

SEPTIC ARTHRITIS

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COMMENTS

General Points

Joint destruction and disability remain common complications of septic arthritis. While there are some common general features of septic arthritis, other factors (eg, differential diagnosis, organisms involved, and potential complications) may differ, depending upon the patient's age. It is, therefore, important to have a high index of clinical suspicion for septic arthritis and to make an early diagnosis in order to institute the appropriate treatment without delay.

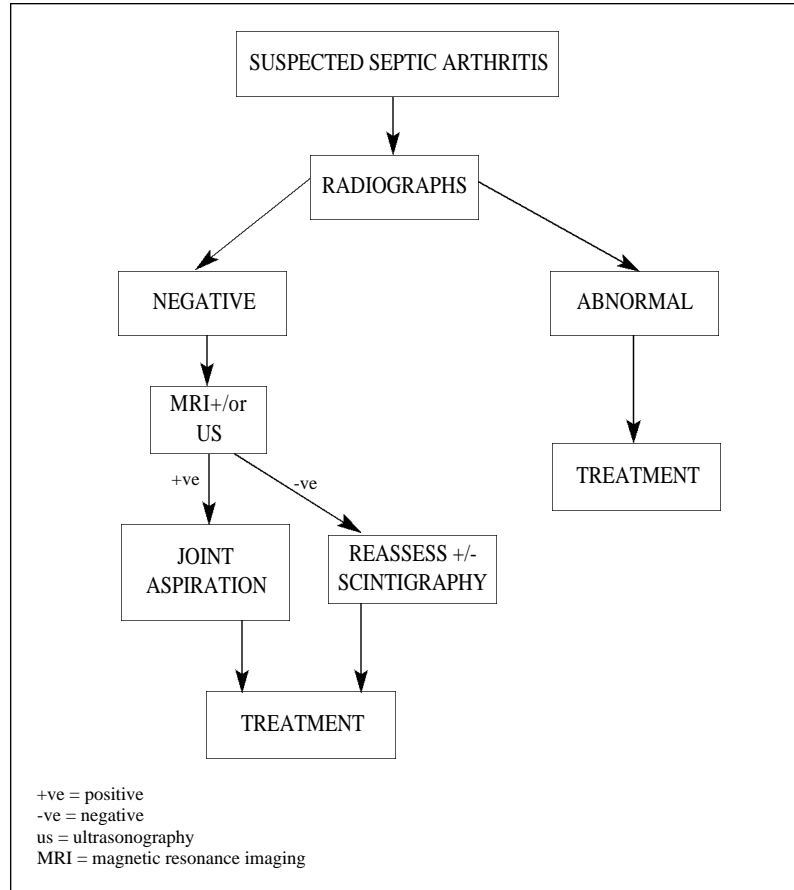
Radiographs

- Radiographs may appear normal if the joint effusion is small or if it is in certain joints (eg, the shoulder, where relatively large effusions are difficult to detect).

- Radiographs are useful in excluding abnormalities, such as fractures or tumors.

- Complications in neonates include dislocation, epiphyseal separation, epiphyseal and bone destruction, and growth disturbances. In addition to growth disturbances, complications in children include septic necrosis, bony ankylosis, and osteomyelitis. In adults, complications include contractures, secondary osteoarthritis, ankylosis, soft-tissue cysts, and tendon ruptures.

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Ultrasonography (US)

- High-resolution US is a non-invasive, sensitive, and cost-effective method for diagnosing the presence of a joint effusion.

- US may be less effective in less accessible joints.

- Bone and cartilaginous changes may not appear distinctly on US.

- US is useful in directly guiding diagnostic aspiration of a joint.

Magnetic Resonance (MR) Imaging

- MR imaging is non-invasive, lacks ionizing radiation, has multiplanar imaging capability, and superior soft-tissue

contrast and resolution.

- MR imaging reveals the presence of joint effusion, soft-tissue edema, synovial thickening and enhancement, bone erosions, and marrow edema and enhancement. However, these findings are nonspecific and may be found in other joint inflammatory disorders.

Scintigraphy

- Scintigraphy using technetium-99m-methylene diphosphonates is less sensitive in diagnosing septic arthritis than it is for osteomyelitis. False-negative results may occur.

- Scintigraphy using gallium-67 or white blood cells may be

more useful in some cases.

- There may be a role for scintigraphy in excluding osteomyelitis when US does not indicate a joint effusion but infection is still suspected.

Joint Aspiration

- The diagnosis of septic arthritis is established by aspiration of suspected joints.

- Aspiration with a large bore needle (eg, 18 gauge) is best performed under imaging guid-

ance in order to confirm that the needle tip is indeed within the joint and to exclude false negative aspirations.

- Imaging techniques used to guide aspiration include ultrasonography, fluoroscopy or computed tomography. In the latter 2 cases, a limited arthrogram may be performed to confirm the intra-articular placement of the needle tip.

- The aspirated fluid should

undergo analysis with the appropriate stains and cultures.

BIBLIOGRAPHY

1. Jaramillo D, Treves ST, Kasser JR, Harper M, Sundel R, Laor T. Osteomyelitis and septic arthritis in children: appropriate use of imaging to guide treatment. *Am J Roentgenol*1995;165:399-403.
2. Brower AC. Septic arthritis. *Radiol Clin North Am*.1996;34:293-309.
3. Graif M, Schweitzer ME, Deeley D, Matteucci T. The septic versus nonseptic inflamed joint: MRI characteristics. *Skeletal Radio*1999;28:616-620.

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