DELAYED DIAGNOSIS OF SLIPPED CAPITAL FEMORAL EPIPHYSIS IN AN OBESE ADOLESCENT BOY

OBEZ ADOLESAN ERKEK ÇOCUĞUNDA FENIUR BAŞI EPİFİZİ KAYMASINDA GECİKMİŞ TANI

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SUMMARY: *Obesity prevalence among children is increasing rapidly along with an increase in associated complications such as degenerative joint diseases. Slipped capital femoral epiphysis is one of these complications. In this report, we describe an adolescent obese boy who had left hip pain and was diagnosed with slipped capital femoral epiphysis according to hip X-ray and magnetic resonance imaging findings. In conclusion, clinicians should be aware of slipped capital femoral epiphysis in obese adolescents suffering from hip pain.*

Key Words: *Obesity, Slipped Capital Femoral Epiphysis, Diagnosis.*

ÖZET : *Çocuklarda obezite yaygınlığı, ilejeneratif eklem hastalıkları gibi eslik eden komplikasyonlardaki artışı ile birlikte hızlı bir şekilde artmaktadır. Femur başı epifizi kayması bi komplikasyonlardan birisidir. Bu çalışmada sol kalça ağrısı olan ve kalça grafisi ve manyetik rezonans görüntüleme bulguları ile femur başı epifizi kayması tanısı konulan obez adolesan erkek çocuğu tanımlanmaktadır. Sonuç olarak, klinisyenler kalça ağrısından yakınan obez adolesanlarda femur başı epifizi kaymasının akıllarına getirmelidirler.*

Anahtar Kelimeler: *Obezite Femurbaşı Epifizi Kayması.*

INTRODUCTION

Obesity prevalence among children is increasing rapidly along with an increase in associated complications (1, 2). These complications include orthopedic, neurologic, pulmonary, gastroenterologic, endocrinologic, metabolic and cardiovascular disorders as well as atherosclerosis, colorectal cancer, gout and arthritis (1, 3-5). Slipped capital femoral epiphysis (SCFE) is one of these complications that increase with obesity (6, 7). It occurs via posterior and inferior slippage of the proximal femoral epiphysis on the metaphysis through the physeal plate and is the most common hip disorder in adolescents (7, 8). The incidence of SCFE was reported to be 2.22 for boys and 0.76 for girls per 100 000 children between 10 and 14 years old in a study from Japan (9). The incidence peaks at age 10-12 for girls and 12-13 for boys (6, 9, 10). In this report we describe an obese boy with SCFE that occurred after trauma in whom the diagnosis was delayed because of insidious onset.

CASE REPORT

A 14-year-old boy was admitted to hospital for obesity. His family noticed that his weight had been above normal values for the previous six years. One year before he had fallen off his bicycle and had begun to have left hip pain two months prior to admission. His weight was 80 kg (>95 percentile), height 165.7 cm (50-75 percentile), weight for height index (wt/ht) 161% and body mass index (BMI) 29.4 (>95 percentile). On physical examination he had axillary hair and grade 2 pubic hair; the testicles

were 8 mL (R) and 10 mL (L), and penis size was 5x1.5 cm. He had limited and painful flexion and internal rotation of left hip. Other systems were normal.

His urinalysis, complete blood count, erythrocyte sedimentation rate, blood glucose, liver, thyroid and renal function tests were normal. His bone age was 14 years. Abdominal ultrasound showed hepatomegaly and grade 1 fatty liver. Tests performed for the infectious, autoimmune and metabolic etiologies of fatty liver yielded normal results. His hip X-ray demonstrated slightly medial displacement of the left femoral epiphysis. Magnetic resonance imaging (MRI) revealed displaced left femoral epiphysis clearly. Minor joint effusion was also seen on the images (Fig. 1, 2). A low calorie diet was started, orthopedic surgeons were consulted and surgery was planned.

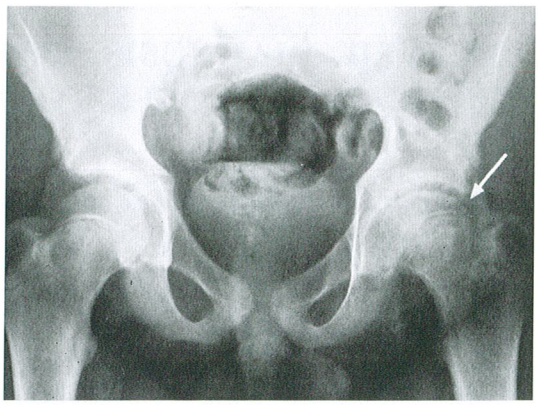

Fig. 1: Anteroposterior hip X-ray shows slightly displaced left femoral epiphysis (arrow).

DISCUSSION

Although SCFE may be associated with renal osteodystrophy, radiation therapy and endocrine disorders such as hypogonadism, hypopituitarism and hypothyroidism, most cases are idiopathic (7, 9, 10). It is seen more often in obese children (9, 11, 12). Obesity, causing increased sheer stress across the physeal plate, is one of the etiological factors in idiopathic SCFE (7). The other factors are physeal orientation, abnormalities in physeal architecture and hormonal changes in adolescents (7). The peak incidence age has been stated to be 12-13 years for boys (6, 9, 10).

A child with SCFE generally has a history of pain localized to the thigh, the groin, the knee or less frequently to the hip. Often a history of trauma precedes the pain. The child starts to lose hip motion, internal rotation, flexion and abduction, resulting in difficulty in playing sports or in daily tasks like tying shoes. If the slippage is minimal there is only a slight loss of internal rotation and pain at the extremes of motion (7). Pain and altered gait are the most common clinical signs. Shortening and atrophy of the affected leg are seen in long-standing disease (10). Our patient had a history of trauma and hip pain, which is a less frequent symptom. Furthermore, the hip pain had started long after

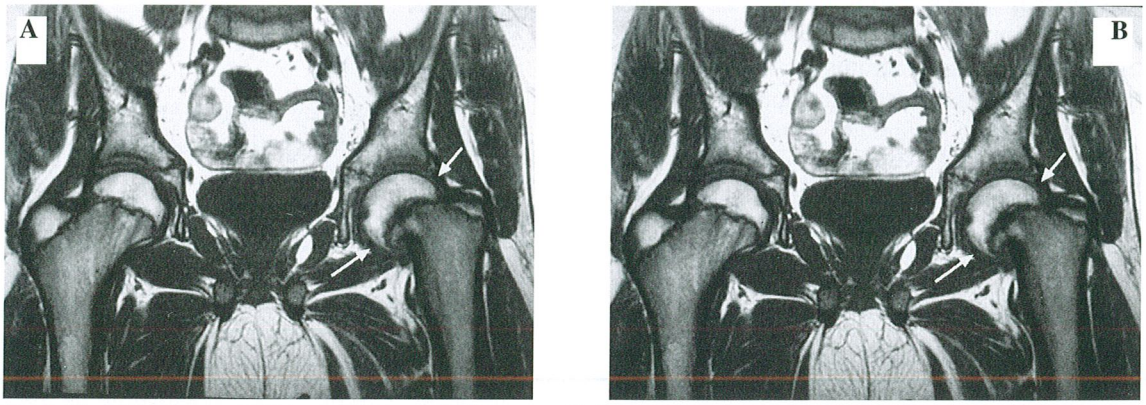

Fig. 2: T1-weighted coronal MR image (A) shows displacement of left femoral epiphysis (arrows). Contrast enhanced fat suppressed T1-weighted coronal MR image (B) demonstrates reactive synovial enhancement (arrows).

the trauma, making the diagnosis more challenging. On physical examination, limited flexion and internal rotation were found as expected. Plain radiography and ultrasonography are diagnostic tools (7, 12). X-rays in anteroposterior and frog-leg view show the displacement of the epiphysis, increased epiphyseal thickness and irregularity of the epiphysis. Ultrasound shows effusion and the slipping of the epiphysis (10). In our case, there was minimal displacement of the epiphysis of the left femur on his hip X-ray (Fig. 1). Therefore, increased epiphyseal thickness was not observed. MRI demonstrated displacement of the proximal femoral epiphysis and synovial enhancement on postcontrast images (Fig. 2).

When a child is diagnosed with SCFE, the definitive treatment should be performed as soon as possible (7). Treatment should stop further slipping and correct severe deformities (10). In situ fixation with a single central screw is more popular than the use of multiple pins and screws, and is considered the gold standard (7, 12). Bone-graft epiphyseodesis, corrective osteotomy and spica cast immobilization are the other treatment methods (7). Pin penetration, chondrolysis, avascular necrosis and osteoarthritis are the complications of SCFE (12).

In conclusion, SCFE is not a rare problem in adolescents, especially in obese ones. In this report, we describe an obese adolescent boy with SCFE. Because hip pain is not frequent in SCFE and there was a long time between the trauma and pain occurrence, the diagnosis of SCFE was delayed. Clinicians should be aware of SCFE in obese adolescents who have hip pain preceded by trauma.

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