

Slipped capital femoral epiphysis in a 23-year-old man—a case report

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A 23-year-old man with eunuchoid body habitus (the lower length of the body from the soles to the symphysis pubis exceeding the upper length from symphysis pubis to the top of the cranium, and the span of the upper limbs exceeding the height in standing position) presented to the emergency department with severe right hip and thigh pain and unable to walk. He had been walking on level ground when he suddenly felt a painful pop in his right hip. In the preceding week, he had had intermittent pain in the medial part of his right thigh. He had no trauma, but had undergone resection surgery for craniopharyngioma 9 years previously. After that, he had mild-to-moderate anterior pituitary deficiency but was not treated with sex hormone replacement therapy due to an oversight.

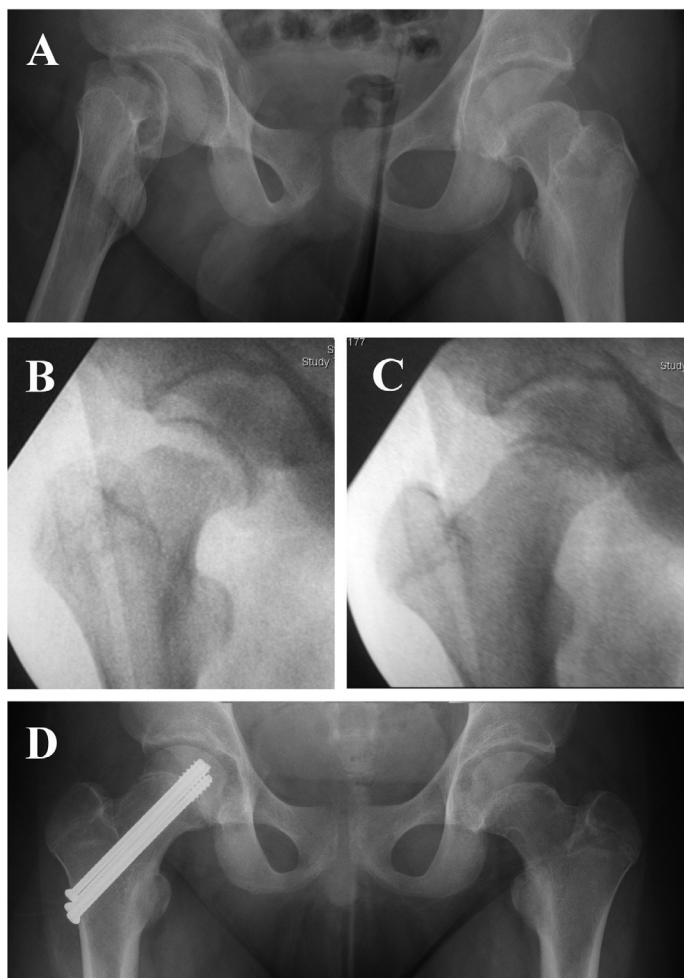
The patient was 178 cm tall, weighed 120 kg, and had a body mass index (BMI) of 38. A rapid increase in BMI followed surgery for craniopharyngioma, and the resultant weight gain was diagnosed as hypothalamus obesity (a regulatory-type obesity due to suprasellar lesion-induced hyperphagia).

Physical examination showed a shortened and externally rotated right leg maintained in slight flexion. Neurovascular examination was normal. Radiographs showed a severe slipped capital femoral epiphysis (SCFE) on the right side, with the femoral head displaced posterior and medial to the femoral neck. The patient then underwent careful reduction via traction and internal rotation, and immediate fixation using percutaneous cannulated screws inserted under fluoroscopic guidance (Figure 1). He recovered normal hip function. During 2 years of follow-up, he developed no ipsilateral osteonecrosis or contralateral SCFE.

Discussion

Slipped capital femoral epiphysis (SCFE) is the most common hip disorder affecting early adolescents (ages 12–15 years for boys and 10–13 for girls) (Busch and Morrissy 1987, Loder 1996, Lehmann et al. 2006). The combination of reduced growth plate stability at this age and mechanical overload on the physis is considered the etiology of SCFE. Overweight children during pubertal growth spurt (between 9 and 16 years of age) are generally considered to be most at risk (Loder and Greenfield 2001, Manoff et al. 2005). Obese children usually have reduced femoral anteversion, which can result in increased mechanical shear stress on the upper femoral epiphysis (Manoff et al. 2005). In addition, growth plates can have physiological weakness during periods of rapid growth. A combination of these factors predisposes overweight adolescents to developing SCFE. Some investigators have also suggested that SCFE is sporadically associated with metabolic and endocrine diseases such as hypothyroidism and exogenous growth hormone treatment (Loder and Greenfield 2001). Because the proximal femoral physis fuses at age 18 in boys and at 16 in girls, SCFE is extremely uncommon in adults and has rarely been reported in the literature.

Craniopharyngiomas are the most common hypothalamic-pituitary tumors in children (80%), accounting for 6–9% of pediatric brain tumors, and they also occur in adults (Meuric et al. 2005). Endocrine dysfunction, which is present in roughly 50% of patients, is manifested by mild and moderate anterior pituitary deficiency (Ahmet et al. 2006). In the absence of a pituitary stimulus to testicular maturation, pubertal development does not occur, and secondary sex characteristics do not develop as was the case in our patient. Provided secretion



A. Severe SCFE on the right side, with the femoral head displaced posterior and medial to the femoral neck. B. Improved alignment and wide separation of the upper femoral epiphysis after gentle longitudinal traction. C. Perfect alignment without residual slip of the upper femoral epiphysis after gentle longitudinal traction and internal rotation. D. After 2 years, there was no osteonecrosis or contralateral SCFE.

of growth hormone is sufficient, growth in length continues for a period longer than normal. Arms and legs become disproportionately long, thereby producing a body habitus of eunuchoid proportions (Netter and Ezrin 1987). The closure of the growth plates does not occur until the third decade of life in untreated cases (Netter and Ezrin 1987). Obesity due to an upset in feeding-satiety paired regulatory

mechanisms in the hypothalamus is also a main side effect in children and adolescents with craniopharyngioma, and early and rapid postoperative weight gain can predispose patients to severe obesity (Meuric et al. 2005, Ahmet et al. 2006). A combination of these factors can predispose young adults to development of SCFE, even though we have not been able to find any report of a case similar to ours.

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