DIASTASIS BETWEEN THE MEDIAL AND THE INTERMEDIATE CUNEIFORMS

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Diastasis between the medial and the intermediate cuneiforms is rare (O'Donoghue 1976), and is usually associated with a Lisfranc fracture-dislocation (Denton 1980; Cain and Seligson 1981; Smith et al. 1984; Wargon and Goldman 1986).

Case report. A 16-year-old girl felt a painful click in her left foot when playing basketball. She was unable to run, and was treated, by rest and a splint, by a bone-setter. Three weeks later, on referral to our clinic, her forefoot was swollen, warm and tender. Pain was felt over the medial two cuneiforms especially when the foot was compressed from side to side. An anteroposterior radiograph showed a 2 mm diastasis between the medial and the intermediate cuneiforms (Fig. 1). A small bone fragment was visible between the bones on an oblique view and was even more apparent on anteroposterior tomograms (Fig. 2). The Lisfranc tarsometatarsal joints were normal, although the first metatarsal bone was shorter than the second. A $^{99m}$Tc scintigram showed a high local signal (Fig. 3).

A non-weight-bearing below-knee cast was worn for one month, then weight-bearing with an arch support was allowed. Jogging was possible without pain three months after the injury, and the patient returned to playing basketball after seven months. The diastasis remained visible on radiographs.

Discussion. Fracture-dislocation at the tarsometatarsal joints occurs in high-energy accidents (Wiley 1971), and isolated separation between the cuneiform bones may result from traffic accidents (Schiller and Ray 1970; O'Donoghue 1976).

In athletics, dislocations in the foot are rare because it is usually protected by a shoe. In our case, the injury was probably caused by stress concentrated on the first metatarsal ray when the patient stepped sideways, and a small fragment was avulsed from the medial cuneiform. The interosseous ligament between the medial cuneiform and the base of the second metatarsal is strong (Schiller and Ray 1970; Wiley 1971), and therefore avulsion should not normally occur. Local stress, however, may be greater in patients with a short first metatarsal. Morton (1928) described first metatarsal hypermobility, and Lewin (1959) reported the Morton syndrome as short first metatarsal, hypermobile first metatarsal segment, and posterior displacement of the sesamoids. In our case, there was no such instability in the opposite foot.

Diastasis between the cuneiforms is easily missed, but should be considered even in mild injury, when there is swelling, pain, tenderness over the medial two cuneiforms, and pain on lateral compression of the forefoot. Oblique anteroposterior radiographs, tomography or CT scans may be useful, and scintigraphy may show high uptake at the site of injury. Differentiation

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from a tarsometatarsal (Lisfranc) dislocation is important (Faciszewski, Burks and Manaster 1990).

Our patient presented at three weeks and conservative treatment enabled her to return to athletics without symptoms seven months after the injury. O'Donohue (1976) recommended complete reduction and internal fixation followed by non-weight-bearing for four weeks and an arch support for one year.

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REFERENCES


REGIONAL PROPHYLACTIC ANTIBIOTIC IN KNEE ARTHROPLASTY

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During arthroplasty, antibiotic prophylaxis usually involves the systemic administration of a second-generation cephalosporin (Hill et al 1981). We have used regional intravenous administration of cefuroxime to cover knee arthroplasty, finding that this achieved and maintained much higher bone and fat concentrations than the conventional systemic method (Hoddinott et al 1990). Our findings have been confirmed using cephamandole (Field et al 1992).

The greatest risk of infection of a surgical wound is in the first 24 hours; antibiotic cover should continue for this period (Bannister 1986). We have measured the concentration of cefuroxime in the drainage from knee arthroplasties to provide a pharmacokinetic profile of regionally administered cefuroxime in haematoma fluid during the 24 hours after operation.

Patients and methods. Five patients who did not receive antibiotics in the 72 hours before operation gave their informed consent for the study, which was approved by the local ethics committee. After exsanguination by elevation a thigh tourniquet was inflated. A dose of 750 mg of cefuroxime in 100 ml of water was then injected over a two-minute period into a foot vein. After knee arthroplasty a single suction drain was used, and samples of the drainage fluid were taken every four hours for 24 hours. They were centrifuged at 2000 g for five minutes, the supernatant removed, and stored at −70°C. Assay for cefuroxime was by high-performance liquid chromatography (Hoddinott et al 1990).

Results. The haematoma concentrations of cefuroxime are shown in Table 1 and in Figure 1. The levels ranged from 95.8 mg/l at four hours to an undetectable level (< 0.3 mg/l) at 24 hours in one patient. The mean levels were 48.7 mg/l at four hours and 2.7 mg/l at 24 hours. All levels, except the single very low one, were inhibitory for the common pathogens, such as Staphylococcus aureus and Staphylococcus epidermidis. With the one exception, effective levels were maintained for 24 hours after the operation. There were no side-effects from this route of