# Slipped capital femoral epiphysis as the first presentation of an intracranial tumor in a child

Sir,

Slipped capital femoral epiphysis (SCFE) is the most common hip condition which affects adolescents. We report a case of a young child who presented with features of SCFE and the search for the endocrine disturbance lead to a sellar mass which turned out to be craniopharyngioma.

A 6-year-old male child was brought by his parents to orthopedic outpatient department with complaints of an altered gait and mild right hip pain. His mother had initially noticed a mild limp which had worsened over the past few days. There was no history of recent onset of fever or illness. The vitals of the child were normal. The weight of the child was above 95$^{th}$ centile for the age group indicating mild obesity. On examination, the right hip was in external rotation and reduced range of internal rotation and abduction of the right hip was also noted. X-ray pelvis (antero-posterior and lateral) showed medially displaced femoral head with increased density in the proximal part of the metaphysis on the affected side (metaphyseal blanch sign). A line drawn along the superior edge of the femoral neck (Klein`s line) does not intersect the head, all suggesting a diagnosis of SCFE [Figure 1]. While on treatment, the mother complained of vision problem in the child which was present for some time. The height of the child was 108 cm (on the lower side of normal limits for age). Contrast-enhanced computed tomography (CECT) of the head was advised. CECT showed a calcifying sellar mass [Figure 2] which turned out to be craniopharyngioma on biopsy. He was advised endocrine workup to look for panhypopituitarism. Laboratory studies showed decreased levels of free T4 (0.2 ng/dL; normal: 0.7–2.0), decreased thyroid stimulating hormone (0.4 μIU/mL; normal: 0.5–5.0) and low peak growth hormone (<1.1 ng/mL) on growth hormone stimulation test using L-arginine.

SCFE is a relatively nontraumatic separation (or slip) of the proximal femoral epiphysis (head of femur) from the remainder of the femur through the region of growth plate that occurs in approximately two out of every 100,000 people.[1] SCFE is seen more frequently in boys, and the

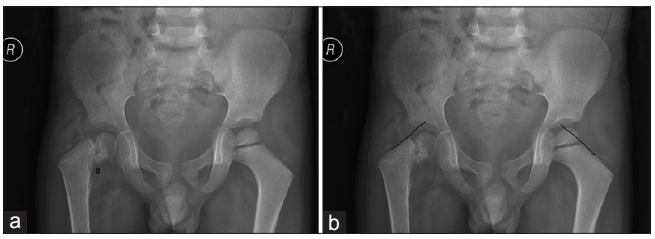


**Figure 1:** (a) X-ray pelvis shows medially displaced femoral head with increased density in the proximal part of the metaphysis on the affected side (metaphyseal blanch sign) and (b) A line drawn along the superior edge of the femoral neck (Klein`s line) does not intersect the head

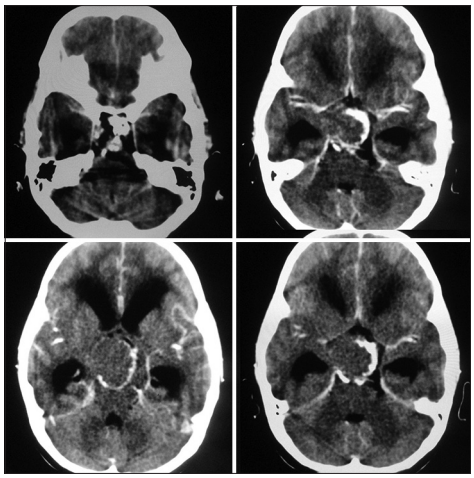

**Figure 2:** CECT of head shows a hypo- to isodense minimally enhancing sellar-suprasellar mass lesion with calcification, suggesting the possibility of craniopharyngioma. Mild hydrocephalus is also seen

peak age incidence is also slightly higher for boys. Black race is affected more frequently. Obesity, local trauma, inflammation, and endocrine factors (hypothyroidism, primary hyperparathyroidism)[1,2] have been implicated as possible causes; however, majority of cases are idiopathic. Excessive body weight is thought to be the most important risk factor for SCFE as it increases mechanical stress on the growth plate. Majority of cases are seen in adolescents having a body mass index above the 95$^{th}$ centile, as is seen in our case also. The SCFE is seen during adolescent growth spurt and is not seen after growth plate fusion. At this stage, the growth plate is relatively wide due to rapid growth and the physical changes its orientation from horizontal to oblique, thus increasing vertically oriented shear forces.[1,3]

When SCFE occurs prior to adolescence, the association with an underlying risk factor such as malnutrition, endocrine abnormality, or developmental dysplasia of the hip is even stronger.[1] In our case also, the age of the child was 6 years, and he was found to have tumor in the sellar region which lead to endocrine disturbance in the child. Children younger than 10 years of age or older than 16 years, with short stature and nonobese 10-16 years old are considered atypical presentation for SCFE. They should be evaluated for endocrinopathies and medical disorders (hypothyroidism, decreased growth hormone level, down syndrome, renal osteodystrophy, sellar and parasellar tumors, such as craniopharyngioma and pituitary macroadenoma).[4]

The radiographic evaluation consists of an anterior view and a lateral view.[1] In early stages, x-ray showed widening of the physis on the affected side but the diagnosis is frequently delayed or missed as the findings are often subtle at presentation. This entity should be considered in the differentials of any child presenting with a limp and/or hip, thigh or knee pain. The goal of treatment is to prevent further slippage and to stabilize the epiphysis.

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## REFERENCES

1. Boles CA, el-Khoury GY. Slipped capital femoral epiphysis. Radiographics 1997;17:809-23.
2. De Beule T, Ardies L, Simons P, Gillardin P, Vanhoenacker P. Primary hyperparathyroidism presenting with bilateral slipped capital femur epiphysiolysis. A pictorial essay. JBR–BTR 2012;95:80-2.
3. Mirkopulos N, Weiner DS, Askew M. The evolving slope of the proximal femoral growth plate relationship to slipped capital femoral epiphysis. J Pediatr Orthop 1988;8:268-73.
4. Loder RT, Wittenberg B, DeSilva G. Slipped capital femoral epiphysis associated with endocrine disorders. J Pediatr Orthop 1995;15:349-56.

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