

3 cases of longitudinal stress fracture of the tibia

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Submitted 94-03-13. Accepted 94-10-10

Case 1

A 62-year-old man rose from a crouched position with a twisting motion and developed pain in the lower third of his left tibia. 2 weeks later, radiographs were normal. Pain persisted and 3 months later radiographs revealed a longitudinal lucency in the distal tibia on the lateral view and a corresponding thin sclerotic band on the AP view suggesting a stress fracture (Figure). The leg was immobilized in a cast. A CT scan confirmed a healing stress fracture with endosteal and subperiosteal new bone formation. The cast was removed at 6 weeks, radiographs showed healing and the patient has remained asymptomatic.

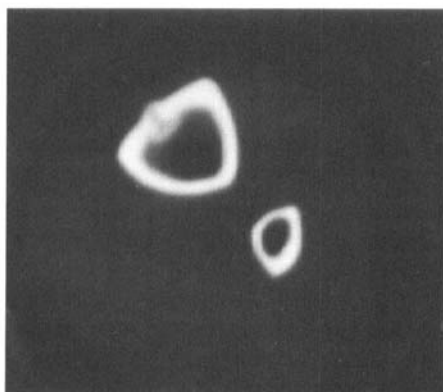


Vertical lucency in tibia on lateral view and corresponding faint band of sclerosis on AP view.

Case 2

A 50-year-old man twisted his left ankle while gardening and developed lower tibial pain. He was still in pain 3 weeks later. Radiographs at this time were normal. A sterile effusion was aspirated from the ankle. 2 months after the ankle aspiration, pain persisted. A bone scan demonstrated increased activity over the distal third of the tibia and radiographs showed a vertical fracture line in the distal third of the tibia, subsequently confirmed by CT (Figure). He was treated symptomatically with analgesics, but the pain took 8 months to disappear.

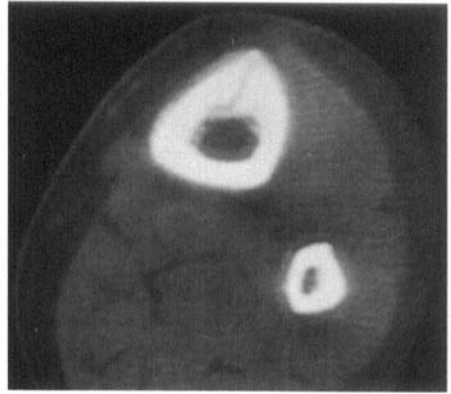
Case 1.



CT scan showing healing fracture with subperiosteal and endosteal callus.

Case 2.

Thin vertical lucent fracture line.



CT showing vertical fracture line and adjacent callus.

Case 3

A 28-year-old woman athlete presented with exercise-related pain and tenderness in her right shin. The clinical diagnosis was confirmed by the presence on the lateral radiograph of a small area of periosteal reaction on the posterior aspect of the distal tibia and by a corresponding longitudinal band of increased activity on the isotope bone scan. She stopped running and her symptoms disappeared.

Discussion

Transverse stress fractures of the tibia commonly occur in the proximal or distal third of the tibia in adolescents and young adults (Daffner and Pavlov 1992). There is usually a history of increased or athletic activity (Clayer et al. 1992). Longitudinal stress fractures of the tibia differ from transverse stress fractures in that they occur more commonly in middle-aged to elderly adults, as in 2 of our cases. They are not usually associated with strenuous activity,

although our third patient was younger and her fracture was induced by athletic training. In the 2 older patients, there was a definite history of a twisting injury and these injuries may be incomplete spiral fractures. Clayer et al. (1992) also noted the association with torsional stress. Initial radiographs are often negative or equivocal, as in our first two cases, or show only very subtle changes, as in our third case. The diagnosis can be confirmed by isotope bone scan, CT or MR scan (Saifuddin et al. 1994).

References

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