

Acute Onset Groin Pain in a Pre-Adolescent Boy- A Diagnostic Dilemma

Ergenlik Öncesi Bir Erkek Çocukta Akut Başlangıçlı Kasık Ağrısı- Tanısal Bir İkilem

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ABSTRACT

Lesser trochanter avulsion fracture is a rare injury. It is most common in 7 to 16 years age group and needs to be considered as an important but a very rare differential diagnosis of acute onset groin or hip pain in this age group. Clinical findings would include difficulty in weight bearing, sitting cross legged and positive Ludloff sign. Although plain radiographs are enough for avulsion fracture diagnosis, computerized tomography will provide a better picture for surgical decisions. This case report describes a lesser trochanter avulsion fracture in a preadolescent patient, who had an excellent functional outcome following conservative management.

Keywords: Adolescent, pediatric, avulsion fracture, acute onset groin pain, lesser trochanter

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ÖZET

Küçük trokanter avülsiyon kırığı nadir görülen bir yaralanmadır. En sık 7-16 yaş grubunda görülür ve bu yaş grubunda akut başlangıçlı kasık veya kalça ağrısının önemli ancak çok nadir bir ayırıcı tanısı olarak düşünülmesi gerekir. Klinik bulgular ağırlık taşımada zorluk, bağdaş kurup oturma ve pozitif Ludloff işaretini içerir. Avülsiyon kırığı teşhisi için düz grafiler yeterli olsa da, bilgisayarlı tomografi cerrahi kararlar için daha iyi bir resim sağlayacaktır. Bu vaka raporu, konservatif tedaviyi takiben mükemmel bir fonksiyonel sonucu olan ergenlik öncesi bir hastada daha küçük bir trokanter avülsiyon kırığını tanımlamaktadır.

Anahtar Sözcükler: Adolesan, pediatrik, avülsiyon kırığı, akut başlangıçlı kasık ağrısı, küçük trokanter

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INTRODUCTION

Pelvic avulsion fractures are seen in pediatric adolescent age group. Avulsion fractures of apophysis most commonly occur in 7- 16 years age group, as physis is weaker than the tendon's insertion to the bone (1,2). The most common reported site is the avulsion of the ischial tuberosity, followed by that of the ASIS(anterior superior iliac spine), AIIS(anterior inferior iliac spine), lesser trochanter(LT), the greater trochanter(GT).(3). The immature skeleton's tendons and ligaments can withstand greater tensile forces than the apophysis(4). Although rare, LT avulsion is caused by sudden iliopsoas contraction during a sporting activity like sprinting, kicking, jumping, resulting in acute groin pain. In case of acute groin pain in pre-adolescent children following strenuous sports activity, a diagnosis of avulsion fracture of lesser trochanter of femur must be kept in mind. The recent guidelines on decision-making for non-operative management of avulsion fractures are simple and easily reproducible, although the outcome is still debatable.

CASE REPORT

A 12 year old male was brought to the emergency department with history of acute onset severe pain since 2 weeks in his left groin, following a sprinting activity at school. He had difficulty in weight bearing and had a limp. Initially, he sought treatment at a local hospital where he was treated symptomatically only. However there was no relief and the patient presented to our hospital for a second opinion. On clinical examination, patient had a antalgic gait and tenderness in left groin and medial aspect of left thigh. There was no visible swelling or ecchymosis. He was unable to perform active SLR (straight leg raising) or sit cross-legged. He was unable to actively flex his left hip in a sitting position (Ludloff sign positive). Passive abduction and external rotation of hip was painful. Abdomen, testicular and neurovascular examination was unremarkable.

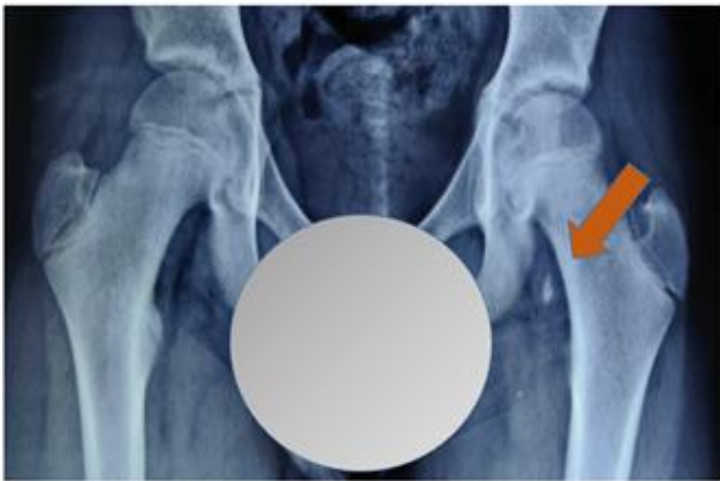


Figure 1A: Bilateral Hips with proximal femur AP



Figure 1B: Left Hip with proximal femur lateral

Figure 1:X-ray showed avulsion fracture of the LT of the left femur.



Figure 2:MRI with CT cuts revealed displacement of 12.8mm of that avulsed fragment.

There were no other fractures or bony abnormalities, no abnormal soft tissue shadows or fluid collection in the joint. No hematological or metabolic abnormalities detected. The main differential diagnoses to be considered for acute onset groin pain in this age group are: ischial tuberosity avulsion fracture, fracture of proximal femur, transient synovitis hip, slipped capital femoral epiphysis, Perthes disease and acute septic arthritis of the hip. Thorough clinical and radiological examination of this patient confirmed the diagnosis. He was managed conservatively with analgesics, kinesiology taping, and strict non-weight bearing mobilization with crutches for six weeks, followed by gradual weight bearing and strengthening. He recovered fully and at end of 10 weeks, he was able to do active SLR, squatting and walk without limping (Figure 3).



Figure 3A: Sitting cross legged



Figure 3B: Squatting



Figure 3C: Straight-leg raise test

DISCUSSION

Avulsion injuries in athletic adolescents are found most commonly in the pelvis and proximal femur. A tonic-clonic seizure may also cause this fracture.(5). There are also reports of sequential bilateral lesser trochanter avulsion fractures in adolescents predominantly in male(5,6). As a possible explanation, Morscher described impairment of the growth cartilage under an anabolic hormonal influence like somatotropin and testosterone (7). Most case reports describe the patients returning to their pre-injury levels of activity with non-operative management(5,6). Presently the indications for surgery of isolated, uncomplicated LT fractures are not well defined due to good outcomes with conservative treatment(8). There are only two cases reported supporting the surgical fixation for avulsion fracture of the lesser trochanter(9). McKinney et al.(10) classified avulsion fractures to guide surgical decisions (Figure 4), based on displacement. In our report, patient had good functional recovery following conservative management.

Type	Avulsion Description
Type 1	Non-displaced
Type 2	Displacement ≤ 2 cm
Type 3	Displacement > 2 cm
Type 4	Symptomatic non-union or painful exostosis

Figure 4: McKinney classification

CONCLUSION

Avulsion fracture of LT though rare, can occur, and it needs a high index of suspicion and a thorough clinico-radiological assessment for early diagnosis. It needs to be kept in mind as a differential diagnosis for acute onset hip pain in pediatric age group. Conservative treatment gives good functional results for avulsion of LT with less than 20 mm displacement. For avulsion displacement of more than 20 mm, surgical fixation may be required to prevent painful nonunion and exostosis. Finally, an early diagnosis leads to a better patient satisfaction and outcome.

Conflict of interest

No conflict of interest was declared by the authors.

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