

Septic Arthritis



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KEYWORDS

• Septic arthritis • Bacterial arthritis • Infectious arthritis

HOSPITAL MEDICINE CLINICS CHECKLIST

1. Understand the common sources of infection of septic arthritis.
2. Use the necessary diagnostic testing for septic arthritis.
3. Interpret synovial fluid analysis accurately.
4. Use the correct initial antibiotic regimen, based on clinical picture, synovial fluid analysis, and Gram stain.
5. Treat with the appropriate duration and modality of antibiotics.
6. Understand the morbidity and mortality related with this disease.

DEFINITION

What is the definition of septic arthritis?

Septic arthritis historically refers to a bacterial infection in a joint, and can include other causative agents such as fungal and mycobacterial.¹

EPIDEMIOLOGY

What is the prevalence of septic arthritis in adults?

There is an estimate of 20,000 cases of septic arthritis per year in the United States.² The incidence appears to be increasing, which may be accounted for by the increasing use of immunosuppressive treatments and invasive procedures, in addition to an aging population. The prevalence of bacterial arthritis presenting with acute monoarthritis ranges from 8% to 27%, as determined from prospective studies in Boston and Taiwan.^{3,4}

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PATHOGENESIS

What are the risk factors for septic arthritis in adults?

The most important risk factor for septic arthritis is abnormal joint architecture. This correlation is seen in patients with rheumatoid arthritis and osteoarthritis. Diabetics with Charcot arthropathy are also at higher risk.⁵ Although less commonly described, crystal-induced arthropathy still remains an important predisposing factor.⁶ Other notable factors include older age, low socioeconomic status, intravenous drug abuse, alcoholism, diabetes, previous intra-articular corticosteroid injection, and cutaneous ulcers.⁷

What are the common sources of infection?

Infection is introduced hematogenously or by direct inoculation. Hematogenous spread is most common, and is more likely to occur in elderly patients and those with predisposing factors such as intravascular devices, urinary catheters, injection drug use, and immunosuppression.^{8,9} Direct inoculation occurs through trauma, joint surgery, or bite wounds.⁷

What are the most common pathogens associated with septic arthritis?

Bacterial causes of septic arthritis are mostly caused by *Staphylococcus aureus*, including methicillin-resistant *S aureus*. Streptococci are also frequent causes, along with gram-negative bacilli. The clinical presentation of specific pathogens is shown in [Table 1](#).

HISTORY AND EXAMINATION

What are the most common symptoms of septic arthritis?

Patients usually present with a 1- to 2-week history of erythematous, painful, swollen, and hot joint(s) with a decreased range of motion. Large joint involvement is the most common presentation, and the knee is involved in about 50% of cases. Other common joints include hip, shoulder, ankle, elbow, and wrist. Multiple joints are involved in 15% of patients, and are more likely to occur in those with rheumatoid arthritis or other connective tissue disorders and severe sepsis.¹⁰ Fever is present in most cases, but chills are unusual.¹¹⁻¹³ Symptoms can be less pronounced in the elderly, the immunocompromised, and intravenous drug abusers.

What are the most important features to note in the physical examination?

The physical examination helps determine if the site of inflammation is intra-articular or periarticular. If the intra-articular space is affected, the joint is naturally held in the position where maximal space is allowed (ie, in extension for the knee joint). Any active or passive range of motion will cause pain and limitation. Periarticular abnormality involves structures such as the skin and bursa.

DIAGNOSIS

Which diagnostic tests are needed to diagnose septic arthritis?

If septic arthritis is suspected, arthrocentesis should be performed on presentation. Gram stain, culture, leukocyte count and differential, and crystal analysis should be

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