

Avulsion Fracture of Anterior Inferior Iliac Spine: A Case Report

Spina İliaca Anterior İneriorda Avulsiyon Fraktürü: Olgu Sunumu

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ABSTRACT

Avulsion fractures of pelvic apophysis are not quite common but are frequently tended to be seen through the adolescent period, before growth plates' closure. Most common and typical injury locations are Anterior Superior Iliac Spine (ASIS), Anterior Inferior Iliac Spine (AIIS) and ischial tuberosity. 16 years old male patient referred to our ED with right inguinal pain, suddenly started after shooting a ball approximately 6-8 hours ago, before arrival. AP radiograph of pelvis showed us a fragmented bone fracture avulsed 1 cm inferolaterally to ASIS. Among all adolescent sportsmans and sportswomans, football players and gymnasts are the most vulnerable group for pelvic apophyseal avulsion fractures. X-ray is quite diagnostic. Treatment is generally conservative.

ÖZET

Pelvik apofizyal avulsiyon fraktürleri çok yaygın değildir ve sıklıkla adölesanlarda büyüme plakları kapanmadan önce ortaya çıkar. En yaygın tipik lokalizasyonları spina iliaca anterior superior (SIAS), spina iliaca anterior inferior (SIAI) ve tuberositas isciidir. Yaklaşık 6-8 saat önce futbol oynarken duran topa aniden vurma sonrasında sağ kasık bölgesinde aniden başlayan ağrı şikayeti ile başvuran 16 yaşında erkek hasta sunulmuştur. Hastanın çekilen pelvis AP grafisinde sağ spina iliaca anterior inferiordan yaklaşık 1 cm kadar inferolaterale doğru avulse olmuş fragmante kemik parçacığı tespit edilmiştir. Adölesan sporcularda pelvis apofizyel avulsiyon kırıkları, futbol oynayan ve jimnastik yapanlarda en yaygın olanlarıdır. Düz grafiler için belirleyicidir. Genellikle konservatif tedavi ile iyileşirler.

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INTRODUCTION

Avulsion fractures of pelvic apophysis are not quite common but are frequently tended to be seen through the adolescent period, before growth plates' closure [1, 2, 3]. Most common and typical injury locations are Anterior Superior Iliac Spine (ASIS), Anterior Inferior Iliac Spine (AIIS) and ischial tuberosity [1,5]. Sudden, forceful and uncontrolled muscle contraction during sport, constitutes the typical mechanism of injury [1]. Avulsion fracture of AIIS occurs after strong contraction of rectus femoris muscle. Shooting a ball, running and jumping are the

most commonly reported injury mechanisms. Avulsion fractures of ASIS and AIIS are reported in literature. Majority of these patients are young and have suffered sport related injuries [5].

Case

16 years old male patient referred to our ED with right inguinal pain, suddenly started after shooting a ball approximately 6-8 hours ago, before arrival. Passive motion of right hip was painful, just as stepping on. There was a remarkable relief in pain while resting. There was no obvious inspection finding, but we noted a serious pain of right inguinal zone and right lower quadrant, with palpation. Active flexion

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DISCUSSION

and passive hyperextension of right hip joint was aggravating the pain. An AP radiograph of pelvis showed us a fragmented bone fracture avulsed 1 cm inferolaterally to AIIS (Figure 1). A pelvic CT was obtained in order to assign the exact position of fragmented bone (Figure 2). After consultation with orthopedic surgeons, patient was discharged with order of absolute bed resting and avoiding from stepping on.

Among all age groups; most of sport related injuries are observed in childhood and adolescence 3-5% of all sport related injuries damages inguinal zone [1]. Avulsion fractures are more common in early adolescence because of incomplete chondrocalcinosi and a muscle tension which exceeds physis tension [5]. Locations for avulsion fractures of pelvis are defined as AIIS (where rectus femoris originates), ASIS (where sartorius originates) and ischial tuberosity (where hamstring muscles originates). Treatment protocols for pelvic avulsion fractures may involve both surgical and nonsurgical approaches. Open Reduction Internal Fixation (ORIF) constitutes the main surgical approach. Avulsion exceeding 2 cm and fracture of tuberosities require surgical manipulation (ORIF)[1]. Nonsurgical treatment is the most common approach, same as our patient treated with. In order to prevent chronic troubles, early diagnosis and proper management of AIIS fractures are vital [2].

Among all adolescent sportsmen and sportswomen, football players and gymnasts are the most vulnerable group for pelvic apophyseal avulsion fractures. Sudden, forceful muscle-tendon contractions during sportive activities are the main underlying pathophysiological process. X-ray is quite diagnostic. Treatment is generally conservative.

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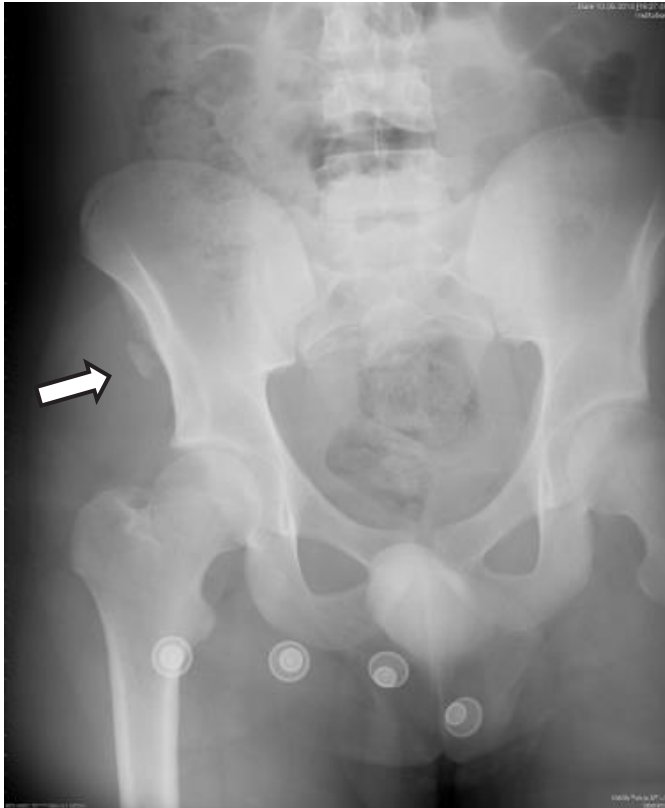


Figure 1. Direct X-ray appearance of the fracture



Figure 2. Pelvic computerized tomography findings of the case

REFERENCES

1. Uslu M, Un A, Ozsahin M, Besir FH, Ataoglu S. Avulsion Fracture of the Anterior Inferior Iliac Spine in a Soccer Player. *American Academy of Physical Medicine and Rehabilitation*. 2013; 5: 732-733.
2. Aksoy E, Uludag M, Ozbayrak M, Kaynak G, Tuzun S. Anterior Inferior Iliac Spine Avulsion Fracture. *American Journal of Physical Medicine & Rehabilitation*.
3. Rossi F, Dragoni S. Acute avulsion fractures of the pelvis in adolescent competitive athletes: prevalence, location and sports distribution of 203 cases collected. *Skeletal Radiol*. 2001; 30:127-131.
4. Atalar H, Kayaoglu E, Yavuz OY, Selek H, Uras I. Avulsion fracture of the anterior inferior iliac spine. *Ulus Travma Acil Cerrahi Derg* 2007; 13:322-325
5. Porr J, Lucaciu C, Birkett S. Avulsion fractures of the pelvis – a qualitative systematic review of the literature. *J Can Chiropr Assoc* 2011; 55(4).