DYSTROPHY OF THE FIFTH FINGER

Report of Four Cases

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The condition to be reported is a rare deformity of the fifth finger which on superficial examination resembles the clubbing seen in all the fingers in chronic lung disease; it is accompanied, however, by a characteristic radial deviation of the terminal phalanx. Review of the literature reveals that only six cases have been described before. The abnormality was first recorded by Kirner (1927), who quoted a case in a child twelve years old. Koehler (1935) used the same case for illustration of the condition in his book, describing it as "an

FIG. 1

Case 1—Radiographs showing the typical radial deviation of the fifth terminal phalanx three years after the first appearance of the deformity. Note the absence of any sclerosis of the terminal phalanx.

extraordinary finding in the little finger." Thomas (1936) reviewed the literature and described a further three cases, all of which were in young girls. He ascribed the condition to osteochondritis. Brailsford (1934) reported a case of a girl aged nine who was sent to him with a provisional diagnosis of enchondroma of the terminal phalanx; the deformity was unilateral. He states that the radiographic changes are characteristic, with increased density of the metaphysis, and the epiphysis ragged and concave distally. The last case quoted from the literature is described by Mercer (1944), again in a girl with bilateral changes, but without any sclerosis of the phalanx. Mercer regarded the condition as congenital.

The four cases to be described here have been collected during three years. Unfortunately it has not been possible to obtain radiographs and clinical photographs of all, but the clinical appearance in each case was identical and characteristic of the condition.

CASE REPORTS

Case 1—Girl aged eleven years, with commencing deformity of the fifth finger, noticed three months before. The clinical appearance resembled clubbing of the fingers seen in chronic lung disease, except that there was also radial deviation of the terminal phalanx. A radiograph taken at that time showed that the deformity was due to deviation of the metaphysis on the epiphysis both anteriorly and to the radial side. Unfortunately there was no note made as to the degree of density in the metaphysis and the radiographs are no longer available. Full investigation of her chest, heart and blood revealed no abnormality, and the child was in excellent general health. There was a family history of clubbing of the toes in the father and mother but no comparable deformity in the hands. Figure 1 shows the radiographic appearance of the deformity three years later. There is typical deformity of the terminal phalanx, but no change in bone density.

FIG. 2

Case 2—Showing the characteristic anterior and radial deviation of the terminal phalanx, with slight resemblance to the clubbing of chronic lung disease.

FIG. 3

Case 3—Radial deviation of the terminal phalanx.

Case 2—Girl first seen at the age of eighteen years. She had become aware of a symptomless deformity of both fifth fingers some months before. It was thought, however, that the deformity had probably been present for some years. The patient was in good general health. There was no family history of a similar deformity. Photographs taken three years later (Fig. 2) illustrate well the typical deformity.

Case 3—Boy aged eleven years admitted to hospital for treatment of bilateral pes cavus. He was found to have also a symptomless deformity of both little fingers. He had not noticed the deformity himself and did not know how long it had been present. The clinical appearance was identical with the other cases (Figs. 3 and 4). Again there was no history of familial affection in this case. Radiographs showed the usual deviation of the metaphysis with definite bone sclerosis; on the right there was slight cupping of the distal end of the epiphysis (Fig. 5).

FIG. 4

Case 3—Photograph shows the clubbed appearance of the fingers when seen from the side.

FIG. 5

Case 3—Radiograph showing the sclerosis of the metaphysis of the terminal phalanx and slight cupping of the epiphysis on the right side.

Case 4—Girl first seen at the age of five years with the characteristic deformity in both hands. She did not attend at a later appointment for radiography and photography, so the diagnosis could not be confirmed radiologically. Clinically, however, the condition was identical with the previous cases. This patient differed from the others in giving a family history of a similar deformity in her father, her father's mother and her younger brother.

COMMENT

The cause of this condition is unknown, but a congenital malformation has been suggested. The age of onset in the available cases is usually between the years of eight and twelve, with a history of a gradual appearance of the deformity over a period of six to twelve months. These observations do not support the theory of a congenital origin. It is supported however by the familial tendency reported in Case 4; but there was no opportunity to examine the other members of the family, and it may be that their deformity was of a different nature. The age incidence and the radiographic appearance suggest that the lesion is primarily due to osteochondritis, like that met with in the navicular [tarsal scaphoid] bone. If this is so, the deformity of the terminal phalanx may be caused by two factors. First, the long flexor is a more powerful muscle than the extensor and might cause anterior bending during the active phase of osteochondritis. Secondly, the natural position of the fully flexed little finger lends itself to both radial and anterior deformity. It will be remembered that in the flexed position the little finger points towards the radial border of the wrist and the ulnar border of its terminal phalanx lies against the hypothenar eminence. Thus the only lateral resistance to the flexed finger is from its ulnar side, and would tend to produce a radial deformity. This resistance, combined with powerful flexion of the terminal phalanx, might well be responsible for the characteristic appearance. The radiographic changes of increased density of the terminal phalanx in the early stage (Fig. 5), followed by return to normal density in the later stages (Fig. 1), are in conformity with the changes expected in osteochondritis at other sites. Osteochondritis, when it occurs in a finger, usually affects the epiphysis (Staples 1943), and in a case described radiographic changes were all in this part. It is possible that in the condition as it affects the little finger the osteochondritis involves the whole bone.

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