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KIRNER'S DEFORMITY

Juvenile Spontaneous Incurving of the Terminal Phalanx of the Fifth Finger

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Juvenile spontaneous incurving of the terminal phalanx of the fifth finger is extremely rare. The etiology is still uncertain; the combination of a primary epiphyseal disorder and tendon traction has been stressed. Peroperative biopsy has, apart from an epiphysiolysis, shown changes in accordance with osteochondritis dissecans.

Key words: adolescence; epiphysiolysis; osteochondritis dissecans; palmar deviation

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In 1927 Kirner described a deformity consisting of a spontaneous bilateral incurving of the terminal phalanx of the fifth finger occurring in a 13-year-old girl.

The relevant literature reports that the disturbance gradually develops over a period of several months at the age of 5 to 12 years with female predominance (25:17). Momentary pain has been mentioned (Staheli et al. 1966). The affection is usually bilateral, presenting periarticular swelling and redness, and the terminal phalanx acquires the typical palmar and often radial (clinodactyly) deviation. The fingertip appears clubbed with increased convexity of the nail. The radiological features are dominated by widening of the epiphyseal plate (epiphysiolysis) and dorsal displacement of the flat coarse diaphysis, causing the curved phalanx. The epiphysis is normal apart from the palmar prominence (spur); the metaphysis is however poorly defined. These structural disturbances normalize during bone maturation, but the fingertip remains curved (Kaufmann & Taillard 1961).

Several synonyms have been used: Osteomalacie der Kleinfingerendephalange (Schmid 1957), Dystelephalangy (Poznanski et al. 1969), Das Kirner Syndrome (Kupferschmied-Sovilla 1969).

The clinical and radiological features of two additional cases are presented, bringing the published number to 44.

CASE REPORTS

Case 1

The mother of an 11-year-old boy observed, over a period of 3–4 months, a spontaneous bilateral progressive swelling and redness of the distal joint of the fifth finger. There were no complaints of pain or any functional disorder; there was no trauma nor any familial occurrence. Radiograms showing the typical deviation and structural disturbances confirmed the diagnosis.

A clinical and radiological re-examination was performed at the age of 14. The fingertip appeared plump with periarticular swelling and with palmar-radial deviation (Figures 1 and 2). The epiphyseal plate was about to unite, and the bone structure to normalize, leaving the incurved terminal phalanx (Figures 3 and 4).

Case 2

Kirner's Deformity was found, in addition to an epiphysiolysis of the proximal phalanx, in a 15-year-old

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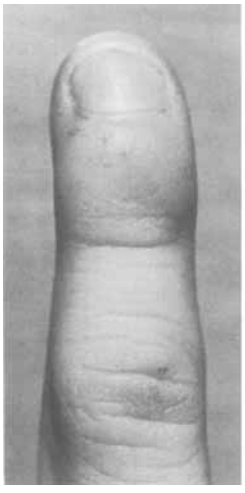
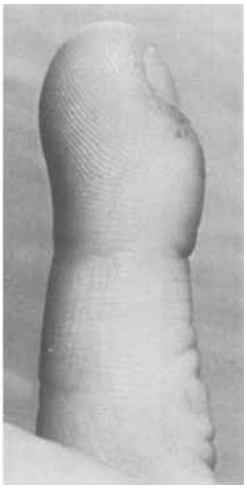
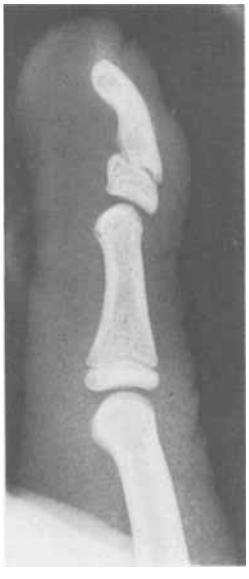




Figures 1 and 2. Dorsal and lateral view in Case 1 showing the plump incurved right fifth finger.



Figures 3 and 4. Radiograms of Case 1 in two projections demonstrating the normalizing bone structure of the incurved terminal phalanx.

boy during a radiological examination following trauma to the right fifth finger.

The patient was re-examined at the age of 18 years; the anomaly was unilateral without any history of onset, progress or familial occurrence. The clinical features were sparse; there was no redness or tenderness, the fingertip and nail were normal, and the patient had normal function. The phalanx presented a palmar but no radial deviation. The radiograms showed the incurved terminal phalanx. The bone structure however was normal.

DISCUSSION

Kirner's Deformity is an extremely rare disorder; in two families the transmission was simple autosomal dominant (Blank & Girdany 1963). Nonfamilial occurrence is the most frequent, the deformity occurring either as an isolated finding or as part of a specific syndrome: Turner's Syndrome (Levin & Kuppermann 1964), The Cornelia de Lange Dwarf (Lee 1968), The Silver Syndrome (Mosely et al. 1966), or together with other abnormalities: genu valgus (Kirner 1927), pes cavus (Wilson 1952), myositis ossificans (Staheli et al. 1966), osteomylitis (Taybi 1963), and osteochondritis dissecans (Kupferschmied-Sovilla 1969).

Differentiation between Kirner's Deformity and genuine clinodactyly (radial deviation) is important, the latter having more frequently a familial occurrence and being characterized by a normal bone structure without any periarticular swelling (Poznanski et al. 1969). Exact radiograms are of importance in the differentiation.

The etiological nature of this disturbance is still uncertain; a disorder of the epiphyseal plate combined with a functional mechanism (dominance of the flexor muscles over the extensor group) has been emphasized (Kaufmann & Taillard 1961, Wilson 1952).

Juvenile osteomalacia (Schmid 1957), aseptic necrosis (Kaufmann & Taillard 1961), osteochondritis of vascular origin (Morbus Koehler) (Taybi 1963, Wilson 1952), or degeneration of the epiphysis due to a defect in enchondral ossification (Staheli et al. 1966), have been mentioned as primary causative disorders of the epiphyseal plate.

However, a peroperative biopsy from a 9-year-old girl has, apart from an epiphysiolysis, shown changes in accordance with osteochondritis dissecans. This observation, together with the fact that the patient suffered from osteochondritis dissecans of the left knee at the age of 12 years, suggested the idea of a specific syndrome (Kup-

ferschmied-Sovilla 1969) but this is still undocumented.

Corrective osteotomy with a satisfactory result has been performed for cosmetic reasons in a 17-year-old boy (Carstam & Eiken 1970).

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