THIEMANN'S DISEASE
Osteochondrosis Juvenilis of the Basal Epiphyses of the Phalanges of the Hand
Report of Two Cases

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The epiphyses most commonly affected by osteochondrosis juvenilis are the upper femoral epiphysis (Legg 1910, Calvé 1910, Perthes 1913), the lunate bone (Kienböck 1910), the tarsal navicular bone (Köhler 1908), the head of the second metatarsal bone (Freiberg 1914) and those of the vertebral bodies (Scheuermann 1921). Many other epiphyses are occasionally affected, among which are those at the bases of the phalanges of the fingers. The last affection was first described by Thiemann in 1909.

Case 1—A boy aged seventeen, born in the West Indies, complained of pain, swelling and stiffness of the right middle finger (Fig. 1). The symptoms were gradual in onset and had developed slowly over the preceding year. There was no history of specific injury but he
had done much boxing. Examination showed the right middle finger to be swollen and tender. The swelling was fusiform and greatest at the proximal interphalangeal joint which was held in 40 degrees of flexion, and flexed further to 90 degrees. The swelling was firm and felt bony rather than synovial. There was no effusion in the joint.

**FIG. 3**
Case 2—Early radiograph of right hand. Note the narrowing and fragmentation of the epiphysis of the middle phalanx of the middle finger.

**FIG. 4**
Case 2—Radiographs of the hands one year after that shown in Figure 3. There is bilateral affection of the middle finger, the basal epiphysis showing narrowing, with secondary subchondral cyst formation.

*Investigations*—The haemoglobin was 94 per cent, the white cell count 4,800 with 6 per cent of eosinophils, and the appearance of the blood film was normal. Tests for active or latent sickle-cell anaemia were negative. The antistaphylolysin titre was less than 2 units per millilitre, and the chest radiograph was normal. Radiographs (Fig. 2) of the hand showed that the proximal interphalangeal joint of the middle finger was affected, with flattening, fragmentation
and sclerosis of the epiphysis of the middle phalanx. There was beaking of the other basal epiphyses of the fingers.

**Case 2**—This patient, a boy aged nineteen, was brother of the patient in Case 1. The history was like that in Case 1 except that both middle fingers were affected.

The radiographs (Figs. 3 and 4) were similar to those of Case 1 but there was also secondary subchondral cyst formation.

**DISCUSSION**

In 1909 Thiemann described a disease of the epiphyses of the fingers and toes. Radiologically the epiphyses appear condensed with beak-shaped protuberances overriding the cortex of the metaphysis laterally. Usually seen between the ages of fifteen and eighteen, healing may occur without loss of function or with disorganisation of the epiphysis. According to Kohler and Zimmer (1954) a “dominant hereditary involvement with strong penetrance is typical”.

The differential diagnosis includes osteochondrosis; an infarct of the epiphysis secondary to a blood dyscrasia such as sickle-cell anaemia; an infective lesion, and, possibly, injury. It is interesting to note that atypical infections such as salmonella and streptococcal osteitis may occur in association with sickle-cell anaemia (Caffey 1967).

These two cases justify the diagnosis of Thiemann’s disease or osteochondrosis of the phalangeal epiphysis. Although the middle finger was most severely involved in both brothers, radiographs of the other fingers showed the characteristic “beaking” of the epiphyses. The normal investigation otherwise excluded tuberculosis and sickle-cell disease. The insidious course of the condition and the eventual resolution of most symptoms (Case 2) suggests that a vascular lesion, such as an ischaemic necrosis followed by revascularisation should be considered in the etiology, especially in view of the histories of mild injuries in both cases. Although Thiemann’s disease was initially described in 1909 few reports of the disease have been published, probably because of its relative rarity or of failure of diagnosis.

**SUMMARY**

Two brothers with osteochondrosis of the phalangeal epiphyses in the hand (Thiemann’s disease) are described and the condition discussed.

**REFERENCES**


