Acta Orthop Scand 57, 240–242, 1986

Slipped capital femoral epiphysis in three generations

A male, his son, and grandson all had a slipped capital femoral epiphysis (physiolysis colli femoris – PCF). The importance of inheritance in PCF is discussed.

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Since Fittig in 1909 described bilateral slipping in twins, several reports describing familial slipping in two generations or in brothers and sisters have been published (Jerre 1950, Schreiber & Schmied 1968, Rennie 1982). This report, as far as we know, for the first time describes a family with PCF in three generations.

Case report

A male (P.A. Figure 1) at the age of 14 years in 1919 had a right-sided slipping diagnosed (Figure 2). He was treated with hip plaster spica. His parents, wife, brother, and five sisters had no recorded complaints from their hips during adolescence. However, his father as an adult had a limping gait, but no medical examination was performed.

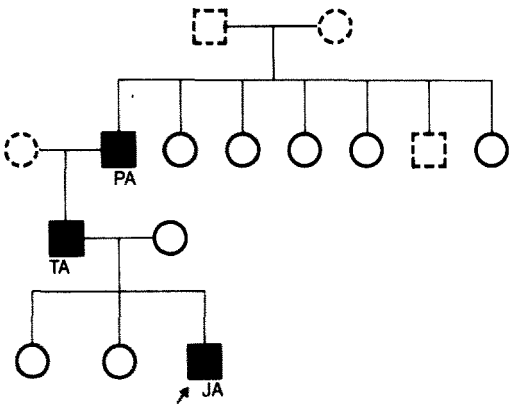

Figure 1. Family tree showing slipped capital femoral epiphysis in three generations.
● ■ = slipping; ○ □ = examined, no slipping; ◌ ⬚ = not examined.

P.A.'s only child (T.A.) at the age of 12 in 1945 sustained a left-sided slipping (Figure 2). He was treated by nailing the affected hip in situ.

In 1977, at 10 years of age, T.A.'s son (J.A.) sustained a right-sided slipping (Figure 4). He was treated by pinning the affected hip in situ and prophylactic pinning of the contralateral hip. His mother and two sisters have had no hip symptoms.

The five sisters of P.A., the wife and two daughters of T.A. were all recently radiographically reexamined without signs of slipping. The only brother of P.A. refused clinical or radiographic examination; like P.A. he has a slight limping gait and is markedly overweight according to an orthopedic surgeon married to one of the sisters. T.A. and J.A. both have a normal body constitution without signs of endocrine abnormalities. T.A., like P.A., became a farmer, and J.A. grew up on the farm.

Discussion

The incidence of PCF in southern Sweden has been estimated at about 3–6 cases/10,000 living born (Hägglund et al. 1984). Several investigations have shown a higher than average incidence among males (Wilson et al. 1965, Kelsey et al. 1970, Hägglund et al. 1984), overweight children (Bianco 1965, Burrows 1957, Kelsey et al. 1972), children living in rural regions (Hägglund et al. 1984, Kelsey et al. 1970), and in blacks as compared with whites (Kelsey et al. 1970). In case reports the disease has also been associated with hormonal disturbances (Heatley et al. 1976, Heyerman & Weiner 1984, Puri et al. 1985). In larger materials evidence of hormonal aberrations has not been established in the majority of cases (Bur-

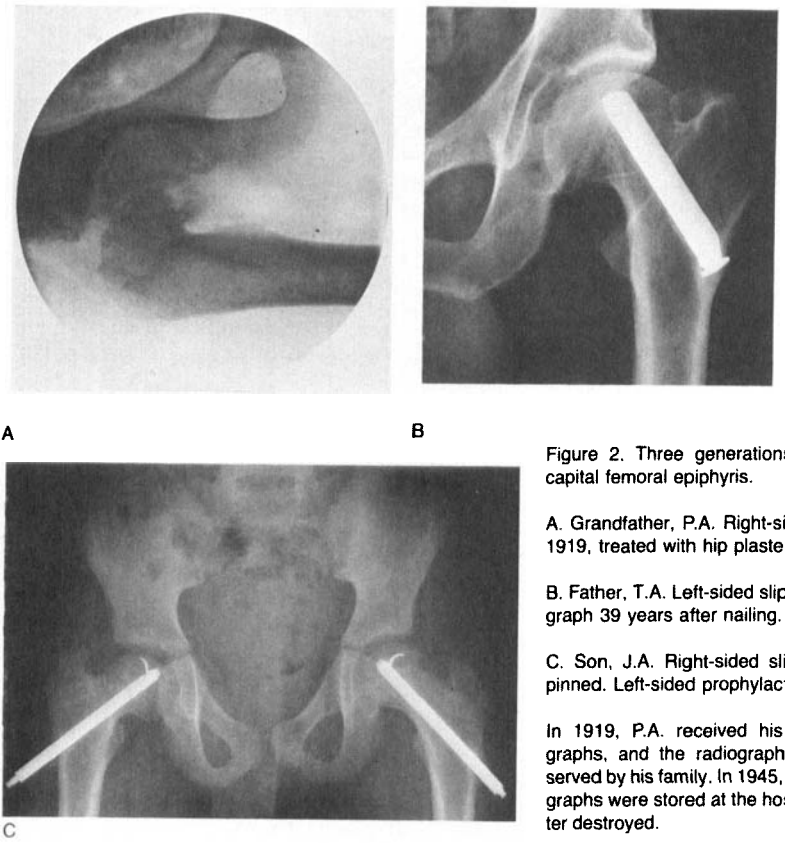

Figure 2. Three generations of slipped capital femoral epiphyris.

A. Grandfather, P.A. Right-sided slipping 1919, treated with hip plaster spica.

B. Father, T.A. Left-sided slipping. Radiograph 39 years after nailing.

C. Son, J.A. Right-sided slipping 1977, pinned. Left-sided prophylactic pinning.

In 1919, P.A. received his own radiographs, and the radiographs were preserved by his family. In 1945, T.A.'s radiographs were stored at the hospital and later destroyed.

rows 1957, Sörensen 1968). In southern Sweden the incidence has followed a periodic pattern with peaks about every 20th year (Hägglund et al. 1984). There is also, at least in girls, a seasonal variation, with a higher incidence during spring and summer (Andrén & Borgström 1958, Hägglund et al. 1984), when the rate of growth is highest (Tanner 1962, Kärrholm et al. 1984, Hägglund et al. 1986).

In addition, some investigations have demonstrated a higher frequency among relatives of patients with PCF. Both Jerre (1950), among 153 cases in Sweden, and Wilson et al. (1965), among 240 cases in New York, reported that 5 per cent had a close relative with PCF. Rennie (1982), in his report on 214 cases in Scotland, found that 15 per cent had relatives with PCF and 25 per cent had relatives with coxarthrosis; the mode of inheritance was thought to be an autosomal dominant with variable penetrance in the majority; our family supports this. Ochsner et al. (1977) presented a family with 25 members, 10 of whom had PCF and a further 2 cases had coxarthrosis.

Many slips occur without symptoms/diagnosis (Hägglund et al. 1987). Accordingly, the risk of slipping in relatives of patients with PCF is probably higher than the 5–15 per cent found in larger materials based on questionnaires and clinical reports. In cases of PCF, hip symptoms in adolescent relatives should be examined clinically and radiographically because early diagnosis is essential in the prognosis of PCF, and the family must be informed of the risk of slipping.

Acknowledgement

We wish to thank Nils Mandahl, Ph.D. for advise concerning genetic patterns.

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