**FOOT AND LOWER EXTREMITY COMPLICATIONS**

Diabetic foot ulceration results from interaction of many factors, including peripheral neuropathy, excessive plantar pressure, repetitive trauma, peripheral vascular disease, and wound-healing disturbances.[12-14](https://accessemergencymedicine.mhmedical.com/content.aspx?sectionid=206322747&bookid=2353#tin9_ch224rf12%20tin9_ch224rf13%20tin9_ch224rf14) Ulcers act as a portal of entry for bacteria, resulting in cellulitis and abscess formation. Aerobic gram-positive cocci (especially *Staphylococcus aureus*) are the predominant pathogens. Gram-negative rods may be encountered in patients with chronic wounds or those who have recently received antibiotic therapy. Those with foot ischemia or gangrene may be infected with obligate anaerobic microorganisms.[14](https://accessemergencymedicine.mhmedical.com/content.aspx?sectionid=206322747&bookid=2353#tin9_ch224rf14),[15](https://accessemergencymedicine.mhmedical.com/content.aspx?sectionid=206322747&bookid=2353#tin9_ch224rf15)

Foot complaints in a diabetic require a thorough foot examination. Ulcer characteristics, including dimensions, depth, appearance (erythema, swelling, and purulence), and location, should be described. Hair and nail growth, calluses, corns, foot deformities, sensation, and vascular status (palpation of pedal and popliteal pulses) should be assessed. It is sometimes difficult to distinguish between lower extremity ulcers resulting from vascular insufficiency and those due to diabetes. Venous ulcers are typically present above the malleoli with irregular borders. Arterial ulcers are often found on the toes or the shins, with pale, “punched-out” borders. These ulcers are typically painful in the absence of coexisting neuropathy. **Diabetic ulcers**, on the other hand, usually occur at areas of increased pressure (e.g., sole of the foot) or friction (due to footwear). **Any ulceration found should be unroofed and probed using a blunt-ended rigid sterile probe to determine the depth.** The ability to probe to bone through the ulcer suggests the strong possibility of osteomyelitis and deep-space soft tissue infection. Purulence or inflammation suggests infection, and both aerobic and anaerobic cultures should be taken from purulent drainage or material curetted from the base of the wound. Such specimens are preferable to wound swab specimens, which are often contaminated with colonizing bacteria and often do not identify the infected organism(s).

The diagnosis of osteomyelitis in patients with diabetic foot ulcer remains a challenge. When the wound can be probed to the underlying bone, presence of osteomyelitis is almost certain. Radiographs, although not very sensitive, should be obtained in patients with deep or long-standing ulcers to exclude osteomyelitis, subcutaneous gas, foreign bodies, and Charcot joints. MRI can identify osteomyelitis if radiographs are negative but clinical suspicion is high.[16](https://accessemergencymedicine.mhmedical.com/content.aspx?sectionid=206322747&bookid=2353#tin9_ch224rf16),[17](https://accessemergencymedicine.mhmedical.com/content.aspx?sectionid=206322747&bookid=2353#tin9_ch224rf17) [**Table 224-2**](https://accessemergencymedicine.mhmedical.com/content.aspx?sectionid=206322747&bookid=2353#tin9_ch224tb2) shows the diagnostic utility of physical examination, laboratory, and basic radiographic testing in the diagnosis of osteomyelitis in patients with diabetic foot ulcer.