Treatment Of Pipkin II Fracture Dislocation of Hip Joint

Hip Joint Anatomy

Cause of luxation could be only strong force applied in different positions. Abduction force is the most common. Combined axial and abduction force gives great chances for femoral head or neck fracture, acetabular wall fracture.

Figure 1: Joint Opened: lateral view.

Lokus minoris is inferior side between lig. pubofemorale and lig. ishiofemorale.

Figure 2: Lokus minoris is inferior side between ligament pubofemorale and ligament ishiofemorale.
The position of the hip during axial loading determines the type of injury. Increasing flexion, adduction, and internal rotation (IR) favors pure dislocation, while lesser degrees of each lead to fracture dislocation. (Adapted from Letournel E, Judet R. Fractures of the Acetabulum, 2nd ed. New York: Springer-Verlag; 1993, with permission.)

**Figure 3:** The position of the hip during axial loading determines the type of injury.

**Treatment**

**Closed reduction**
- If it's possible to make reduction under anesthesia
- If after reduction of luxation fracture, femoral head fragment is congruent.
- In case of luxation with acetabular wall fracture, if it's stable after reduction under anesthesia.
- In case of contraindication for operative treatment.

**Indications**

**Absolute indications**
- Unsuccesful reduction
- Incongruency of hip joint and fractured fragment

**Relative indications**
- Sciatic nerve palsy
- Instability after reduction

**Pipkin classification**

**Figure 4:**
- Tip I - Fracture below the fovea; not involving weight-bearing surface of the head
- Tip II - Fracture above the fovea; involving weight-bearing surface of the head
- Tip III - Type I or II fracture with associated femoral neck fracture
- Tip IV - Type I or II fracture with associated acetabulum fracture

**Citation:** Nazif S (2015) Treatment Of Pipkin II Fracture Dislocation of Hip Joint. MOJ Orthop Rheumatol 3(5): 00109. DOI: 10.15406/mojor.2015.03.00109
Case Example
Patient age 34, sustained left hip posterior dislocation with femoral head fracture in car crash accident.
Admitted to hospital after midnight.
The mechanism of injury - axial force and flexion in the hip on impact car.
The clinical left leg in painful extension, minimal movement very painful and shortened.
X-rays show posterior hip joint dislocation and fracture of the femoral head.

Closed reduction under anesthesia unsuccessful. 3D CT reconstruction before proceeding to open procedure shows posterior hip dislocation with femoral head fracture above fovea involving weight bearing portion- Pipkin II fracture dislocation.

Operative Treatment
After 6-7 hours of injury approaches to surgery through lateral approach. After inspection of acetabulum we found attached fragment of femoral head to ligamentum capitis femoris.

After reposition, regarding size and position of fragment and indication for Pipkin II fracture we decided for fine reposition and fixation with 3 canulated screws 3.0 mm.

Intraoperative x-rays confirmation of good position of hip joint and fixed fractured fragment.

Postoperative Treatment
Supracondylar direct extension with traction 10 kg. 5-7 days postoperative an increase in range of motion after the withdrawal of pain.
After 3 weeks extension removal.
Abduction brace and rehabilitation, non weight bering.
Weight bearing 3 monhs postoperative.

Figure 5: Left hip posterior dislocation with femoral head fracture in car crash accident.

Figure 6: 3D CT reconstruction before proceeding to open procedure shows posterior hip dislocation with femoral head.

Figure 7: Supracondylar direct extension with traction 10kg.

Figure 8: Clinical examination shows painless full hip, with full ROM 2 years after accident.

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Conclusion

The goal is to do earlier reposition of the hip joint and get the congruence.

If it cannot be done by closed reduction, and get the desired result, it is necessary to do the surgery.