



Atraumatic Isolated Bilateral Fibular Shaft Fragility Fracture: a Rare Case

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Abstract

Fragility fractures, a form of stress fracture brought on by physiological stress on weak bones are not common. It might be challenging to diagnose a fragility fracture, since a standard X-ray shows signs of fracture repair rather than the actual fracture. Here is presented a case of a young woman who has been complaining of pain in both legs for 4 months and has been unable to stand for 1 week. A further analysis revealed that patient's vitamin D levels were insufficient.

Key words: Fragility fracture; Stress fracture; *Osteomalacia*; Fibula.

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Introduction

Stress fractures are thought to be the result of continual stress on the bone rather than an acute traumatic occurrence.¹ They can arise in athletes, most likely as a result of the constant stress on bone caused by exertion. Fragility fractures develop as a result of normal stress on defective or inadequate bone. Certain areas of preference include the vertebra, pelvis, sacrum, ribs, distal end of the ulna and to a lesser extent, the proximal and distal end of tibia and fibula.²⁻⁴ To authors' knowledge, so far, just one isolated bilateral fibula insufficiency fracture without deformity has been recorded in literature.⁵ An interesting case of fragility fracture in a younger patient is presented.

Case History

A 30 year-old woman presented to the orthopaedic outpatient department (OPD) with a complaint of both leg pain for four months and has been unable to stand since last week. The pain

was continuous and not relieved by rest. There was no associated history of recent trauma. She was a housewife and had no history of participating in strenuous exercise like running or playing sports. She was previously seen by a neurosurgeon and treated as neurogenic claudication for 3 weeks. Her symptoms were not revealed and she was referred to orthopaedics department.

There were tenderness present on the anterior lateral aspect of proximal leg and varus deformity of both knee, no swelling or limitations on mobility. The patient didn't mention ever having joint discomfort.

Evidence of a transversely orientated, un-displaced fracture in the right as well as left fibular shaft is seen on the X-ray of both legs (Figure 1). Apart from the site being slightly more proximally on the left, the fractures looked to be extremely comparable. Peri-articular tibial metaphysical varus deformity and reduced lateral joint space of knee joint was found. The patient was questioned once again regarding dis-



Figure 1: A: X-ray of both knees with lower leg. B: X-ray of both knees with lower legs 6 weeks later. C: Clinical picture: knees and lower legs.

the patient was started on injection vitamin D therapy. Injection of Cholecalciferol 600,000 IU once a week for 6 weeks and calcium supplements, as well as weight bearing restrictions were ordained. After 6 weeks, the patient starts walking with the help of a walker.

tant insignificant trauma, but she was unable to remember.

Given that vitamin D deficiency is widespread in India, she was tested for complete blood count, c-reactive protein (CRP) level, parathyroid hormone (PTH) level, thyroid profile vitamin D and calcium level and found to have hypovitaminosis-D (24.1 ng/mL) (normal range: 30-50 ng/mL). Her serum calcium level was borderline at 9 mg %. Other parameters were within reference values.

Since no other cause for the fracture was found,

Discussion

Normal or physiological muscle action exerts stress on bone that lacks mineral or elastic resistance, resulting in fragility fractures.⁴ Fragility fractures become more common as people become older. They are more common in women and occur at trabecular bone-rich locations. Young people with underlying bone-weakening illnesses including osteoporosis, chronic inflammatory diseases like rheumatoid arthritis, vitamin D insufficiency, hyperparathyroidism, endocrine disorders and chronic renal failure can also suffer fragility

fractures.^{2,6,7} Only 6 to 16 % of the stress delivered from the lower extremity is received by the fibula. X-rays in the early stages are usually normal. During the healing process, new-bone and fracture lines become visible. Healing bone's profuse callus production mimics peri-osteal new bone tumour and infection. A fibula stress fracture is indicated by a triad of bowed fibula peri-osteal thickening, a transverse region of radio-lucency, and/or sclerosis on X-ray. Each of the X-rays is normal. The radionuclide bone scan invariably shows localised enhanced radio-tracer uptake at the loca-

tions of these fractures in the early stages of stress fracture.⁸ The most sensitive and precise method for determining the occurrence of peri-osteal and bone marrow oedema in stress fractures at an early stage is magnetic resonance imaging (MRI).⁹ The treatment of choices for fragility fracture is conservative and consists mainly in vitamin-D intramuscular injection 600,000 IU once a week for 6 weeks, supplementation of calcium, analgesia and immobilisation. Management of the underlying cause is essential to preventing recurrence.

Conclusion

It is quite unusual to have a spontaneous atraumatic isolated bilateral fibular fracture. X-rays demonstrate peri-articular osteopenia, a narrowed lateral joint space and a tibial metaphyseal varus deformity. In presented case, an atraumatic isolated fibular fracture with a stress fracture were due to vitamin D insufficiency.

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Conflict of interest

None.

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