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SLIPPED CAPITAL FEMORAL EPIPHYSIS IN AN OBESE ADOLESCENT WITH HYPOTHYROIDISM : A CASE REPORT

Orthopaedics

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ABSTRACT

Adolescents with a condition known as "slipped capital femoral epiphysis" (SCFE) have a defective growth plate and their femoral head "slips" in relation to the rest of their femur. The femur's head remains in the hip joint's cup, but the remainder of the femur moves. Obesity and endocrine disorders are frequently cited as risk factors for SCFE, which often arises around puberty. Here presents a case of slipped capital femoral epiphysis in an adolescent obese male with hypothyroidism. A 12 years old adolescent obese male was presented with the complaints of painless limping of left hip for 6 months. He had been diagnosed with hypothyroidism for 3 years and had been on T. Thronorm 75 mcg. After being diagnosed as SCFE through radiography and MRI of the hip, the patient underwent corrective surgery with in situ screw fixation of left hip. The case report emphasizes the importance of early screening radiographs of pelvis in obese adolescents with endocrine disorders like hypothyroidism to prevent further complications associated with SCFE.

KEYWORDS

Adolescent, Hypothyroidism, Obese, Slipped capital femoral epiphysis

INTRODUCTION

Slipped capital femoral epiphysis describes a fracture through the growth plate (physis), which causes the femur's overlying end to slip (metaphysis).

It is most prevalent hip condition in adolescents. On the affected side, SCFEs typically produce groin discomfort, but they can also occasionally result in knee or thigh pain. Every fifth occurrence affects both hips, causing pain on both sides of the body. While it also affects girls, SCFEs is significantly more common in teenage boys, particularly young Black guys. For most people, obesity is the most prevalent risk factor that has been discovered [1]. In addition, SCFE has been linked to a number of endocrine conditions, including growth hormone therapy, hypopituitarism, hypothyroidism, and hypogonadism. Children with hypothyroidism may experience delayed bone ossification and hypoplasia of the epiphyseal plate. The case report highlights the significance of taking into account secondary causes of SCFE before surgery in order to enhance the overall care of these coexisting conditions. It also highlights how crucial it is for orthopedics and endocrinology to work together in order to identify and treat SCFE related endocrinopathies as soon as possible.

In this report, I present a case of a 12-year-old obese boy with hypothyroidism, as well as a literature review.

CASE REPORT

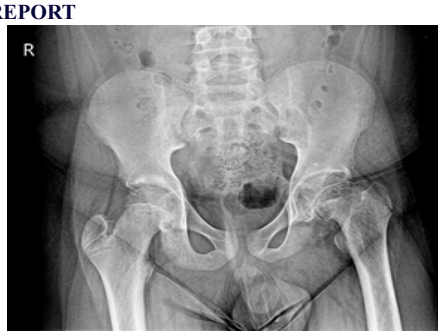

Figure 1: X- Ray of Pelvis AP view

A 12-year-old adolescent Indian male presented with painless limping of left hip which was affecting his gait with gradual onset over the past 6 months. His height was 160 cm and his weight was 85 kg. The patient is overweight with a BMI of 33.2 kg/m2. He had been diagnosed with hypothyroidism 3 years earlier and had been treated with T. Thyroxine 50 mcg initially and was later incremented to 75 mcg 8 months before. Classical signs of hypothyroidism were also evident including obesity, facial puffiness, aggressive outbursts. His thyroid function tests revealed with serum triiodothyronine (T3)151.83 ng/dL (normal range 68–187 ng/dL)),serum tetraiodothyronine (T4) 8.27 ug/dL (4.85-8.48 ug/dL)) and thyroid-stimulating hormone 4.03uIU/mL (0.35–4.94 mIU/mL). The patient had an insuffient vitamin D level,15.5 ng/ml. X-ray of pelvis with both hip, AP & frog leg view were taken. (Figure. 1& 2). Magnetic resonance imaging (MRI) of the hip joint showed findings: left physis mildly widened and irregular, moderate subluxation of left femoral head, minimal bilateral hip joint effusion and slipped capital femoral epiphysis. Based on these findings, the patient was diagnosed with bilateral SCFE (severe on the left side, mild on the right side).

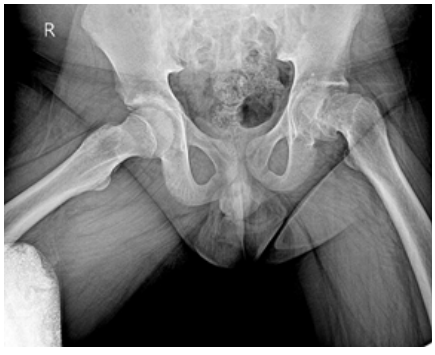

Figure 2: X-Ray of pelvis frog view

The patient underwent corrective surgery with in situ screw fixation of left hip (Figure.3). The peri-operative period was uneventful. He was advised complete bed rest and no weight bearing for 3 months. He remains euthyroid on a stable replacement dose of levothyroxine (75 mcg per day).

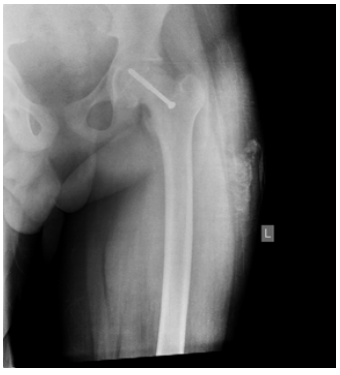

Figure 3: Post operative X- Ray of left hip AP view

DISCUSSION

The medical term "slipped capital femoral epiphysis" (also known as "skiffy," "slipped upper femoral epiphysis," "SUFE," "souffy," and "coxa vara adolescentium") describes a fracture through the growth plate (physis), which causes the femur's overlying end to slip

(metaphysis).

The capital, or head, of the femur should normally rest directly on the femoral neck. The slip is caused by abnormal movement along the growth plate. The ligamentum teres femoris allows the epiphysis, or terminal portion of a bone, to maintain its proper anatomical position in the acetabulum, or hip socket, hence the term "slipped capital femoral epiphysis" is actually misleading. In actuality, the anterior direction of slippage with external rotation is the metaphysis, or neck portion of a bone.

Though most commonly associated with groin discomfort, a SCFE can also refer pain along the obturator nerve's distribution, resulting in pain limited to the knee or thigh. Reduced range of motion and a waddling gait are indicators of a SCFE. Hip internal rotation, abduction, and flexion range of motion are frequently limited [2].

SCFE is typically brought on by either a decrease in the physis's resistance to shearing or an increase in force applied across the epiphysis [3]. Among the risk factors, obesity is by far the biggest. 600,000 infants' weights were analyzed in Scotland, and the participants were tracked to determine who had SCFE. According to this study, the risk of SCFE was shown to be 'dose-response,' meaning that the heavier the child, the higher the risk—nearly twenty times higher than that of thin children [1]. SCFE instances are mostly idiopathic. Frequently, no past trauma or damage exists prior to the development of symptoms. Furthermore, there is evidence linking the onset of SCFE to patients with Down syndrome, renal diseases, and endocrine problems (hypothyroidism, hyperthyroidism, panhypopituitarism, and growth hormone insufficiency) [4]. It is known that boys are more likely than girls to suffer from SCFE. Additionally, African Americans and Pacific Islanders experience it more frequently, maybe as a result of their higher body weights [5]. Compared to the right hip, the left hip is more frequently impacted. It is possible for both sides to be involved in more than half of instances (bilateral) [2].

Ignorance of a SCFE can result in degenerative hip disease (hip osteoarthritis), avascular necrosis (death of femoral head bone tissue), incorrect gait, and chronic pain [6]. The diagnosis of SCFE requires x-rays of the pelvis, with anterior posterior (AP) and frog-leg lateral views [7]. Bilateral radiographs are necessary to enable comparison[8].

Open reduction and pinning or external in-situ pinning are two possible treatments for SCFE. For most patients, it is not advised to pin the unaffected side prophylactically, but it can be appropriate if a second SCFE is highly expected [7]. The patient should refrain from carrying any weight and be placed under strict bed rest as soon as SCFE is suspected. In extreme circumstances, physical treatment may be necessary after a sufficient amount of rest for the patient to restore movement and strength in the leg. A SCFE is considered an orthopedic emergency because there is a 25% chance that additional slippage will obstruct the blood flow and cause avascular necrosis. In order to stop additional slippage, almost all instances need surgery, which often entails putting one or two pins into the femoral head [9]. It is advised to position the screws perpendicular to the physis and in the center of the epiphysis [10].

CONCLUSION

An early screening pelvic radiograph may be advantageous in identifying the potentially fatal but preventable complication known as SCFE in obese children and adults with the endocrine illnesses.

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