

LETTERS TO THE EDITOR

An unusual case of fracture of the radius

Sir

We would like to report an unusual fracture of the radius suffered by a 36-year-old man in a road-traffic accident.

At the time of the accident the patient was driving his car with his forearm lying along the window frame and his wrist extended when he collided head-on with another vehicle. On arrival in hospital he had pain, swelling and tenderness over the middle of his right forearm. There were no external injuries to this area. Pronation and supination were painful with some limitation of supination. X-rays of the forearm are shown in Fig. 1. The patient was treated with a plaster cast for 4 weeks. This was found to be necessary for symptomatic relief of pain. After this time there was minimal tenderness and only a 20° loss of supination. After 3 more weeks mobilization the patient had fully recovered. Repeat X-rays at this time showed no change in appearance from the original films with no periosteal reaction or callus formation visible (Fig. 2). No further treatment was considered necessary and the patient was discharged from follow-up.

The lack of callus formation in this injury would suggest that the X-ray appearances are not new but had been due to an earlier injury which resulted in ectopic calcification. Thus, the diagnosis of an acute fracture was possibly in error. However, there was no

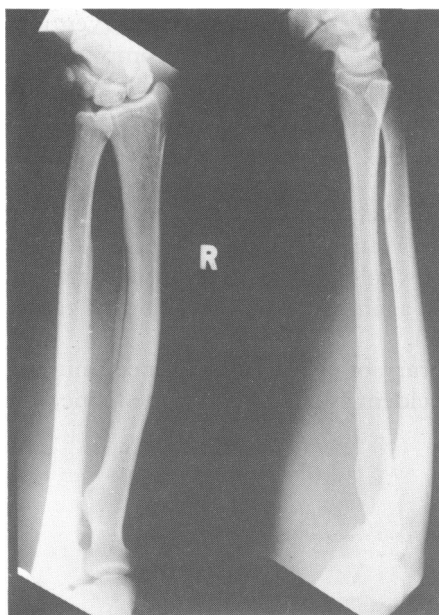


Fig. 1 X-rays of the forearm.



Fig. 2 Repeat X-rays with no periosteal reaction or callus formation visible.

way to have known this in advance and correct treatment was nevertheless given relying on the clinical signs.

An alternative possibility would be that this was an avulsion injury with non-union. At the time of this injury the forearm was subjected to a longitudinal stress while in full pronation. In this position the interosseous membrane is known to be taut (Last, 1978). However, it would be unlikely that the membrane could have avulsed the bone *per se*. The muscles gaining origin from the membrane (and adjacent bone) in this region would be unlikely to have contributed to the avulsion as such a force would have produced signs in the fingers or thumb.

Several forearm fractures are attributed to longitudinal stress but usually these are in association with other stresses such as pronation or supination. Borden (1974) describes bowing of the forearm without fracture in children with forearms subjected to longitudinal stress alone. He describes some features which appear prior to fracture. In particular, experimentally, a number of prefracture lines appear in the cortex of the bone in areas of maximum compression which can be shown to be areas of bone fragmentation. In some of his cases there was bowing with no associated fracture whereas some cases showed a fracture of one or other forearm bone. It is known that children's bones are more porous and better able to withstand compressive forces than adults (Rang, 1974). Therefore this same mechanism could be the cause of the fracture described when combined with a taut interosseous membrane: in a child the forces may have simply produced bowing whereas in the adult situation an overt fracture has occurred at the site of maximum compression with further avulsion by the membrane.

As X-rays before the accident or much later after are not available it is difficult to know which of these two explanations is correct; each has its merits. Nevertheless, the message remains that doctors should treat the patient and not the X-rays. This patient received the correct treatment whichever explanation is accepted.

G. J. GARDNER & S. COGHLAN
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SHOs' performance on diagnosing X-ray abnormalities

Sir

I was interested to read Dr Vincent's report in the June 1988 edition regarding SHOs performance on diagnosing X-ray abnormalities.