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THE SILENT BREAK: A CASE REPORT ON STRESS FRACTURE OF PROXIMAL TIBIA

Orthopaedics

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ABSTRACT

This is a case report on stress fracture of proximal tibia occurring as a result of chronic repetitive stresses. The patient exhibited symptoms of pervasive knee discomfort and was incapacitated to support weight or ambulate on the left leg for a duration of ten days. These symptoms ensued following a minor mishap at her workplace. Radiographs (Fig. 3), MRI scans (Fig. 1 and 2), and hematological examinations were performed. The radiographs and MRI (Fig. 1 and 2) corroborated the diagnosis of a stress fracture in the proximal tibia. The patient was managed with a conservative approach, utilizing a long knee orthosis, non-weight-bearing ambulation, analgesics, and teriparatide injections. She experienced symptomatic relief, and a follow-up radiograph at eight weeks (Fig. 4) demonstrated complete osseous healing.

KEYWORDS

Stress fracture, proximal tibia, teriparatide injection

BACKGROUND -

A stress fracture, alternatively termed a fatigue fracture, manifests from minute repetitive stresses. Osteochondral fractures are precipitated by compressive and bending forces. Predominant anatomical sites include the proximal tibia, metatarsals, phalanges, talus, calcaneus, ischiopubic ramus, and sacrum. Therapeutic interventions encompass analgesia, immobilization, physiotherapeutic regimens, and the administration of teriparatide injections.

Case presentation-

A 55-year-old female patient presented with diffuse pain in her left knee and an inability to bear weight or ambulate for 10 days. She recounted a minor fall at her workplace and had a history of manual labor. Additionally, she had previously used steroids for a COVID-19 infection two years prior. Hematological investigations, radiographs (Fig. 3), and MRI (Fig. 1 and 2) revealed a stress fracture of the left proximal tibia, with blood results within normal limits. The patient was managed conservatively with a long knee orthosis, bed rest, and analgesics for pain management. She demonstrated symptomatic amelioration and was also administered teriparatide for six weeks. A follow-up radiograph after eight weeks (Fig. 4) indicated complete osseous healing of the proximal tibia stress fracture.fracture. Patient also started walking and weight being after without walker assistance. Patient symptomatically improved after period of 8 weeks and resumed work

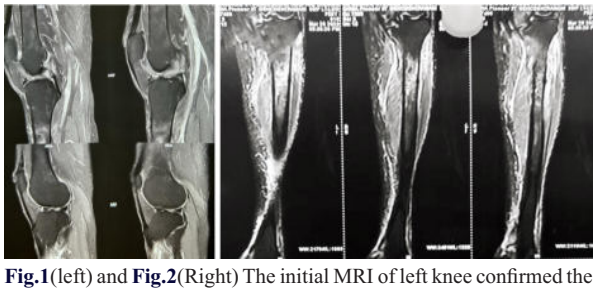

Fig.1(left) and **Fig.2**(Right) The initial MRI of left knee confirmed the presence of the proximal tibial stress fracture associated with a Grade 1 strain of Tibialis anterior muscle.

DISCUSSION-

Stress fractures arise from repetitive, minor stresses categorized into two types: bending and compression. The most common sites affected are the proximal tibia, fibula, followed by metatarsals, phalanges, ischiopubic ramus, and sacrum. Prolonged rapid stresses without adequate recovery disrupt bone remodeling, leading to osteoclast-mediated resorption of haversian canals and lamellae, resulting in microfractures. Both extrinsic and intrinsic factors contribute to the risk of developing stress fractures. Extrinsic factors include intense athletic training on uneven surfaces, while intrinsic factors encompass analgesic overuse, corticosteroid use, malnutrition, and smoking.

Management is divided into two stages: Stage one involves complete immobilization with bed rest, alteration of activities, aquatic exercise, and elliptical training to maintain muscle strength. Stage two entails a gradual return to activity, continuing physical therapy, and a phased return to normal daily routines.

CONCLUSION -

Stress fractures represent a frequently encountered medical condition. Timely and accurate diagnosis is crucial to initiate early intervention and promote recovery. These fractures are typically managed through conservative approaches in two phases. Teriparatide supplementation is administered to enhance bone strength. Patients exhibit notable clinical improvement following treatment.

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