expense also may be considered; most antibiotics penetrate the joint lining (synovium) well; antibiotics need to be given for a minimum of 4–8 weeks
- Non-steroidal anti-inflammatory drugs (NSAIDs)—may help decrease pain and inflammation; use NSAIDs only under the direction of your pet's veterinarian
- Pain relievers (known as “analgesics”)—to control pain

Follow-Up Care

PATIENT MONITORING

- Observe for clinical signs of joint pain and swelling
- Repeat microscopic evaluation of joint fluid to assess response to treatment
- Duration of antibiotic therapy—2 weeks following resolution of clinical signs; total treatment may be 4–8 weeks or longer; depending on clinical signs and disease-causing organism
- Persistent joint inflammation without living bacterial organisms (dogs)—may be caused by residual antigenic bacterial fragments or antigen-antibody deposition
- Physical therapy—may be needed to prevent muscle contracture, maintain cartilage health, and maximize normal joint dynamics

PREVENTIONS AND AVOIDANCE

- If clinical signs recur, early (within 24–48 hours) treatment provides the greatest benefit

POSSIBLE COMPLICATIONS

- Long-term (chronic) disease—severe degenerative joint disease, a form of arthritis in which the joint cartilage breaks down
- Recurrence of infection
- Limited joint range of motion (stiff joint)
- Generalized infection (sepsis), involving other areas of the body
- Bone infection (known as “osteomyelitis”)

EXPECTED COURSE AND PROGNOSIS

- Acutely diagnosed disease (within 24–48 hours) responds well to antibiotic therapy
- Delayed diagnosis—guarded to poor prognosis
- The presence of bacteria or microorganisms that are resistant to antibiotics or are extremely likely to cause severe disease (known as “virulent organisms”)—guarded to poor prognosis

Key Points

- Lameness involving a single joint (monoarticular) is most common sign of septic arthritis
- Joint pain and swelling—usually involving the carpus (joint between front paw and foreleg), stifle, hock, shoulder, or elbow joint
- Long-term antibiotic treatment is necessary
- Likelihood of developing residual degenerative joint disease, a form of arthritis in which the joint cartilage breaks down

Notes

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