

Case Report



Superolateral Dislocation in a Pediatric Hip Associated with Labrum Entrapment and Overgrowth of the Ischial Part of the Acetabulum

Lokman KARAKURT^a, Oktay BELHAN

Fırat Üniversitesi Tıp Fakültesi Ortopedi Anabilim Dalı, ELAZIĞ

ABSTRACT

We describe a child who had old unreduced traumatic hip dislocation associated with overgrowth of the ischial part of the acetabulum and interposition of the labrum. Open reduction was performed, and overgrowth part of the ischium and interposed labrum were excised for obtaining a concentric reduction of the hip joint. At the three-year follow-up visit, result was excellent. ©2006, Fırat Üniversitesi, Tıp Fakültesi

Key words: Traumatic hip dislocation, child, concentric reduction, labrum, ischium.

ÖZET

Çocuk Süperolateral Kalça Çıkığı ile Beraber Labrum İnterpozisyonu ve Asetabulumun İskial Parçasının Aşırı Büyümesi: Olgu Sunumu

Travmatik kalça çıkığı gelişen bir çocuk olguda, tam redüksiyonu engelleyen oluşumlar olarak labrum interpozisyonu ve asetabulumun ischial parçasının aşırı büyümesi saptandı. Olguya açık redüksiyon yapıldı, interpoze labrum parçası eksize edildi ve aşırı büyümüş olan asetabulumun ischial kısmı inceltildi. Ameliyat sonrası 3. yıldaki kontrolde redüksiyon tamdı ve fonksiyonel sonuç mükemmeldi. ©2006, Fırat Üniversitesi, Tıp Fakültesi

Anahtar kelimeler: Travmatik kalça çıkığı, çocuk, tam redüksiyon, labrum, iskiüm.

Traumatic dislocation of the hip in children is a rare injury and can occur with minimal trauma in young children because of a soft, pliable acetabulum and ligamentous laxity of the immature hip joint (1-5).

When a concentric reduction cannot be obtained, it is usually because of interposition of the hip capsule or the iliopsoas or the rectus femoris muscle (1,4,6). Inversion, detachments, and bucket-handle tears of the labrum as well as marginal acetabular fractures have been documented in pediatric hip dislocations requiring open reduction (3,4,7). Loose cartilaginous and osteocartilaginous fragments within the hip joint and acetabular epiphysis and its attached labrum have also been recognized as causes of nonconcentric reduction in hip dislocations (2,3,8).

We describe an old unreduced traumatic hip dislocation in a child associated with overgrowth of the ischial part of the acetabulum and interposition of the labrum.

CASE REPORT

A six-year-old girl presented to our clinic with complaint of toe-walking and limping on her right leg. Toe-walking and limping was present from the last one month without any hip pain. She had a history of falling from a bicycle four months ago had a hip pain during only two weeks. On physical examination; there were a trendelenburg gait, mild external rotation and limited abduction (0° to 15°) on her right hip.

Other range of hip motions was in normal limits without any pain. There was 2 cm shortening on the right distal extremity. Neurovascular examination was normal. On plain radiograph and computed tomography (CT) scan; superolateral dislocation of right hip and dysplastic acetabulum was determined (Fig. 1, Fig. 2, Fig. 3). Open reduction was planned.



Figure 1. Anteroposterior pelvic radiograph shows superolateral dislocation of right hip. Acetabulum is dysplastic. There is osteophytic formation on the superior articular surface of the acetabulum (black arrow).



Figure 2. CT scan shows right hip dislocation and dysplastic acetabulum and there is a linear fracture line on the posterior rim of the acetabulum (black arrow).



Figure 3. There are overgrowth of the ischial part of the acetabulum, and evident step between the ischial and pubic parts of the acetabulum at the triradiate cartilage (black arrow).

Open reduction was performed with anterior oblique (bikini) incision. Hip joint capsule was found to be stretched out and loose. Joint was opened with T incision of capsule. Healthy joint cartilage of femoral head, completely ruptured ligamentum teres and irregular articular surface of the acetabulum was observed. Anterolateral part of the labrum was absent and there was no soft tissue in the acetabular cavity. By using the separate lateral longitudinal incision, proximal diaphysis of the femur was osteotomised, 1 cm shortened and 10° derotated (because of high anteversion) and firmly fixed with plate. Hip joint was reduced, but anterolateral femoral head covering was found to be lack in neutral position of the hip, so that Salter osteotomy was performed. After that, widening of the medial joint space was seen on intraoperative radiograph, but we could not solve this problem. Capsuloplasty was performed and muscles, fascia and skin were sutured. Spica cast was applied (Fig. 4). One month postoperatively, cast was removed and 2 week later hip was found to be subluxated (Fig. 5). Later, preoperative radiograph and CT scan were re-evaluated. On preoperative radiograph;

osteophytic formation on superior articular surface of the acetabulum was seen (Fig. 1). On preoperative CT scan; a linear fracture line on the posterior rim of the acetabulum and overgrowth of the ischial part of the acetabulum were seen (Fig. 2, Fig. 3). Reoperation was performed with the same bikini incision. Hip joint was opened and osteophytic formation was found to be fused to the superior articular surface of the acetabulum and it was delicately excised but concentric reduction was not able to be obtained. Overgrowth part of the ischial bone (posteromedial part of the articular surface of acetabulum) was thinned and after that medialization of femoral head and concentric reduction were able to be obtained. But lateral femoral head covering was lack in neutral position of the hip and corticocancellous iliac graft was fixated to the lateral side of the acetabulum with a cortical screw. K-wires which used for Salter osteotomy fixation were removed. Spica cast was applied and cast was removed after one month. On histopathological examination; specimen from osteophytic formation was fibrocartiginous tissue (similar of labral tissue) and specimen from ischium was normal bone tissue. At the four-month follow-up visit, CT-scan showed concentric reduction (Fig. 6). At the three-year follow-up, she had a full range of pain-free motion and radiograph showed concentric reduction (Fig. 7).

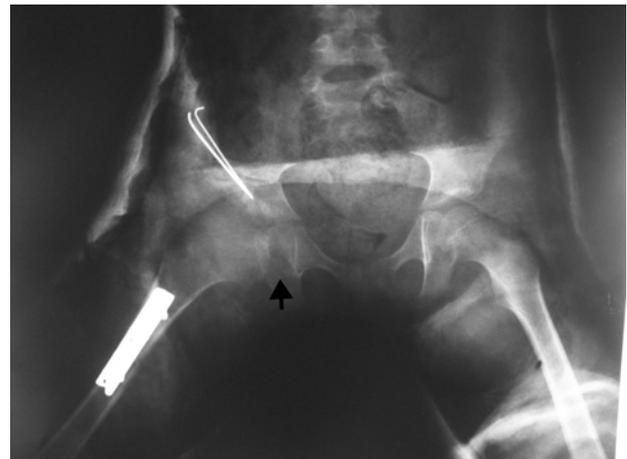


Figure 4. Early postoperative anteroposterior pelvic radiograph. There is widening of the medial joint space (black arrow).



Figure 5. Subluxated position of the hip joint after cast removal.

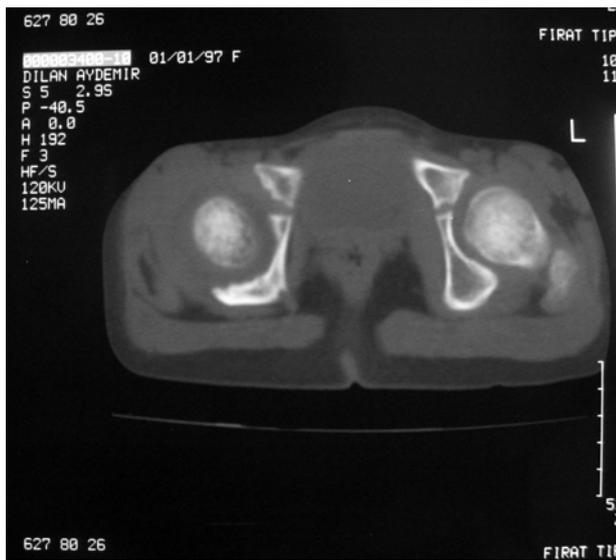


Figure 6. At the four-month follow-up visit, CT scan shows concentric reduction without dysplastic acetabulum. Thickness of the ischial part of the acetabulum is approximately same with the left side.



Figure 7. At the three-year follow-up visit, pelvic radiograph shows concentric reduction without acetabular dysplasia.

DISCUSSION

Traumatic hip dislocations in children are classified as anterior or posterior depending on where the femoral head lies after dislocation (3). In the literature, there is no reported superolateral traumatic hip dislocation. Our case had superolateral hip dislocation and we had a theory for

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mechanism; she sustained an unrecognized posterior hip dislocation with posterior rim fracture of acetabulum due to a seemingly low-energy trauma and dislocation reduced spontaneously. During this trauma, anterolateral part of the labrum teared and after that fused to the superior articular cartilage of the acetabulum. Posterior rim fracture of the acetabulum stimulated the growth plate of the ischial part of the acetabulum and overgrowth of the ischial part of the acetabulum developed, leading to acetabular dysplasia, femoral head gradually subluxated laterally and at the end of this process, superolateral hip dislocation developed.

Not all traumatic hip dislocations in children cause severe or incapacitating symptoms and ambulation may even be possible. As a result, treatment may be delayed or the diagnosis missed, and shortening of the limb and contracture are well-established, making reduction difficult (8). Preoperative traction, extensive soft tissue release, or primary femoral shortening should be considered if open reduction is required (8). Our case had no pain and according to us gradually developed superolateral dislocation was the main factor for this. We performed primary femoral shortening for obtaining reduction. Open reduction is a satisfactory treatment for late unreduced traumatic dislocation in children, but avascular necrosis rate is high (9). We had excellent outcome without avascular necrosis.

In our case, we observed intraoperative nonconcentric reduction due to labral entrapment and overgrowth of the ischial part of the acetabulum. Overgrowth of the ischial part of the acetabulum has not been previously described as an impediment to concentric reduction following dislocation of the pediatric hip.

For obtaining the concentric reduction, we excised tearing and fused part of the labrum and thinned the thickness of the ischial part of the acetabulum. We may be damaged the epiphysis of ischial part of the acetabulum but Shea et al. pointed that the absence of the acetabular epiphysis does not seem to effect adversely further growth and development of the acetabulum (7).

Persistent widening of the medial joint space and the lateralization of the femoral head after reduction should alert the surgeon of the need for further studies, and CT scans and MRI investigation play an important role in further diagnostics of these patients (2-4,7,10). In our case, increased of ischial thickness was visible on CT scan, but not on plain radiograph. Our preoperative plan was lack, so that our case needed second operation.

For concentric reduction of pediatric hip dislocation, removal of any interposed tissue is necessary even it is articular cartilage of the hip joint.

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