

CASE REPORT

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A new fracture of the forearm adjacent to a healing fracture

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Abstract A 10-year-old girl sustained closed fractures of the distal radius and ulna. This was manipulated and she was treated in an above-elbow plaster for 4 weeks. Two weeks later she was discharged, only to have a second injury to the same forearm. X-ray showed a new fracture distal to undisrupted callus.

Résumé Une fille âgée de dix ans a soutenu des fracture fermées du radius et du cubitus distaux. Ceci a été manipulé et a été traitée dans un plâtre pendant quatre semaines. Deux semaines plus tard elle a été déchargée, seulement pour avoir des deuxième dommages au même avant-bras. Radiographies a montré que une nouvelle fracture distale du callus.

Introduction

In children, refracture is a relatively common complication of a forearm fracture. This tends to occur at the site of original injury. We report a case of a second fracture distal to the callus of a healing fracture, which is unusual.

Case report

A 10-year-old girl fell onto her outstretched hand while playing. She sustained closed transverse fractures of the distal radius and ulna (Fig. 1). This was treated by manipulation under general anaesthetic and an above-elbow plaster. Check X-rays at days 1 and 7 were satisfactory. The plaster was removed 4 weeks after the injury and gentle mobilization was commenced. She was discharged 6 weeks post-injury, only to return 2 days later to the accident and emergency unit, following a blow to the forearm from a football. X-ray showed undisrupted callus at the primary healing site, with a new extra-articular fracture distal to the original injury (Fig. 2). She underwent a further manipulation under general anaesthetic and a satisfactory result was obtained.

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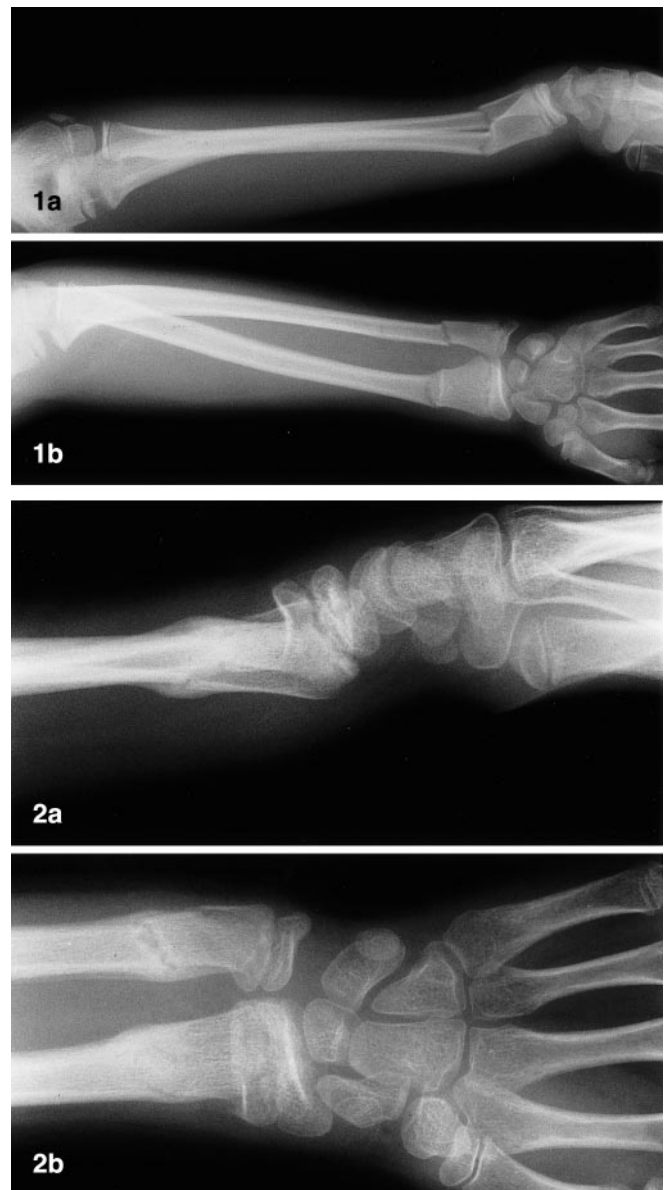


Fig. 1a,b AP and lateral radiographs of original distal radius and ulna fractures

Fig. 2a,b AP and lateral radiographs demonstrating new fractures distal to callus (6 weeks after original fractures)

Discussion

Refracture has been associated with repetition of the same injury, removal of immobilization devices too early, poor cast technique, and inadequate anatomical reduction at the original manipulation [1]. However, following a further injury it is rare to see a second fracture adjacent to the original. One would have thought that a force sufficient enough to fracture bone would do so through the callus.

Loss of mineral content in a fractured bone is well documented in the literature. This has been demonstrated in the distal radius following more proximal diaphyseal forearm fractures [2]. Another more recent study looked at tibial shaft fractures where Dual energy X-ray absorptiometry was used to measure bone mineral density during healing. Changes in mineralisation with time over the whole length of the fractured bone could be seen. The most pronounced effects were seen in the area of the fracture, but often more long-term alterations in bone mineral density affected regions at some distance from

this zone (up to 5 months after fracture) [3]. We propose that the response to the fracture, and the subsequent immobilization, caused a reduction in the mineralisation of the bone, therefore making it more susceptible to fracture.

This has implications for the management of children with such injuries. Perhaps we should be warning parents of the possibility of reduced bone strength in the vicinity of a fracture for a period of time after the removal of plaster.

References

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