

Periprosthetic Comminuted High Energy Fracture of The Proximal Femur Three Months After Primary Total Hip Arthroplasty in Young Male. A Case Report

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Abstract:

A 40 years old male patient had surgery on his right hip in 2010. when primary total cementless hip prosthesis was implanted because of posttraumatic arthrosis. Three months later he had a car accident and he got dislocation of the hip prosthesis with multiple femoral fractures of the proximal part of the femur around and below the femoral stem. The stem of the prosthesis was loose while acetabulum was stable. The patient had also fracture of the left acetabulum and ischial bone, without big dislocations. He underwent a new surgery on the right hip. Revisional long uncemented femoral stem was implanted, with cerclages and screws on multiple bone fragments. We met patient 8 years later with a very good function of his right hip. He has a problem with his left hip because of pseudarthrosis of the upper and lower part of the ischial bone. We think that this is an interesting case of periprosthetic femoral fracture, because of so many bone fragments around and below the femoral stem of the hip prosthesis, resulting in a very good function.

Key words: hip arthroplasty; periprosthetic femoral fractures; bone fragments

Introduction

After many years of successful total hip arthroplasties (THA), today we have a substantial increase in the incidence of periprosthetic femoral fractures after hip replacement. Postoperative periprosthetic fractures of the femur are mostly located around femoral stem, typically in elderly patients with osteoporosis [1]. These fractures usually occur within days to several years after the procedure. The mean time from primary THA to the fracture is 7.4-8.1 years, and 3.9 years from revisional THA to the fracture. The prevalence of postoperative periprosthetic femoral fractures ranges from 0.1-4% [2]. The treatment of these fractures are mostly surgical. The surgical procedure depends of the site of fracture, number of bone fragments, age of patient, quality of bone, and the fact whether femoral stem is loose or well-fixed?. Today, the most used guide how to treat periprosthetic fractures is according to Vancouver classification [3,4]. Our patient had multiple fractures around and below the femoral stem with complete loose stem; group B3. This type of fracture needs to

be treated with revisional long stem prosthesis and reposition and osteosynthesis of all *bone fragments* [4,5].

Case Presentation

Male patient B. B., born 1970. had a traumatic dislocation of the right hip in car accident in 1990. After transsosal traction closed reduction of the right hip was done, but paresis of peroneal nerve existed till today. In March 2010. patient underwent surgery procedure for uncemented THA of the right hip, because of secondary posttraumatic hip arthrosis. Three months after hip arthroplasty the patient had a new car accident and he had traumatic dislocation of the hip prosthesis with periprosthetic comminuted fractures around and below the femoral stem. The stem was completely loose, while the acetabulum was well-fixed (Figure 1).

The patient also had fracture of the left acetabulum and ischial bone (body of ischium and ischial ramus), but without great dislocations of fragments (Figure 2).



Figure: 1



Figure: 2

Figure 1: X ray of the right hip and proximal femur shows comminuted periprosthetic femoral fractures 3 months after total hip replacement. **Figure 2:** X ray of the left hip with fractures of acetabulum and ischial bone.

The patient underwent surgery on his right hip and thighbone. Loosened femoral stem of prosthesis was removed. We found many femoral bone pieces, some of them were free of soft tissues and some were very small. Such pieces of bone have to be thrown out. First we implanted revisional uncemented long femoral stem in distal femoral fragment, and all other fragments were placed around femoral stem, keeping them together with seven cerclages and two screws. Some parts of femoral stem were not covered with bone, because some fragments were so small that we could not fix them (Figure 3,4). Femoral stem was firm in distal fragment and after reposition, prosthesis was stable, but the leg became shorter. In postoperative time everything was going fine, only weight bearing was delayed. Later on we did not see the patient for seven years, because he lives and works outside of Croatia. When we met him again he gave us X rays of his both hips (Figure. 5,6). The patient uses orthopaedic shoes with

2 cm elevation on his right leg. He has paresis of peroneal nerve from first right hip dislocation, 20 years ago. The patient walks good. X ray of the right hip and femur (fig. 5) shows unchanged and good position of hip prosthesis and healed femoral fragments. One part of femoral stem is still uncovered with bone, but patient has not any problem with his right hip. Range of motion and function of the right hip and knee are good (Figure 7,8). The patient has some problems (pain) with his left hip, more in last few months while walking on longer distances and while sitting. X ray of the left hip (figure. 6) shows pseudoarthrosis on the proximal part of ischial bone below acetabulum and ischial ramus. The surgery for the ischial bone is not excluded in the future. Finally, the result after treatment of periprosthetic fractures in this patient is better than we expected. We think that this is an interesting case, with too much bone fragments, which resulted with good function.



Figure 3



Figure 4



Figure 5

Figure 3: X ray of the right hip and femur bone 4 months after rearthroplasty and osteosynthesis. **Figure 4:** X ray; long cementless femoral stem. **Figure 5:** X ray 7 years after rearthroplasty.



Figure 6



Figure 7



Figure 8

Figure 6: X ray of the pelvis 7 years after rearthroplasty of right hip. Pseud. **Figure 7:** Good function of the right hip and knee joint. oarthrosis of the left ischial bone (ischial body and ischial ramus is seen). **Figure 8:** Good function of the right hip and knee joint.

Conflict of Interest

The author declares no competing interests.

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