Infection

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In the early stages of joint infection, the plain films may be normal, but they should still be performed to exclude bony erosions in case a painful joint is the first sign of an arthropa thy . Ultrasound examination is the easiest and most accurate method of assessing joint e ff usions, although, when an e ff usion is identified, it is not possible to discriminate between blood and pus. Aspiration guided by ultrasound is the best method of making this distinction. MRI may be required to assess early articular cartilage and bone inv olvement. Radiographs should also be used to examine patients with suspected osteomyelitis. Although they may not detect early infection, they will demonstrate or exclude bony destruction, calcification and sequestrum formation. CT may be needed to giv e a cross-sectional view , in order to assess the extent of bony sequestrum. MRI is perhaps the most sensitive method for detect - ing early disease and is the preferred technique to define the activity and extent of infection, as it shows not only the bony involvement but also the extent of oedema and soft-tis - sue involvement (Figure 8.26). Abscesses may be detected or excluded, and subperiosteal oedema is readily visible. MRI can be used as a staging procedure to plan treatment, including surgical intervention. Serial examinations can be used to follow the response to intravenous antibiotics and are very useful in the management of complex osteomyelitis. In cases of negative or equivocal MRI, nuclear medicine techniques such as bone scintigraphy can be very sensitive, and specialised studies using tracers such as gallium citrate or indium-labelled white cells increase specificity . Summary box 8.13 Imaging of potentially infected bone and joint /uni25CF /uni25CF /uni25CF /uni25CF /uni25CF - /uni25CF

Figure 8.25 Coronal T1- (a) and axial T2-weighted fat-suppressed (b) images through the distal femur of the patient in Figure 8.24 illustrates the bony area involved, the soft-tissue extent of the

tumour and the relationship of the neurovas

cular structures to the mass (arrows). Plain radiographs may be needed to exclude bone erosion Ultrasound is sensitive for an effusion, periosteal collections and super /f_i cial abscesses and can be used for guided aspiration CT is useful in established infection to look for sequestrum MRI is useful to de /f_i ne the activity of osteomyelitis, early infection and soft-tissue collections Bone scans are sensitive but of low speci /f_i city Complex nuclear medicine studies are useful in negative MR examinations or equivocal cases

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Revision #1
Created 2025-12-31 15:28:49 UTC by Omar Ayman
Updated 2025-12-31 15:28:49 UTC by Omar Ayman