A Young Man with a Limp—Hypothyroidism Presenting with Slipped Capital Femoral Epiphysis

Slipped capital femoral epiphysis (SCFE) is a hip disorder primarily affecting adolescents, marked by the posterior–inferior slippage of the capital femoral epiphysis from the metaphysis at the pelvic articulation point. Its pathophysiological mechanisms, partially understood, are believed to stem from heightened shearing forces on the proximal femoral epiphysis during puberty, where growth hormones dominate over sex hormones. This condition is often associated with adipo-genital syndrome.[1]

Hypothyroidism's link to SCFE may be due to its impact on bone health. Thyroid hormone influences the growth plate, contributing to its closure during puberty through the IHH–PTHrP pathway. SCFE often arises at puberty's end when physis closure is delayed, suggesting that alterations in thyroid hormone levels may disrupt this process.[1] Thyroid hormone deficiency in children delays bone development and growth plate formation, deactivating the growth hormone/insulin-like growth factor axis.[2]

While SCFE is common in pubertal growth spurts, failure of epiphyseal closure can cause it to manifest later in life. Moyer *et al*.[2] proposed thyroid function screening for SCFE patients with unconventional presentations.

Case History

A hypothyroid male in his early 20s on T. levothyroxine 50 mcg/day was diagnosed with SCFE. He exhibited a painful limp on the left lower limb for over four months. He recalls growth cessation at the age of 14 years, and since remained considerably shorter than his peers. Typical

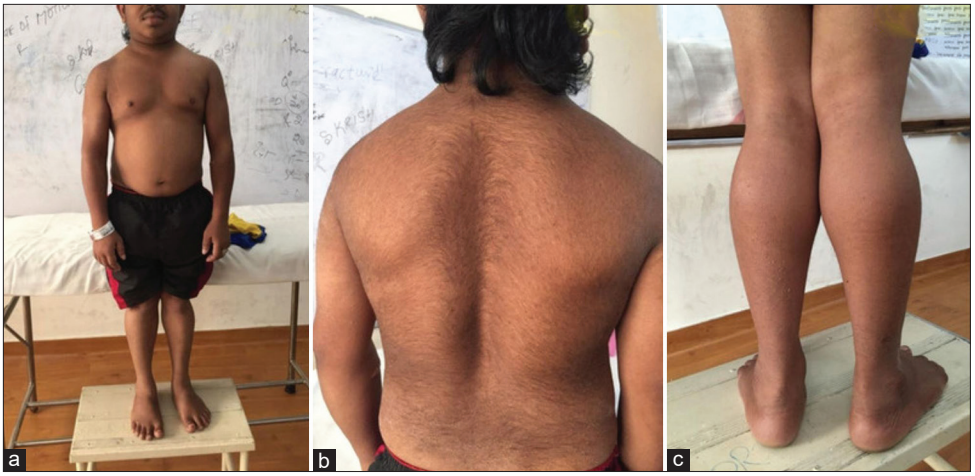

Figure 1: Physical examination revealed short stature (a), hypertrichosis (b), and pseudohypertrophy of calf muscles (c)

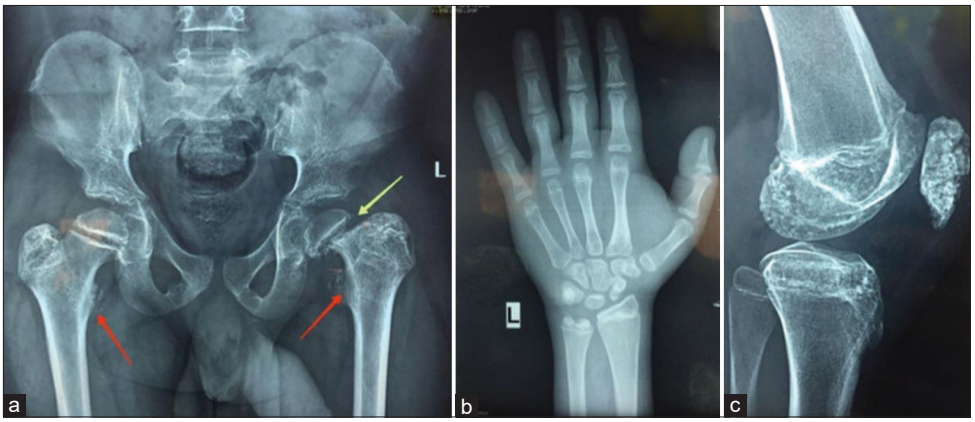

Figure 2: The Left hip X-ray showing SCFE [a, yellow arrow] along with epiphyseal stippling [a, red arrow]. Left knee X-ray showing epiphyseal stippling (c). X-ray of the left hand corresponded to bone age of 14 years (b)

Table 1: Laboratory findings confirming severe hypothyroidism

	VALUE	NORMAL RANGE
TSH	>100 microIU/mL	0.34–5.6 microIU/mL
Free T3	3.89 pg/mL	2.5–4.4 pg/mL
Free T4	0.63 ng/dL	0.58–4.4 ng/dL

hypothyroid symptoms including cold intolerance, lethargy, and constipation were present.[3] Clinical findings were short stature, hypertrichosis, delayed puberty, macroorchidism, and musculoskeletal manifestations of severe hypothyroidism [Figure 1a-c].[4] Laboratory findings confirmed severe hypothyroidism [Table 1].

Radiologically, Xray pelvis showed SCFE left side along with epiphyseal stippling and Xray knee joint left showed epiphyseal stippling [Figure 2a,c] suggestive of prolonged untreated hypothyroidism.[5] Bone age estimated from X-ray of the left hand corresponded to 14 years [Figure 2b], suggesting the onset of hypothyroidism had been undiagnosed for at least a decade.

The patient underwent bilateral hip cannulated cancellous screw fixation, and the thyroxine dose was increased to 75 mcg/day. A follow-up revealed a TSH value of 5.56 microIU/mL one month later.

Discussion

SCFE typically requires an open growth plate, making it an unusual occurrence in adults. When encountered in adults, an underlying endocrine disorder is often the primary cause. The rarity of an open growth plate in adults should prompt both endocrine evaluation and surgical intervention. In cases of identified endocrine issues, consideration should be given to prophylactic pinning of the opposite side. While previous reports have documented SCFE in adults, we aim to contribute our unique experience to the literature.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

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Submitted: 25-Oct-2023 **Revised:** 20-Feb-2024
Accepted: 28-Feb-2024 **Published:** 29-Apr-2024

Access this article online

Quick Response Code:

Website: https://journals.lww.com/indjem/

DOI: 10.4103/ijem.ijem_406_23

How to cite this article: Narayanan DH, Ranjan A, Asirvatham AR, Mahadevan S. A young man with a limp—Hypothyroidism presenting with slipped capital femoral epiphysis. Indian J Endocr Metab 2024;28:227-8.