Acute osteomyelitis complicating a closed radial fracture in a child

A case report

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Development of osteomyelitis in a closed fracture is very rare. Although it has been reported that trivial trauma may be associated with the subsequent development of acute osteomyelitis, Waldovel et al. (1970) found no evidence that fractures were involved in the etiology of osteomyelitis.

We report a case in which the infection, after a closed fracture involved both metaphyses and the diaphysis of the radius.

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Case report

A 9-year-old girl was admitted to our hospital with a closed displaced radial neck fracture after falling to the ground while playing (Figure 1). She had no skin abrasions. The fracture was manipulated under general anesthesia, and an above-the-elbow plaster cast was applied. After 10 days, a radiographic examination showed that the fractured bone was well aligned.

She returned after 2 weeks for removal of her cast; however, she complained of having mild pain in her entire forearm and of having a continuous fever of 37.5–38 °C. Her pediatrician had initially diagnosed an upper respiratory tract infection, and had prescribed oral ampicillin, which she had taken for 2 weeks.

Her forearm was now swollen, red, and tender. The white blood cell count was 8,900 cells/mm^3, and there was a proportional increase in neutrophils; finally, she had an ESR of 115 mm/h.

Radiographs taken at this time showed diffuse changes in the radius extending from the proximal to the distal metaphysis and involving the entire diaphysis. Blood cultures were negative.

The arm was immobilized, and high doses of intravenous cloxacillin were given for 4 weeks; then, oral antibiotics were prescribed for 4 more weeks. Our patient responded well to treatment, became afebrile in a week, and her ESR dropped to 36 mm/h in 2 weeks. A new radiographic examination confirmed the improvement.

Now, 2 years after the initial injury, she has regained a full range of elbow and wrist movements, she plays tennis regularly, and radiographs are normal.

Discussion

Osteomyelitis complicating closed fractures is very rare; only 15 cases (6 in children) have been reported in the English literature (Canale et al. 1975, Watson and Whitesides 1975, Hardy and Nicol 1985). In these cases, there was always a delay in the diagnosis. Usually, an elevation in body temperature is thought to be due to an upper respiratory tract infection.

The pain is mild, possibly because the cortex has already been broken by the fracture, so the pressure in the bone is decreased (Aalami-Harandi 1978).

In our patient, antibiotics prescribed for the concomitant respiratory infection obscured the clinical picture, and may have been the cause of the negative blood cultures. In the previously reported cases, infection involved the fracture site, whereas in our patient both the metaphysis and the diaphyses were involved.

Acknowledgements

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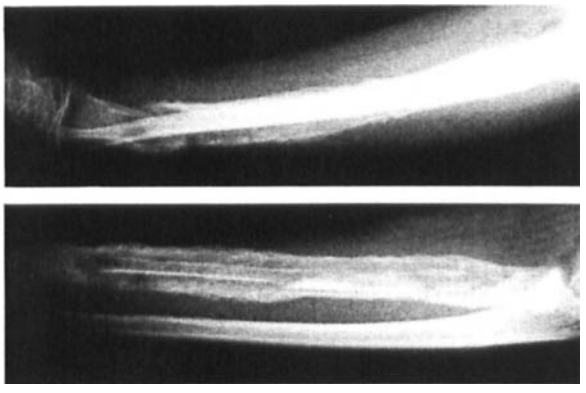
The initial fracture.



1 month after treatment.

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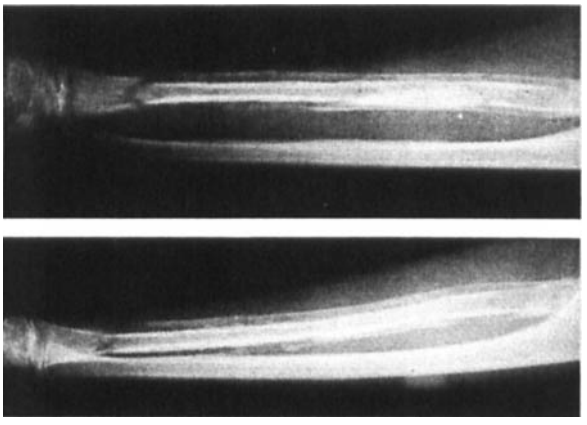
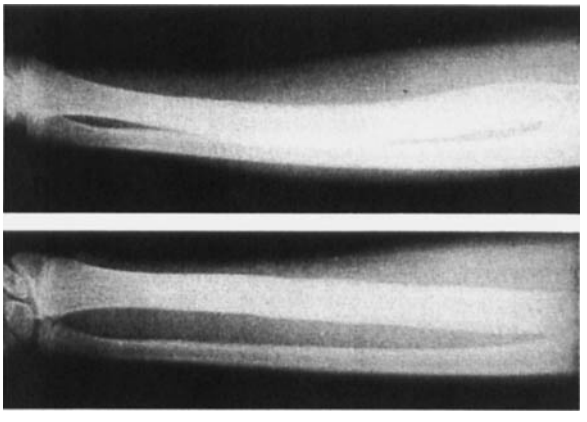


Osteomyelitis of the metaphysis and diaphysis.



2 years later.

Figure 1. A 9-year-old girl with osteomyelitis after a closed displaced radial neck fracture treated with closed reduction and plaster cast.