A 52-year-old man was admitted to hospital, complaining of foot pain and swelling for approximately 10 days that had gradually worsened. A low-grade fever was also present and he complained of increasing fatigue.

On physical examination, the extremity was noted to be swollen from just below the level of the knee, associated with erythema and induration. The patient denied having any underlying medical conditions. A series of radiographs of the foot and ankle (Figs. 1 to 3) showed obvious marked soft-tissue swelling with evidence of fracture and collapse of the anterior aspect of the talus and the adjacent tarsals. Subluxation of the joints of the tarsus accompanied these findings. Careful examination demonstrated numerous small bone fragments (Fig. 3, arrows).

What diagnoses would you consider?

For the answer and discussion see page 190.
The patient was found to be suffering from a neuropathic foot secondary to unrecognized diabetes. Superimposed infection had resulted in a septic thrombophlebitis, so above-knee amputation was undertaken. A sagittal section through the amputation specimen (Fig. 4) shows excellent correlation with the lateral radiograph (Fig. 3 in the presentation, page 172). Marked soft-tissue swelling with bony destruction and collapse are clearly evident.

The development of neuropathic joints in patients with diabetes is a well-recognized phenomenon. This has been ascribed to a variety of different mechanisms, including a decrease of protective reflexes, unrecognized trauma from desensitization and vascular compromise, which makes the underlying trauma more difficult to heal. The destructive changes commonly involve the tarsometatarsal and metatarsophalangeal joints, but the most striking gait abnormalities are usually related to fractures and collapse, which develop within the ankle and talus. Clinically, these patients present with warm, swollen joints, sometimes with remarkably little pain. With time, progressive, deforming instability ensues, which may be accompanied by ulceration and infection, as in this patient. If infection is present, the condition is potentially life threatening.

Radiographic findings demonstrate disorganization of the joints with collapse of the osseous structures, often with extensive accompanying calcified debris. Large joint effusions may be present when the surrounding soft tissue is edematous, and if superinfection is present radiographs may show gas in the soft tissues. Patients may have embedded foreign matter in the tissues that they are unaware of because of desensitization. More-detailed evaluation can be provided with computed tomography, which is particularly useful in cases that are less advanced than in this patient. If superimposed septic thrombophlebitis is suspected clinically, if any further imaging is required, contrast-enhanced CT may be of value, if the patient’s renal function permits. CT will demonstrate the extent of the inflammation and the presence of any gas within the soft tissues. Colour flow Doppler ultrasonography is particularly helpful in demonstrating patency and thrombosis of veins.

It should be remembered that numerous other causes of neuropathic joints should be considered apart from diabetes, although this is the most common cause in North America. Less frequently, syphilis, syringomyelia, leprosy, traumatic nerve injuries, multiple sclerosis and chronic alcoholism can produce a similar picture.

References