Bilateral Hip Pain as First Symptomatic Expression of Severe Primary Hypothyroidism

L. Kasongo[1], R. Nicolescu[2]
[1]CHR Citadelle, Université de Liège, [2]Isosl Valdor, Liège

Poster Code: P3-257

INTRODUCTION

Legg-Calvé-Perthes disease is an idiopathic osteonecrosis of the femoral head with uncoupling of bone resorption and formation, presenting as **unilateral** involvement in most children. Symmetric involvement suggests other conditions: skeletal dysplasia, osteonecrotic entities including hypothyroidism, Gaucher's disease, glycogen storage defects, sickle cell anemia.

CASE PRESENTATION

A 14-year-old boy presented with insidious bilateral hip pain and limp and no associated systemic symptoms. He denied any trauma or infection. He had no significant medical or surgical history and took no treatment. He was developmentally normal and played football. Family history was noncontributory.

In the Emergency Department the diagnosis of Legg-Calvé-Perthes disease was made. The patient had bilateral limited internal/external rotation and abduction. He walked with an antalgic gait.

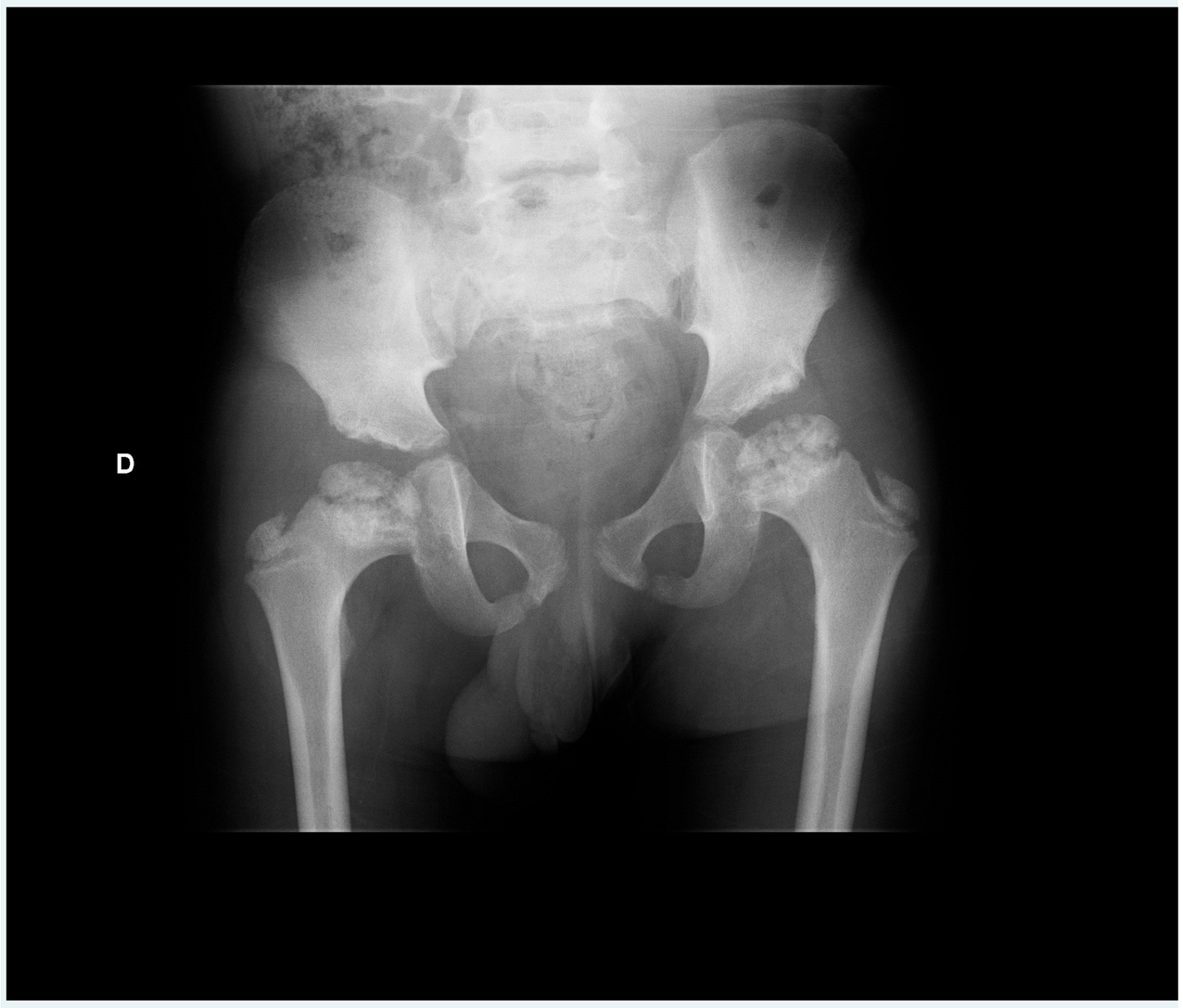
On the second physical examination, we noted a short stature **(131 cm, - 5 SD)** without dysmorphic features or body disproportions. His neck was supple with no palpable thyroid. His pubertal stage was Tanner V. The rest of the somatic exam was unremarkable.

Laboratory evaluation revealed severe primary hypothyroidism: TSH (thyroid-stimulating hormone) 312 mIU/mL (0.46 – 4.7), T4 (thyroxine) 2.4 pmol/L (9 - 28), T3 (triiodothyronine) 2.95 pmol/L (4.3 – 8.1), thyroglobulin 7.4 µg/L (1.4 - 78) with absent antithyroglobulin and antithyroperoxidase antibodies. IGF1 (insulin-like growth factor 1) and IGFBP3 (insulin-like growth factor-binding protein 3) levels were also low, without growth hormone deficiency. The hematologic and lipid profile, hepatic and renal function, were normal.

Radiological investigations showed atrophic thyroid tissue on ultrasound, delayed bone age (10 years) along with bilateral symmetrical femoral head fragmentation and collapse. No other skeletal abnormalities were found.

Thyroid hormone replacement (L-thyroxine, 5 µg/kg/d) induced rapid growth **(height velocity 26 cm/20 months),** accelerated skeletal maturation with progressive improvement in gait and hip pain relief.

Pelvic radiography - femoral head deformity with fragmented and collapsed epiphysis and areas of increased lucency



CONCLUSIONS

The differential diagnosis of hip pain in childhood includes many inflammatory and infectious causes that are usually heralded by unilateral hip pain.

Bilateral symmetric involvement with femoral head fragmentation and collapse, in association with short stature, is an important clinical clue suggesting a systemic disease like thyroid-related skeletal disorder.

Thyroid hormones exert anabolic actions on the developing skeleton, influencing chondrocytes, osteoblasts and osteoclasts activity and have catabolic effects in adulthood.

J. H. Duncan Bassett and Graham R. Williams. Role of Thyroid Hormones in Skeletal Development and Bone Maintenance. Endocrine Reviews 2016, 37:135–87