

Case Report

Anterior dislocation of the hip sustained for 32 years and a venous reflux disorder treated with a total hip arthroplasty: a case report

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Abstract: Introduction: Here is reported a patient with an anterior dislocation of the hip for 32 years that resulted in osteonecrosis of the femoral head, old popliteal vein thrombosis, and skin pigmentation. The Harris score was only 35. Total hip arthroplasty was performed. A large number of osteophytes and fibrous scar tissue around the false and true acetabula were noted during surgery. Considering functional rehabilitation and the operative field together, the partial gluteus medius was protected and the short external rotator muscle group was cut off to expose and clean the scar tissue. Then the hip prosthesis was successfully installed. The patient experienced a complete resolution of symptoms at the 6-month follow-up evaluation. The Harris score increased to 72. Of even greater interest, the old popliteal vein thrombosis disappeared. Conclusion: Total hip arthroplasty is applicable to treat old and serious dislocations of the hip, and is conducive to restoring the arterial and venous blood supply to the lower limbs. These data suggest that patients with a fresh dislocation of the hip should undergo treatment immediately.

Keywords: Old dislocation of the hip, total hip arthroplasty, old popliteal vein thrombosis, Hardinge approach

Introduction

The incidence of traumatic dislocation of the hip is low, accounting for only 7.3% of all joint dislocations [1]. Posterior dislocations are more common than anterior dislocations of the hip, and old anterior dislocations of the hip are rarer. Indeed, there have been no reports of hip dislocations with a duration of > 30 years. Here is reported a patient with a 32-year history of anterior dislocation of the hip. Moreover, femoral necrosis and vascular and skin complications occurred because of long-term hip dislocation. Total hip arthroplasty was performed. It is noteworthy that the patient had a complete resolution of symptoms by the 6-month follow-up evaluation. The range of motion of the involved leg was significantly improved, and the vascular symptom was also relieved.

Case presentation

A 55-year-old man sought evaluation in our hospital for left hip pain that persisted since an

automobile accident in 1986. The left leg was shorter and deformed. The left hip had 10°-0°-0° range of motion in flexion and extension, 10°-0°-0° range of abduction and adduction, and 10°-0°-10° range of internal and external rotation. The four-character test and Tomas sign were positive. The Harris score was 35. The length from the left and right anterior superior iliac spine to the tip of the tibial malleolus was 88 and 94 cm, respectively. The sensory and strength of the muscles of both lower limbs were normal. There was skin pigmentation near the left ankle joint (**Figure 1**). The left dorsal pedal artery pulse was weaker than the right. An old thrombosis in the left popliteal vein with color Doppler ultrasound was noted. X-ray, computed tomography (CT), and three-dimension reformatted CT images showed anterior dislocation of the left hip and osteonecrosis of the femoral head (**Figures 2-4**). MRA of the lower left limb revealed anterior tibial arterial occlusion. The C-reactive protein (CRP) level was 22 mg/L and the erythrocyte sedimentation rate (ESR) was 15 mm/h. Based on the history,



Figure 1. Pigmentation of the skin in the medial aspect of the left lower extremity.



Figure 2. X-ray image.

physical examination, imaging studies, and laboratory testing, the patient was diagnosed as follows: 1. old anterior dislocation of the left hip joint; 2. old thrombosis of the left popliteal vein; and 3. skin pigmentation.

Replacement of the left hip joint was recommended. After completing the pre-operative examination, the patient was placed on the operating table in the lateral decubitus position, and underwent a total hip arthroplasty using the Hardinge approach. The skin, superficial fascia, and deep fascia around the greater trochanter were excised. The distal part was around the anterior femoral cortex and extended approximately 8 cm. The proximal part of the incision was extended toward the posterior superior iliac spine. After incision of the tensor fascia lata, the gluteus medius and vastus lateralis muscle were also excised. The lateral femoral muscle was released and attached to the femur around the periosteum. Then, the gluteus medius and lateral femoral muscles were

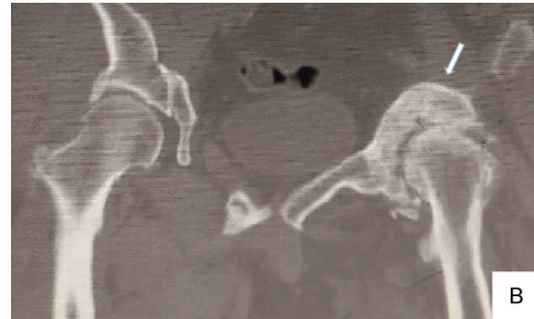
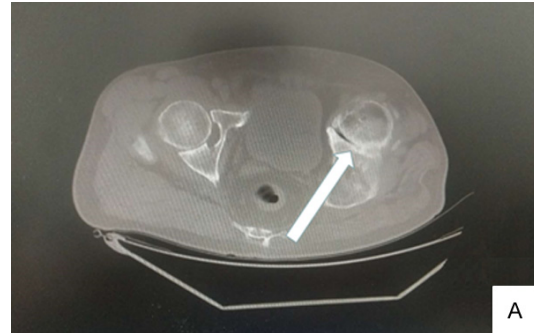


Figure 3. A, B. Computed tomography (CT) image.

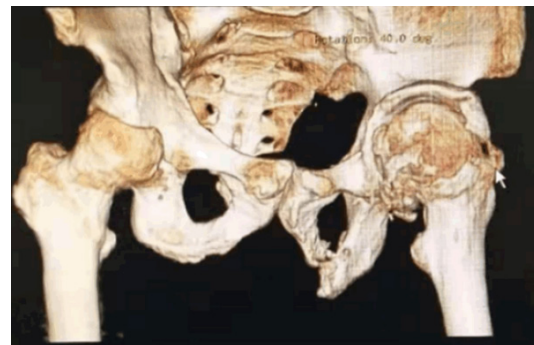


Figure 4. Three-dimension reformatted CT image. All images indicated anterior dislocation of the hip joint and osteonecrosis of the femoral head (white arrows).

pulled forward *en masse*. Then the dislocated joint was adducted, flexed, and externally rotated and the false acetabulum formed with a large number of osteophytes and fibrous tissue hyperplasia around the dislocated femoral head (**Figure 5A, 5B**). The true acetabulum was also filled with fibrous tissue. The residual of the gluteus medius muscle was protected, the posterior short external rotation muscle group was excised, and the surgical field was enlarged. After cleaning all of the scar tissue, the acetabulum and femoral head were replaced. Fluoroscopy confirmed that the prosthesis was *in situ* (**Figure 6**). The gluteus medius and the

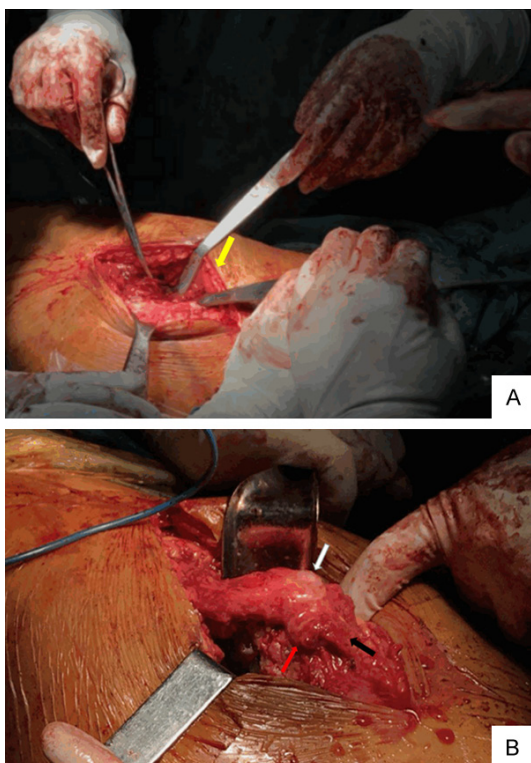


Figure 5. Intra-operative photographs. A: After opening the tensor fascia lata, part of the gluteus medius and lateral femoral muscles was excised. The lateral femoral muscle attached to the femur around the periosteum was released, then the gluteus medius and lateral femoral muscles were pulled forward together (yellow arrows). B: During the surgery, false acetabulum formed, a large number of osteophytes (white arrows), and fibrous tissue (red arrows) hyperplasia around the dislocated femoral head.

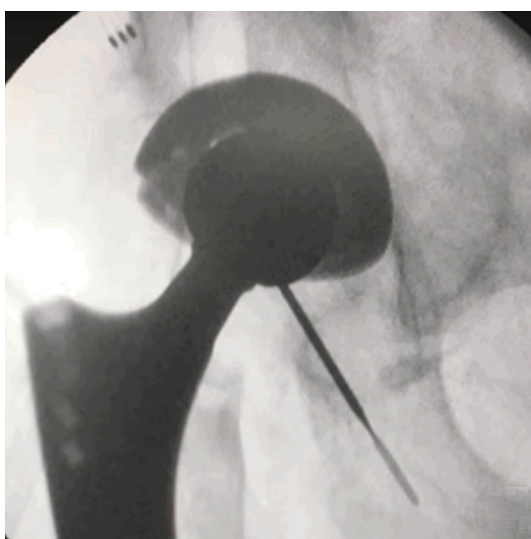


Figure 6. Intra-operative fluoroscopy indicated that the prosthesis was *in situ*.

short external rotator muscles were sutured and a drainage tube was placed. Finally, the incision was closed. The drainage tube was removed 24 h after surgery. Antibiotics and anti-coagulant drugs were administered as usual.

The next day, the patient got out of bed and exercised the muscles of the left lower limb. One week after post-operatively, the white blood cell count was $7.10 \times 10^9/L$, the CRP was 16.70 mg/L, and the ESR was 18 mm/h. The patient claimed that the pain and fullness had improved compared to pre-operatively. The range of motion of the hip also improved, with $90^\circ-0^\circ-10^\circ$ range of flexion and extension, $10^\circ-0^\circ-5^\circ$ range of adduction and abduction, and $10^\circ-0^\circ-10^\circ$ range of internal and external rotation. The left dorsal pedal artery pulse was stronger than pre-operatively. Because his health status had improved, he was discharged from the hospital with medications.

Six months after the operation, the patient reported that the pain and fullness had resolved. He was no longer limping. Motion of the left hip was restored to $100^\circ-0^\circ-10^\circ$ range of flexion and extension, $10^\circ-0^\circ-10^\circ$ range of abduction and adduction, and $10^\circ-0^\circ-10^\circ$ range of internal and external rotation (**Figure 7A-E**). The four-character test and Tomas sign were negative. The Harris score increased to 72. The lengths from the anterior superior iliac spine to the tip of the tibial malleolus were 94 cm bilaterally. The CRP level was 5.24 mg/L and the ESR was 3 mm/h, all of which had returned to normal. Radiography showed that the implants were *in situ* and in good alignment (**Figure 8**). Color Doppler ultrasound did not detect the old thrombosis in the left ventral vein. The left dorsal pedal artery pulse was stronger than pre-operatively.

Discussion

Because the patient had an anterior hip dislocation for a long time, the blood supply around the left femoral head had deteriorated and the local arteries and veins were compressed, resulting in osteonecrosis of the femoral head [2, 3], left anterior tibial arterial occlusion, and an old thrombosis in the left popliteal vein [4]. Most of the venous blood flow arose from the lower medial limb directly into the deep vein by



Figure 7. Six-month follow-up evaluation post-operatively. The motion of the left hip was restored to 100°-0°-10° range of flexion and extension (A), 10°-0°-10° range of abduction and adduction (B, C), and 10°-0°-10° range of internal and external rotation (D, E).

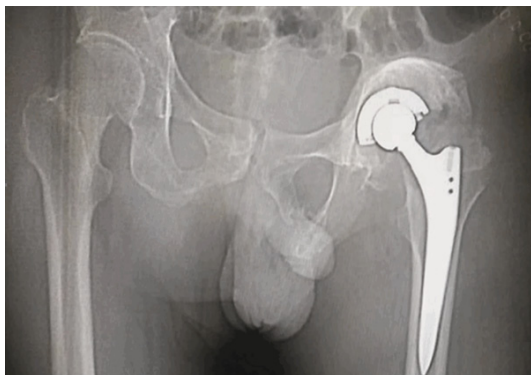


Figure 8. Radiograph 6 months post-operatively. Anteroposterior view shows that the implant was *in situ*.

the communicating vein, with minimal reflux back into the saphenous vein. The blood of the

deep vein has the largest gravity in this area, and the communicating vein is under the muscle pump. When the muscle contracts, the reverse pressure increases to the highest. High reverse pressure will destroy the exchange of nutrients and the venous pigmentation will occur [5].

Hip arthroplasty is a common surgical method in the treatment of femoral head necrosis, hip joint arthritis, and femoral neck fractures in the elderly. A number of articles have reported that total hip arthroplasty is a good choice for severe dislocation of the hip or osteonecrosis of the femoral head [6-9]. Given that the femoral head was necrotic and the thrombosis of the popliteal vein was old, we recommended replacement. During the surgery, it was found that the true acetabulum was full of fibrous tissue. The gluteus medius is important for rehabilitating function of abduction and maintaining a balanced gait [10-12]. Considering the rehabilitating function of the joint and exposure of the operative field together,

it was decided to partially protect the gluteus medius. Thus, the external rotator muscle group was excised instead of the residual gluteus medius to expose and clean up the scar tissue in the true acetabulum. Six months after surgery, the hip pain had disappeared, the range of motion of the hip had improved, and arteriovenous blood flow in the left lower limb also recovered. Doppler color ultrasound suggested that the old thrombosis of the left popliteal vein had disappeared. Therefore, the efficacy was satisfactory.

This successful case suggests to us that total hip arthroplasty is a suitable choice for treating old and serious hip dislocation, is conducive to restoring the arterial and venous blood supply of the lower limbs, and is therefore worth clini-

cal promotion and application. This report also raises our awareness that an old anterior dislocation of the hip may cause serious and potential complications. Patients with a fresh dislocation of the hip should undergo treatment immediately.

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Disclosure of conflict of interest

None.

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