BRIEF REPORTS

BILATERAL AVASCULAR NECROSIS OF THE TALUS FOLLOWING STRENUOUS PHYSICAL ACTIVITY

J. TRAVLOS, I. D. LEARMONTH

Avascular necrosis of the talus is a well known complication of severe ankle trauma and has been described in association with certain medical conditions. We report what we believe to be the first case of bilateral avascular necrosis which may have resulted from stress fractures of the talus.

Case report. A 25-year-old man presented with pain in both ankles secondary to avascular necrosis of the bodies of both tali (Figs 1 and 2).

Fig. 1

Fig. 2

Five years previously he had undergone a rigorous one-year training course as a military recruit, during which he had marched nearly every day. Towards the end of the year he had experienced discomfort in both ankles which prevented him from participating in strenuous exercise. Radiographs were taken of both ankles on four separate occasions over a four-month period after the onset of symptoms but no bony abnormalities were identified. He suffered increasing pain in both ankles, and two years after the first symptoms

a radiological diagnosis of bilateral avascular necrosis was made.

Three years after this he was referred to the Princess Alice Orthopaedic Hospital for further management. By this stage he had bilateral ankle and subtalar crepitus with ankle plantarflexion of 40° and dorsiflexion of 20°. Subtalar movement was normal. Detailed investigation revealed none of the recognised predisposing causes of avascular necrosis of the bone.

Discussion. Avascular necrosis of the talus may follow major ankle injuries and fractures of the talus (McNerney 1978), and one case has been reported following a single minor ankle injury with a fibular fracture (Feller, Hart and Doig 1988). Medical conditions which may predispose to avascular necrosis of the talus include corticosteroid therapy (Harrington et al 1971), chronic alcoholism (Harris and Silver 1973), hyperuricaemia (Miskew and Goldflies 1980), systemic lupus erythematosus and pancreatitis (Baron, Paltiel and Lander 1984). Our patient had none of these. Two spontaneous cases have also been described (Dall and MacNab 1970).

The onset of symptoms in our case did not relate to a single injury but to sustained physical activity. We therefore believe from the characteristic history, that the cause may have been undiagnosed stress fractures of the tali. Negative radiographs are common in such cases: Meurman and Elfving (1980) state that "it can be presumed that more stress injuries occur in bones of the foot than are diagnosed. Isotope examination of both legs in patients with stress fractures have shown that the

J. Travlos, FCS SA(Orth), M MED Orth, Senior Registrar in Orthopaedics
Royal United Hospital, Combe Park, Bath BA1 3NG, England.

I. D. Learmonth, FRCS, FCS SA(Orth), Professor and Head of Rheumatology Surgical Services
Princess Alice Orthopaedic Hospital, Cape Town, Republic of South Africa.

Correspondence to Mr J. Travlos.

© 1991 British Editorial Society of Bone and Joint Surgery
0301-620X/91/5R29 \$2.00
J Bone Joint Surg [Br] 1991; 73-B: 863-4.

foci of increased activity appear relatively often without positive radiological findings."

We have been unable to find a previous report of avascular necrosis complicating a probable stress fracture.

No benefits in any form have been received or will be received from a commercial party related directly or indirectly to the subject of this article.

REFERENCES

- Baron M, Paltiel H, Lander P. Aseptic necrosis of the talus and calcaneal insufficiency fractures in a patient with pancreatitis, subcutaneous fat necrosis and arthritis. *Arthritis Rheum* 1984; 27:1309-13.
- Dall D, MacNab I. Spontaneous avascular necrosis of the talus: a report of two cases. *S Afr Med J* 1970; 44:193-6.
- Feller JA, Hart, Doig SJ. Avascular necrosis of the talus following apparently minor ankle injury: case report. *Injury* 1988; 19:213-6.
- Harrington KD, Murray WR, Kountz SL, Belzer FO. Avascular necrosis of bone after renal transplantation. *J Bone Joint Surg [Am]* 1971; 53-A:203-15.
- Harris RD, Silver RA. Atraumatic aseptic necrosis of the talus. *Radiology* 1973; 106:81-3.
- McNerney JE. The incidence of aseptic necrosis of the talus following traumatic injuries. *J Foot Surg* 1978; 17:137-43.
- Meurman KOA, Elfving S. Stress fracture in soldiers: a multifocal bone disorder. *Radiology* 1980; 134:483-7.
- Miskew DB, Goldflies ML. Atraumatic avascular necrosis of the talus associated with hyperuricemia. *Clin Orthop* 1980; 148:156-9.

FREIBERG'S DISEASE AND DORSIFLEXION OSTEOTOMY

PATRICK KINNARD, RICHARD LIRETTE

Symptomatic Freiberg's disease occurring in 15 patients was treated by dorsiflexion osteotomy. The procedure gave excellent results with minimal loss of metatarsophalangeal motion and with an average of 2 to 5 mm metatarsal shortening.

The surgical options for the management of symptomatic Freiberg's disease include joint debridement, osteotomy, metatarsal head excision or debridement and excision of the proximal phalangeal base (Trott 1982;

Helal and Gibb 1987) but little mention is made in the English literature of dorsiflexion osteotomy (Gauthier and Elbaz 1979; Kinnard and Lirette 1989).

Material and methods. Dorsiflexion osteotomy was carried out on 13 women and two men with symptomatic Freiberg's disease after failure to respond to conservative treatment. The mean age was 29 years (range 14 to 55). Their mean follow-up period was 50 months (range 25 to 87). The second metatarsal was affected in ten cases and the third metatarsal in five.

Smillie's classification (Smillie 1957) describes five stages of the disease from a fissure fracture (stage 1) to deformity and flattening (stage V). Nine of our patients were at stage V, two at stage IV and four at stage II.

The surgical technique comprised a wide metatarsophalangeal arthrotomy to expose the metatarsal head. After joint debridement, an intra-articular dorsal wedge osteotomy was performed through the distal metaphysis with sufficient bone removal to bring the healthy plantar part of the metatarsal head into articulation with the phalanx. Even at stage V, the metatarsal head can be

Fig. 1

P. Kinnard, MD, FRCS C, Clinical Professor and Head of Orthopaedic Surgery
R. Lirette, MD, FRCS C, Orthopaedic Surgeon
Centre Hospitalier de l'Université Laval, 2705 Boulevard Laurier,
Ste Foy, Quebec G1V 4G2, Canada.

Correspondence to Dr P. Kinnard.

© 1991 British Editorial Society of Bone and Joint Surgery
0301-620X/91/5R33 \$2.00
J Bone Joint Surg [Br] 1991; 73-B: 864-5.

Fig. 2