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)

SIGNALMENT/DESCRIPTION of ANIMAL

Species
• Most common in dogs
• Rare in cats

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 ANIMAL
• Lameness involving a single joint (monoarticular) that is associated with soft-tissue swelling, heat, and pain; rarely lameness involving a few joints (pauciarticular)
• Lameness—sudden (acute) onset is most common, but can present as a long-term (chronic) lameness
• Sluggishness (lethargy)
• Lack of appetite (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*

RISK FACTORS
• Predisposing factors for blood-borne infection, such as diabetes mellitus; Addison's disease; 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 (lavage) as soon as possible to minimize injury within the joint
• Identify 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

ACTIVITY

• Restricted until resolution of signs

SURGERY

• Sudden (acute) disease with minimal changes seen on X-rays—joint drainage and flushing (lavage) via a sterile needle inserted into the joint (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 (arthrotomy); an irrigation catheter can be placed in larger joints to allow easier joint flushing
• Chronic disease—may require open surgical incision into the joint (arthrotomy) with removal of abnormal tissue (débridement) of the joint lining (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

FOLLOW-UP CARE

PATIENT MONITORING

• Drainage and irrigation catheters—may be removed by your veterinarian after 4–6 days or after microscopic reassessment of joint fluid
• Duration of antibiotic therapy—2 weeks following resolution of clinical signs; total treatment may be 4–8 weeks or longer; depends 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
• Systemic steroid therapy and aggressive physical therapy—may be needed to maximize normal joint dynamics

PREVENTIONS AND AVOIDANCE

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

POSSIBLE COMPLICATIONS

• Chronic disease—severe degenerative joint disease
• Recurrence of infection
• Limited joint range of motion (stiff joint)
• Generalized infection (sepsis), involving other areas of the body
• Bone infection (osteomyelitis)

EXPECTED COURSE AND PROGNOSIS

• Acutely diagnosed disease (within 24–48 hr) 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 (virulent)—guarded to poor prognosis

KEY POINTS

• Lameness involving a single joint (monoarticular) is most common sign
• 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 residual degenerative joint disease