CASE REPORT

Bone infection and the limping child in the accident & emergency department: a diagnosis to be considered

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SUMMARY

The child who presents to the A&E department with a limp must be taken seriously. It is of paramount importance to include in the list of causes the possibility of infection. The diagnosis and treatment of subacute osteomyelitis in children is discussed to highlight the necessity for immediate referral and inpatient management.

INTRODUCTION

In children without a definite history of trauma, yet a persisting limp or refusal to weight bear, bone or joint infection must be urgently excluded even if the child is systemically well. Delay may result in significant morbidity and even permanent disability. Three cases are reported to illustrate this point.

Case 1

A 3-year-old child was brought to the Paediatric Department of Orthopaedics at the Royal Manchester Children's Hospital by her parents with a 2-day history of pain in the right foot and a refusal to weight bear. There was no history of trauma. She was afebrile but her foot was tender and slightly swollen. Plain radiographs were normal.

The white blood count (WBC) was $13\,800\text{ mm}^{-3}$ (normal = $11\,000\text{ mm}^{-3}$) and the erythrocyte sedimentation rate (ESR) was 64 mm h^{-1} (normal = 12 mm h^{-1}). A skeletal scintigram showed increased uptake of radionuclide in the second

metatarsal. A presumptive diagnosis of subacute osteomyelitis was made. Intravenous antibiotics were commenced and the affected limb was immobilized in a plaster of Paris cast. Subsequent X-rays showed rarefaction in the second metatarsal. Antibiotics were continued for 6 weeks until there was a complete clinical radiological and haematological resolution.

Case 2

A 2-year-old boy presented with a 1-day history of refusal to weight bear. There was no history of trauma. He was afebrile and physical examination proved completely normal, as were the radiographs. The WBC was 8400 mm^{-3} and ESR was 40 mm h^{-1} . Skeletal scintigraphy showed increased uptake in the left talus. A provisional diagnosis of sub-acute osteomyelitis was made. Intravenous antibiotics were commenced and the foot was rested in a plaster of Paris cast. Subsequent tests confirmed the diagnosis and he remained on antibiotics for 6 weeks until he had made a full clinical and laboratory recovery.

Case 3

A 7-year-old keen football player presented to his local A&E department for a 'second opinion'. He had seen his General Practitioner (GP) twice, complaining of a painful left foot and was reassured on both occasions. There was no history of trauma apart from the usual tackles in a recent football match. The foot was slightly tender and swollen over the medial side and radiographs were normal. He was treated conservatively with simple analgesia and a tubigrip support and was discharged home. He was subsequently seen 4 days later with deteriorating symptoms. The leg was rested in a plaster of Paris cast for 1 week, in spite of normal radiographs, but was still tender and swollen over the medial side of the foot when mobilization was attempted. During the following week his symptoms became worse and he was referred via the A&E department to the Orthopaedic Department at the Royal Manchester Children's Hospital, with a red, swollen and diffusely tender foot. His temperature, ESR and WBC were 37.8°C , 55 mm h^{-1} and 6100 mm^{-3} respectively. Radiographs were normal but the skeletal scintigram showed increased uptake in the medial tarsus. Subsequent investigation confirmed septic arthritis of the talo-navicular joint. In spite of aggressive treatment and long term immobilization in plaster of Paris, severe pain and stiffness necessitated talonavicular fusion with a further 4 months of immobilization. Two years following surgery he still cannot play football.

DISCUSSION

Although it may be difficult to diagnose osteomyelitis or septic arthritis in its early stages, early diagnosis is extremely important if the morbidity of the disease is to be reduced (Roberts *et al.*, 1982). The interval between the onset of symptoms and treatment is the most important prognosticator and should be minimized to improve

the ultimate outcome (Ross & Cole, 1985). It should be stressed that in the early stages most patients are systemically well, often without localizing signs as occurred in two of our patients. It should be noted that early in the disease, conventional radiographs appear normal (Roberts *et al.*, 1982). This emphasizes the importance of early in-patient management with sequential ESR monitoring and radionuclide scintigraphy (Sullivan *et al.*, Jackson & Nelson 1982). Encouraging results with aggressive antibiotic treatment and immobilization have been reported (Ross & Cole 1985). In conclusion, we recommend that the A&E department refer any child with a limp or a refusal to weight bear for specialized in-patient treatment when the symptoms cannot be attributed to a specific cause such as a fracture.

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