

PRIMARY SUBACUTE OSTEOMYELITIS OF THE WRIST IN CHILDREN

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The authors report 3 cases of subacute osteomyelitis of the distal radius and ulna, simulating a malignant bone tumor. The literature on this particular condition is reviewed.

Keywords : wrist ; osteomyelitis ; children.

Mots-clés : poignet ; ostéomyélite ; enfant.

INTRODUCTION

Osteomyelitis of the long bones in children often affects the metaphysis around the knee. Symptoms are usually very acute with severe general illness, fever and severe local pain. Subacute osteomyelitis is a rare disorder which may simulate bone neoplasms. Localization at the wrist is even more exceptional. We report 3 additional cases with this atypical course.

CASE HISTORIES

Case 1

L. R. is a 12-year-old girl with a 3-months history of left wrist pain. For a few days the wrist was swollen. After a 6-week course of antibiotic treatment (details are lacking), the pain decreased. Afterwards the wrist pain recurred on an irregular basis, but was never severe enough to wake the patient at night, nor did the pain interfere with daily life activities. Fever or other signs of general illness or a toxic clinical picture were never observed. She was sent to the outpatient clinic after a radiograph suggesting a bone tumor.

On physical examination, she was in good general health. The left wrist was slightly tender

over the distal ulna, but further on was strictly normal.

Her fingernails were deformed, but cultures for bacteria and fungi were negative.

The radiographs (fig. 1) at the beginning of the symptoms demonstrated a lytic zone in the distal ulnar metaphysis ; her last radiograph showed a fulminant periosteal reaction and a moth-eaten aspect of the ulnar head.

The blood analysis was only slightly abnormal with a white blood cell (WBC) count of 10,700 (normal < 10,000)/ml, an erythrocyte sedimentation rate (ESR) of 25 mm/hr and a CRP of 0.5 (normally 0.08 to 0.8/100 ml).

A biopsy was performed to exclude malignancy. Intraoperative cultures were negative ; the histology was normal.

A 6-week course of antibiotics (cloxacillin) was given. The symptoms disappeared completely and the radiographs remained unchanged.

Case 2

C. W. is a 9-year-old girl, seen at the outpatient clinic with a 2-weeks history of right wrist pain. There were no traumatic events recalled. The pain was mild, without nocturnal exacerbation. General signs of toxic illness were lacking. The pain disappeared gradually during the 2 weeks and was practically absent when she was seen at the hand

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Fig. 1. — Case 1 : a. at the first symptoms ; b. 3 months later.

clinic. Her physician referred her with a diagnosis of Ewing sarcoma.

Physical examination showed slight swelling and tenderness on the radial side of the wrist, without signs of inflammation or synovitis.

On the radiographs an osteolytic zone in the distal radial metaphysis appeared, and increased rapidly over 2 weeks, with a periosteal reaction (fig. 2). The bone scan was strongly positive.

The routine blood analysis was within normal limits : WBC 7100, ESR 30 mm/hr and CRP 0.29/100 ml.

An intraoperative specimen grew *Staphylococcus aureus*. The histology confirmed the diagnosis of osteomyelitis. In the postoperative period a dental abscess was observed with the same germ. Antibiotic treatment (cloxacillin) was given for 6 weeks.

Case 3

E. C. is a 5-year-old girl seen at the hand clinic with the diagnosis of Ewing sarcoma in the left wrist. She developed mild wrist pain on the left side 4 weeks before the consultation ; this was treated with a cast. A lytic zone in the distal ulnar metaphysis increased rapidly during the period in cast (fig. 3).

At her visit the wrist was normal, with only slight tenderness. The routine blood analysis was within normal limits : WBC 9400, ESR 24 mm/hr and CRP 0.5/100 ml. A biopsy confirmed the diagnosis of osteomyelitis but bacteriological culture was negative. After 6 weeks of cloxacillin treatment she was completely symptom free.

DISCUSSION

The differential diagnosis between osteomyelitis and bone tumors still remains difficult (11). Hematogenous osteomyelitis has become a rare disorder but a change in clinical picture seems to have occurred (8, 9). Except for the "classical" reports of Garré in 1893 and Brodie in 1850, it was not until 1965 that subacute osteomyelitis was fully described by Harris and Kirkaldy-Willis (7). Gledhill in 1973 (6) distinguished 3 radiological types, but this classification was extended by Roberts (13) into 6 subtypes : 2 metaphyseal, 2 epiphyseal, 1 diaphyseal and vertebral types. Some reports have appeared recently about this condition (table I) (4).

Involvement of the distal radius or ulna seems even more rare, and a positive bacteriological culture was obtained in less than half of the cases.

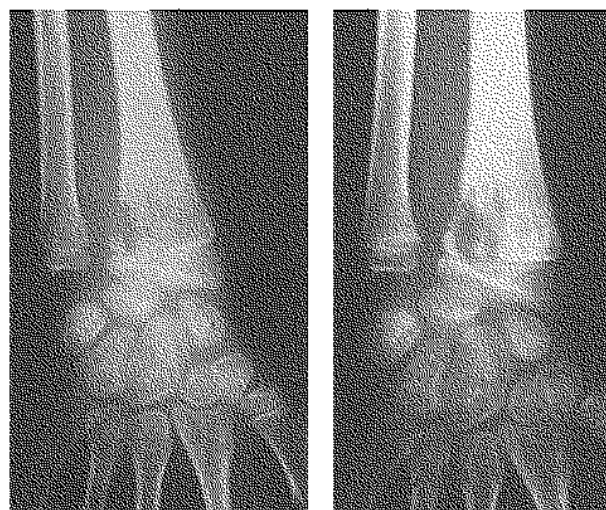


Fig. 2. — Case 2 : a. small abscess in the distal radius ; b. rapid increase in the radiolucency, with perforation of the growth plate.

Table I

Author	Year	N	Positive culture	Wrist involvement	Biopsy performed
Bogoch <i>et al.</i> (3)	1984	6	3/4	/	4
Andrew and Porter (1)	1985	3	1/3	/	1
Roberts (13)	1982	18	11/17	1	17
Gaubert <i>et al.</i> (5)	1986	17	6/13	3	13
Ross and Cole (15)	1985	71	14/42	2	42
Rombouts <i>et al.</i> (14)	1986	12	2/7	/	1
Köhler (10)	1984	12	5/9	4	8
Ben Becher <i>et al.</i> (2)	1992	2	0/1	1	1
Lindenbaum <i>et al.</i> (12)	1994	15	9/15	2	15
Season and Miller (16)	1976	10	6/10	1	10
Gledhill (6)	1973	8	5/8	1	8
Total		174	62/134	15	120

Most authors performed a biopsy or an operation to diagnose and/or treat this condition. Review of the literature and of our cases indicates that this condition is perhaps not that uncommon. There is a striking contrast between subacute osteomyelitis and the well-known acute form, with an insidious onset, mild pain, normal or slightly abnormal laboratory data and radiographs suggestive of malignancy. The clinical features are similar to chronic recurrent multifocal osteomyelitis.

The insidious onset, the mild symptoms and the self-limiting clinical signs can result in this condition not being diagnosed in its active phase, explaining some idiopathic growth disturbances seen later on.

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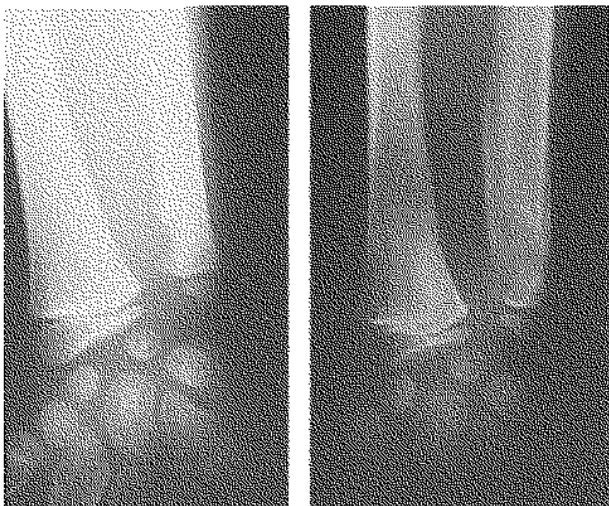


Fig. 3. — Case 3: a, small abscess in the ulnar metaphysis; b, seen 4 weeks later.

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SAMENVATTING

L. DE SMET, G. FABRY. Subakute osteomyelitis van de pols bij het kind.

We beschrijven 3 gevallen van subakute osteomyelitis van de pols bij het kind. In deze gevallen werd een kwaadaardige bottumor vermoed. De literatuur omtrent deze bizarre aandoening werd nagekeken en besproken.

RÉSUMÉ

L. DE SMET, G. FABRY. Ostéomyélite subaiguë du poignet chez l'enfant.

Les auteurs rapportent 3 cas d'ostéomyélite subaiguë du poignet chez l'enfant, pour lesquels un diagnostic de tumeur maligne avait été évoqué. Une revue de la littérature au sujet du diagnostic différentiel est présentée.