Due to the severe condition and extensive secondary healing wounds, open reduction and osteosynthesis are carried out only one month after the injury moment. As an encumbrance to the operation remain continuous intubation with a secondary reciprocal pneumonia, extensive wound and initial pressure sores in the left gluteal area, secondary healing wound in the left femoral fracture area. The femoral bone was fixed with an intramedullar locking nail. At the moment of the operation the front lower retroperitoneal or Stoppa approach was not yet introduced, therefore the pelvic bones were fixed with a plate using the illiolinguinal approach. The combination with the posterior approach was impossible due to extensive wounds in the gluteal area, therefore the back column reposition was incomplete. After the operation the hip joint post-traumatic osteoarthritis rapidly progressed on the patient. And six months after osteosynthesis, it was found that the patient had ~40° flexion contracture, and the left leg shortening by ~3.0 cm. When carrying out the radiological examination (Fig.1), it was noted that there was a coalesced dislocated back column fracture, and hip joint subluxation with a partial penetration of femoral head in the small pelvis.

**Summary**

Pelvic bone fractures are related to a high energy injury. Therefore with an increase of the traffic intensity simultaneously grows the number of polytrauma patients, who have pelvic bone fractures of various severity levels. In the case of acetabular fractures, as the most frequent complication is the hip joint post-traumatic degeneratively destructive osteoarthritis, in whose treatment very often the hip joint arthroplasty is necessary. The frequency of this complication is affected by the precision of repositioning and the strength of fixation of an acetabular fracture.

**Key words:** polytrauma, acetabular fracture, illiolinguinal and anterior retroperitoneal approach, hip joint arthroplasty.

**AIM OF THE DEMONSTRATION**

The aim of this article is to demonstrate a case of successful repair of hip joint post-traumatic osteoarthritis in a case of a polytrauma patient (ISS-34) combined with an ipsilateral femoral fracture. And also to demonstrate that in this case the retroperitoneal approach would have given a possibly better postoperative result in comparison with the ilioinguinal approach and avoidance of hip joint arthroplasty.

**CASE REPORT**

A 28-year old female patient was hospitalised after a road traffic accident, in which she suffered as a car passenger. After examination a diagnosis was made: polytrauma. Brain contusion. Bilateral pulmonary contusion. Splenic rupture. Liver rupture. Comminuted and open distal metaphyseal fractures of the left forearm and left upper arm. Open diaphyseal left femoral fracture with a bone defect. Tranctabular fracture and dislocation of the left side pelvic bone both columns and hip joint contortion. Extensive torn wound with a soft tissue defect in the gluteal area. Due to splenic and liver rupture, an undeferrable laparatomy, splenic removal and liver suture are performed, as well as pleural cavity drainage, hip joint reposition, wound treatment and the fixation of the fractured limbs and the pelvic bone with external fixation apparatus.

Due to the severe condition and extensive secondary healing wounds, open reduction and osteosynthesis are carried out only one month after the injury moment. As an encumbrance to the operation remain continuous intubation with a secondary reciprocal pneumonia, extensive wound and initial pressure sores in the left gluteal area, secondary healing wound in the left femoral fracture area. The femoral bone was fixed with an intramedullar locking nail. At the moment of the operation the front lower retroperitoneal or Stoppa approach was not yet introduced, therefore the pelvic bones were fixed with a plate using the illiolinguinal approach. The combination with the posterior approach was impossible due to extensive wounds in the gluteal area, therefore the back column reposition was incomplete. After the operation the hip joint post-traumatic osteoarthritis rapidly progressed on the patient. And six months after osteosynthesis, it was found that the patient had ~40° flexion contracture, and the left leg shortening by ~3.0 cm. When carrying out the radiological examination (Fig.1), it was noted that there was a coalesced dislocated back column fracture, and hip joint subluxation with a partial penetration of femoral head in the small pelvis.
Fig. 1. Plain radiograph of the pelvic bone in six months.

A femoral fracture in six months with weak consolidation that is also affected by the lost bone fragment at the injury moment. The patient moves with a wheelchair, walking with crutches is impossible due to the hip joint flexion contracture. Notable pain syndrome in the left hip joint projection place, outer and inner rotation 0°. To stimulate the coalescence of femoral fracture, the dynamisation of the fracture is carried out by removing the locking screw.

Fig. 2. Plain radiographs of a femoral bone in six and twelve months.

When carrying out next radiological control after 12 months from femoral and pelvic osteosynthesis, a seeming consolidation of femoral fracture is noted (Fig. 2.). In recurrent stage operation femoral intramedullar nail was evacuated to prepare the patient for the left hip joint arthroplasty. But after one month in a result of a repeated injury the patient underwent a refracture of the left femur (Fig. 3).

Fig. 3. Plain radiograph shows femoral refracture in one month after removing the intramedullary nail.

In a format of council a decision was made to perform a hip joint plastic with autograft and total arthroplasty with uncemented endoprosthesis and to simultaneously carry out femoral fracture fixation with a revision femoral component. The operation approach – posterior lateral.

After the performed arthroplasty equal leg length was achieved and the motion extent in the left hip joint was almost completely renewed. And in one year after hip replacement we got a good radiological and clinical outcome (Fig. 4).
DISCUSSION

There are various surgical approaches used for the treatment of the pelvic bone intra-articular fracture. The most well-known and widely used in practice is the ilioinguinal approach. Using this approach the front column of the pelvic bone can be well visualised, but in order to visualise and fix the back column an additional approach from the back side is necessary. On separate clinical cases posterior approach is not possible because of various additional conditions. In the described case those were large wounds in the gluteal areas. In such cases an alternative is modified Stoppa approach (1.2), because with this approach it is possible to visualise well not only the anterior column, but also to reduce and fix posterior column (3.4). In such a way avoiding using additional posterior approaches.

Post-traumatic arthritis may develop after an injury, if the joint in which the bone and cartilage do not heal properly, is no longer smooth. As a result this leads to excessive wear on the joint surface and the development of osteoarthritis. A serious joint fracture or torn ligament can also lead to post-traumatic arthritis. The joint can be made unstable by any injury to the ligament, supporting muscles or joint. Eventually arthritis may develop from the increased stress on the joint cartilage.

Posttraumatic hip joint osteoarthritis in combination with femoral bone fractures is rarely noted. Femoral fracture or repeated fracture is fostered by limitations of the hip joint motion even by a small trauma or clumsy movements. In such cases the standard tactics is to firstly to coalesce the femoral fracture and only at the second stage the hip joint arthroplasty is performed. Simultaneous hip joint arthroplasty and femoral osteosynthesis can be chosen as a method, if there is pronounced hip joint contracture due to which it is not possible to walk with supporting means.

REFERENCES

7. Rommens PM. Ilioinguinal approach for acetabular fractures//Orthopedics and Traumatology. 2002; 179-189

Address:
Andris Vikmanis
Department of Orthopaedics and Traumatology
Riga Eastern Clinical University Hospital
Clinics"Gailezers"
Hipokrata Street 2, Riga, Latvia, LV-1038
Email: vikmanis2@inbox.lv

Conflict of interest: None