(unless the infection is intracapsular). In older adolescents (with a closed growth plate), the infection is poorly contained and the joint is compromised. Adult periosteum is attached to bone; consequently, rupture through the periosteum and sinus drainage is more common in adults.

Diagnostic Evaluation

Organism identification and antibiotic susceptibility testing are essential for effective therapy. Cultures of aspirated purulent drainage along with cultures of blood, joint fluid, and infected skin samples should be obtained. Bone biopsy is indicated if blood culture results and radiographic findings are not consistent with osteomyelitis. Supporting evidence for osteomyelitis includes leukocytosis and elevated erythrocyte sedimentation rate (ESR) and C-reactive protein (CRP). Radiographic signs, except for soft-tissue swelling, are evident only after 2 to 3 weeks. A three-phase technetium bone scan can show areas of increased blood flow, such as occurs in early stages in infected bone, and is useful in locating multiple sites; however, it is not a diagnostic test. CT can detect bone destruction, and MRI provides anatomic details useful in delineating the area of involvement, especially if surgical intervention is planned. MRI is reported to be the most sensitive diagnostic radiologic tool for diagnosing osteomyelitis (Kaplan, 2016a). Sometimes the osteomyelitis may be unrecognized if it occurs as a complication of a severe toxic and debilitating disease. Neonates may not present with clinical manifestations other than limited mobility of the affected extremity; fever may or may not be present, and the neonate may not appear to be sick (Kaplan, 2016a).

Therapeutic Management

After culture specimens are obtained, empiric therapy is started with IV antibiotics covering the mostly likely organisms. For *S. aureus,* nafcillin or clindamycin is generally used. Consideration should be given to the increased rates of community-acquired methicillin-resistant *S. aureus* (MRSA) in the selection of first-line antibiotic therapy; MRSA may require vancomycin, or in some cases, clindamycin may be appropriate. When the infectious agent is identified, administration of the appropriate antibiotic is initiated