Osteomyelitis is an increasingly common pathology condition that often poses a diagnostic challenge to clinicians. Accurate and timely diagnosis is critical for preventing complications that can result in the loss of life or limb. In addition to history, physical examination, and laboratory studies, diagnostic imaging plays a vital role in the diagnostic process. This narrative review article discusses various imaging modalities employed to diagnose osteomyelitis, namely plain film radiography, computed tomography (CT), magnetic resonance imaging (MRI), ultrasound, bone scintigraphy, and positron emission tomography (PET). Articles were obtained from PubMed and screened for relevance to the topic of “diagnostic imaging for osteomyelitis.”

The authors concluded that plain films are radiography is an appropriate first step, as they because the images may reveal osteolytic changes and can help rule out alternative pathology disease. MRI is often the most appropriate second study, as it because it is highly sensitive and can detect bone marrow changes within days of an infection. Other imaging modalities such as CT, ultrasound, and bone scintigraphy may be useful in patients who cannot undergo MRI. CT is useful for identifying necrotic bone in chronic infections.

Ultrasound may be useful in children or those individuals with sickle-cell disease. Bone scintigraphy is particularly useful for detecting vertebral osteomyelitis. Finally, PET scan has demonstrated high sensitivity and specificity; however, its clinical application is limited by its high cost and poor availability. When used appropriately, diagnostic imaging can provide highly sensitivity and specificity for detecting osteomyelitis, making radiographic evaluation a crucial step in the diagnostic process of this debilitating condition.