

REDÜKTE EDİLEMİYEN TRAVMATİK POSTERİOR KALÇA ÇIKIĞININ AÇIK GÜVENLİ CERRAHİ İLE REDÜKSİYONU İLE İLGİLİ NADİR BİR OLGU SUNUMU

A RARE CASE REPORT ABOUT REDUCTION OF IRREDUCIBLE TRAUMATIC POSTERIOR HIP DISLOCATION WITH OPEN SAFE SURGERY

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ÖZET

Travmatik kalça çıkığı hızlı değerlendirme ve redüksiyon gerektiren ortopedik bir acil durumdur. Uzun dönemde avasküler nekroz ve posttravmatik osteoartrit gibi ciddi morbiditelere neden olabilir. Bu olgu sunumunda trokanterik osteotomi uygulanarak açık redüksiyonla tedavi edilen travmatik kalça çıkığı ele alınmıştır. 50 yaşında sürücü kadın trafik kazası sonrası posterior superior sağ kalça çıkığı görüldü. Acil serviste sedasyon altında kapalı redüksiyon denendi ancak kalça redüksiyonu sağlanamadı. Genel anestezi altında tekrar kapalı redüksiyon denendi ancak redüksiyon başarısız olduğu için açık cerrahi yapılmasına karar verildi. Femur başının arka labrumu yırtıp arka kapsülü delerek düğme iliği fenomenine neden olduğu ve bu nedenle kapalı redüksiyon sağlanamadığı anlaşıldı. Redükte edilemeyen travmatik kalça çıkıkları literatürde nadir görülen olgulardır. Kapalı redüksiyon sağlanamadığı takdirde bu durumlarda düğme iliği fenomeni mutlaka düşünülmeli ve açık cerrahi yöntemler tercih edilmelidir.

ANAHTAR KELİMELEER: Osteonekroz, Düğme İliği Fenomeni, Dislokasyon.

ABSTRACT

Traumatic hip dislocation is an orthopedic emergency that requires rapid evaluation and reduction. It may cause severe morbidities like avascular necrosis and posttraumatic osteoarthritis in the long term. This case report discusses a traumatic hip dislocation treated with open reduction using trochanteric osteotomy. A 50-year-old female driver experienced a posterior superior right hip dislocation following a traffic accident. Under sedation in an emergency room, closed reduction was attempted, but the reduction of the hip was not achieved. Under general anesthesia, closed reduction was reattempted, but then performing an open surgery was decided because of the unsuccessful reduction. It was understood that the femoral head tore the posterior labrum and passed out by penetrating the posterior capsule causing the buttonhole phenomenon; therefore, closed reduction was not accomplished. Irreducible traumatic hip dislocations are rare cases in the literature. The buttonhole phenomenon should be considered unless closed reduction can be achieved, and open surgical methods should be preferred.

KEYWORDS: Osteonecrosis, Buttonhole Phenomenon, Dislocation.

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INTRODUCTION

Traumatic hip dislocation is an orthopedic emergency that requires rapid evaluation and reduction (1). It may cause severe morbidities like avascular necrosis and posttraumatic osteoarthritis in the long term (2). Posterior traumatic hip dislocation is seen in more than 85% of cases (3). Hip dislocations with failed closed reduction are uncommon, Canale and Manugian reported an incidence of 3% (4).

We report a case in which the femoral head passes through the capsule due to trauma and cannot be successful in closed reduction due to being attached to the capsule. In this case report, we inform the short-to-mid-term results of traumatic hip dislocation treated with open reduction by performing trochanteric osteotomy.

CASE REPORT

A 50-year-old driver woman was brought to the emergency room (ER) by ambulance following a traffic accident. X-rays showed pneumothorax, multiple rib fractures, and posterior superior right hip dislocation (**Figure 1**).



Figure 1: Patient's first X-ray after trauma

Computed tomography (CT) showed no fractures in the pelvis and lower extremity, which means isolated hip dislocation (**Figure 2**). The patient was awake, and oriented (Glasgow Coma Scale 15/15), pO₂ was 82%, and a tube thoracostomy was performed due to pneumothorax. Under sedation in ER, closed reduction was attempted with the Bigelow maneuver, but the reduction of the hip was not achieved.

Under general anesthesia, closed reduction was reattempted, but then performing an open surgery was decided because of the un-

successful reduction. Trochanteric osteotomy was served with a lateral (Hardinge) approach by sparing medial and lateral circumflex arteries. It was understood that the femoral head tore the posterior labrum and passed out by penetrating the posterior capsule causing the buttonhole phenomenon; therefore, closed reduction was not accomplished (**Figure 3**).

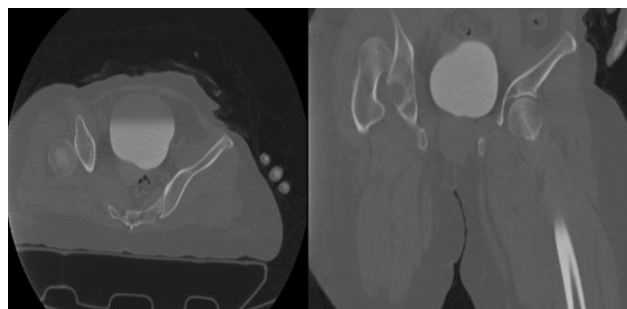


Figure 2: Patient's CT images after trauma

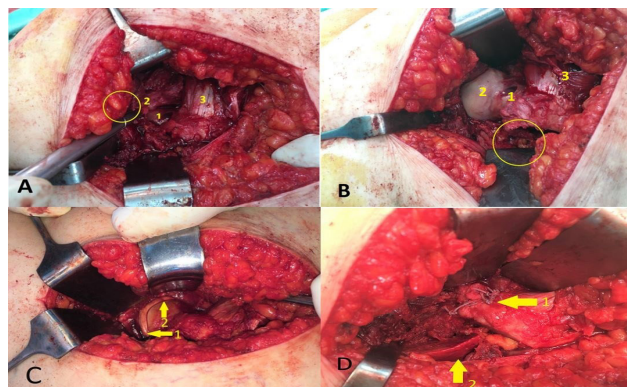


Figure 3: A) The first view of the surgical site from the lateral incision, the right hip deformed in flexion, internal rotation and adduction, the circled area shows the location of the femoral head. 1- Femur neck, 2- Ruptured capsule and buttonhole phenomenon, 3- Vastus lateralis muscle. B) Femoral head removed from the capsule, the circled area shows the location of the ruptured capsule, 1- Femur neck, 2- Femur head, 3- Vastus lateralis muscle. C) Post-reduction view, arrow number 1: shows posterior longitudinal labral tear, arrow number 2: shows anterior radial labral tear. D) Arrow number 1: shows sutured view of the capsule, arrow number 2: trochanteric osteotomy area.

The femoral head was securely inserted into the acetabulum through the ruptured capsule, and the labrum tear was sutured. After the capsule was repaired, the trochanter major was fixed with a cannulated screw. The open surgery was ended after it was tested that the femoral head did not dislocate with hip movements (**Figure 4**).

At the 1st year of follow-up, it was seen that the patient had no pain, could climb stairs and walk with a single cane, and had a full range of motion. No avascular necrosis of the femoral head was detected in the patient's magnetic resonance imaging in the 1st year (**Figure 5**).



Figure 4: Postoperative X-ray of the patient after reduction with visible fixation of the trochanteric osteotomy

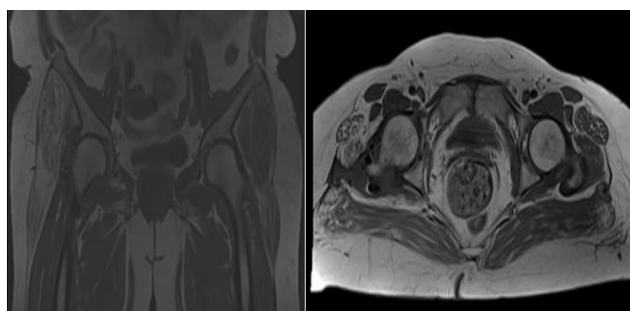


Figure 5: No sign of avascular necrosis on magnetic resonance imaging at 6th month follow up of patient

The patient's exercises for muscle strengthening have still been going on. Oral and written informed consent was obtained from the patient.

DISCUSSION

Hip dislocations are orthopedic emergencies that need to be treated immediately after diagnosis. The hip joint is strongly stable, and a significant force must be dislocated. Traumatic posterior hip dislocations generally occur after high-energy traumas due to a knee hitting the front panel in vehicle traffic accidents. The most common complication is osteonecrosis which occurs in 10-20% of patients, depending on the patient's age, injury severity, and reduction rate (5). Osteonecrosis may appear even after hip subluxation. Moreover, a delayed hip reduction is a significant risk factor for posttraumatic osteoarthritis. Upadhyay et al. reported in their 14-year follow-up of 74 uncomplicated hip dislocations without associated fractures that 16% of patients developed traumatic arthritis, and 8% developed secondary arthritis after avascular necrosis (6). The incidence of traumatic arthritis will dramatically increase when dislocations associated with acetabular

fractures are included. Upadhyay and Moulton stated that the incidence of traumatic arthritis was as high as 88% in this group (7).

Hip dislocations with incomplete reduction may occur due to the effect of various soft tissues around. Canale and Manugian reported a series of hip dislocations in 54 patients where a fully closed reduction of 3 cases could not be accomplished (7). During open surgery, they observed that the femoral head ruptured and fastened the capsule (buttonhole phenomenon) in 2 cases. In 1 of the cases, the piriformis muscle crossed the femoral neck and prevented the reduction. El-Andaloussi et al. also reported in their case report that the femoral head ruptured and stitched the capsule (8). Proctor (9) and Slatis and Latvala (10) reported 1 case each in which the piriformis muscle crossed the femoral neck and prevented reduction. Slatis and Latvala also stated that the acetabulum was obstructed by the internal obturator, superior, and inferior gemellus muscles (10).

Trochanteric osteotomy is a surgical method performing selected cases like femoral head fractures, acetabular fractures, Perthes disease, and slipped capital femoral epiphysis. This method preserves the integrity of most external rotator muscles, providing a full view of the femoral head and acetabulum. Ganz et al. reported that all intact external rotator muscles prevent iatrogenic avascular necrosis of the femoral head (11), demonstrating that the deep branch of the medial femoral circumflex artery works and is protected from stretching by the obturator externus tendon during dislocation (12).

Irreducible traumatic hip dislocations are rare cases in the literature. The buttonhole phenomenon should be considered unless closed reduction can be achieved, and open surgical methods should be preferred. It has been reported that various soft tissues cause unsuccessful reduction. In our case, it was observed that the femoral head was fastened by penetrating the capsule and prevented reduction. A safe surgery can be performed with a trochanteric osteotomy to protect vascular structures and prevent femoral head avascular necrosis during reduction.

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