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Case Report

Avulsion of the left trochanter in a 15-year-old teenager soccer player

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Abstract: Apophyseal avulsion fractures of the hip and pelvis are injuries that usually occur in the adolescent athlete. If not properly diagnosed and treated, these injuries can be debilitating to an adolescent athlete. Here the author describes an original case report of an athletic teenager with a traumatic isolated apophyseal avulsion fractures of the lesser trochanter of the left femur. No surgical treatment indicated for type 1 lesion.
Keywords: Apophyseal avulsion fractures, Adolescent Athlete, Lesser Trochanter

INTRODUCTION

Trochanteric fractures of the thigh bone, or femur, are uncommon injuries [1]. Lesser trochanter fractures can occur as isolated injuries or in combination with other fracture types. As isolated injuries, they're caused by forceful contraction of the iliopsoas muscle in adolescents or by benign or malignant bone tumors in older adults [2]. Avulsion injuries, where a portion of cortical bone is ripped from the rest of the bone by the attached tendon, are common among those who participate in sports, and there are numerous sites at which these occur [3]. Apophyseal avulsion fractures of the hip and pelvis are injuries that usually occur in the adolescent athlete. If not properly diagnosed and treated, these injuries can be debilitating to an adolescent athlete [4]. Here the author describes an original case report of an athletic teenager with a traumatic isolated apophyseal avulsion fractures of the lesser trochanter of the left femur.

CASE REPORT

A healthy 15-year-old teenager came to our sports medicine center after an injury occurs during soccer training. He presented sudden pain in the left hip and consequent fall while running a speed test. On examination, he was lying with the left leg in external rotation and the hip in slight flexion. Active hip flexion was impossible. Palpation found pain in the fold of the groin. Passive hip mobilization was possible but painful. Passive hip joint amplitudes, and particularly abduction and internal and external rotation, were limited by pain. All movements of the hip were painful. There were no other associated injuries. An ultrasound examination showed no traumatic muscular lesion, but A plain anteroposterior (AP), additional oblique projections radiograph of the pelvis and of the left hip revealed an avulsed fragment of bone (white arrow) representing the lesser trochanter of the femur. So, isolated lesser trochanter fracture, as typical apophyseal avulsion fractures, in teenager was promptly made. No indication of surgical treatment was made, and a 5-stage rehabilitation protocol was started.

Fig-1: anteroposterior plain

Fig-2 (oblique projection): Radiographs of the pelvis and of the femur showed an avulsion fracture of the left lesser trochanter (see arrows)

DISCUSSION

The greater and lesser trochanters are at the head of the femur near the hip joint. The greater trochanter is a large, bony prominence on the outside of the femur. It serves as a point of attachment for many muscles responsible for moving the leg at the hip joint. The lesser trochanter is a bony prominence on the inside portion of the femur. It is the site of attachment for the iliopsoas muscle, which helps bend the hip joint. Literature-reported many cases [5] of avulsion fractures and found the most common location to be the anterior superior iliac spine. Other common locations that were found included the ischial tuberosity, anterior inferior iliac spine, lesser trochanter and iliac crest. In another largest study [6] evaluating these injuries were found that the most common locations were the ischial tuberosity (54%), anterior inferior iliac spine (22%), anterior superior iliac spine (19%), superior corner of pubic symphysis (3%), and iliac crest (1%). Soccer and gymnastics had the highest number of avulsion fractures documented. Apophyseal avulsion fractures of the greater trochanter have also been documented in the literature [7]. Although rare, bilateral avulsion fractures can occur [8]. An increase of adolescent participation in competitive sporting activities and better musculoskeletal imaging techniques has led to an increased awareness of these injuries by the medical community. Apophyseal avulsion fractures are usually the result of a sudden forceful concentric or eccentric contraction of the muscle attached to the apophysis. Like other pediatric fractures, apophyseal avulsion fractures fail through the physis [9]. The primary age for these injuries to occur is between 14 and 25 years [10]. No definitive classification system exists for all apophyseal avulsion fractures of the hip and pelvis. Classification of these injuries is usually based on the location and amount of displacement. Torode and Zieg [11] classified all pediatric pelvis fractures. Type I are avulsion fractures. Type II fractures are iliac wing fractures. Type III fractures include simple ring fractures. And type IV fractures are ring disruption fractures. Martin and Pipkin [12] in 1957 classified ischial tuberosity avulsion fracture into 3 groups: nondisplaced fractures, acute avulsion fractures, and old united fractures. Our patient has a type I lesion (ie; nondisplaced fractures), therefore no indication of surgical treatment was made, in agreement with most experts which recommended that nonoperative management with a guided rehabilitation program should be the initial option for pelvic avulsion fractures.

CONCLUSION

Apophyseal avulsion fractures of the hip and pelvis are infrequent pediatric fractures. However with increasingly active children and adolescents in today's population and better imaging techniques, these fractures are becoming increasingly more recognized. This emblematic case report provides a further contribution to the knowledge of this rare injury among specialists in medicine and sports traumatology.

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