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GENU RECURVATUM ASSOCIATED WITH SLIPPED CAPITAL FEMORAL EPIPHYSIS

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In a follow-up study of 85 patients with slipped capital femoral epiphysis, two cases were found of pronounced hyperextension of the knee joint on the same side as the epiphysiolysis. Radiographs showed that the tibial plateau slanted forwards due to premature partial fusion of the anterior part of the epiphysis. In both cases the hyperextension had developed gradually after operative treatment of the epiphysiolysis in the hip and was first noted by the patients themselves.

Corresponding partial fusion of the epiphysis has previously been observed in rare cases in connection with Osgood-Schlatter's disease (Jeffreys 1965), in which case it seems to have developed spontaneously, whereas 31 operated cases developed no premature fusion of the anterior part of the growth zone (Thomson 1956).

Recently Lovejoy & Lowell (1970) have reported two cases of tibia vara in connection with slipped capital femoral epiphysis, and suggested the possibility of a common etiology.

The following two cases may give rise to similar considerations and call attention to possible involvement of other epiphysial discs in patients with slipped capital femoral epiphysis.

CASE REPORTS

Case 1. An 11-year-old girl, slightly obese, with pain in the right hip area, gradually increasing over 6 months. First radiograph showed epiphysiolysis of the right femoral head with slipping approximately 2 cm. Treated with open reduction and pinning, the result was ideal. The other hip was normal.

Two years later she complained of troublesome hyperextension of the right knee, and the radiograph revealed slight forward slanting of the tibial plateau. Previously there had not been any disorder of the knee, and there had been no traumas. The condition quickly worsened, and three months later hyperextension of 25° of the right knee joint was observed (Figure 1).



Figure 1. Case 1. The knee of a girl, now 13 years old, 2 years after slipping of the right capital femoral epiphysis.



Figure 2. Case 1, 4 years after corrective osteotomy.

After corrective osteotomy, which proceeded without complications, the subjective disorders disappeared and at follow-up four years later (Figure 2) she had no complaints.

Case 2. A boy of 14 with slight pain in the left hip for one month. After a fall the pain increased seriously, and radiographs showed complete slipping of the femoral head. The right hip was normal. He was treated with closed reduction and fixation with three Kirchner wires. Postoperatively transient accumulation and moderate pain were noticed in the left knee, with an otherwise eventless course.

At follow-up four years later he only complained of slight pain in the left hip after heavy exercise, but also of slight hyperextension of the left knee joint. Clinically there was 20° of hyperextension, and radiographs showed forward inclination of the left tibial joint plateau (Figure 3) whereas the right one was normal (Figure 4). He was not so inconvenienced by his condition to desire treatment.

DISCUSSION

Both patients must be supposed to have weak epiphyseal discs, as manifested in the one hip. In the latter case a lesion of the upper epiphyseal disc of the tibia *may* have occurred during the treatment of



Figure 4. Case 2. The normal right knee.

Figure 3. Case 2. Forward inclination of the tibial plateau in the left knee.



the hip when the patient was fastened on the extension table. This position may cause hyperextension of the knee with considerable influence on the tibial epiphysis, particularly its frontal part, which may be exposed to a strong compressing force including a backward directed component (Steindler 1964). As stated, he had postoperatively moderate knee complaints but they were supposed to be referred pain from the hip disorder.

The former case can hardly be explained in this way, due to the long interval and the following surprisingly quick development of hyperextension, so it may actually be taken as a manifestation of low mechanical resistance of the growth zones.

SUMMARY

Among 85 patients treated for slipped capital femoral epiphysis, 2 developed premature fusion of the anterior part of the upper tibial

epiphysis, and a partly iatrogenic pathogenesis is suggested. It is believed that slipping of the femoral capital epiphysis is due to a universal weakness of the growth zones, but the literature contains very few reports of epiphyseal damage located in other growth zones than the one in the hip.

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