

The Challenge of Managing Two Stage Total Hip Arthroplasty for Neglected Dislocation Hip in Young Patient: A Case Report

I Gusti Ngurah Wira Aditya¹, Cokorda Gde Oka Dharmayuda²

¹Resident of Orthopaedic and Traumatology Department, Faculty of Medicine, Udayana University/Prof. Dr. I.G.N.G. Ngoerah General Hospital, Denpasar, Bali, Indonesia

²Consultant of Orthopaedic and Traumatology Department, Faculty of Medicine, Udayana University/Prof. Dr. I.G.N.G. Ngoerah General Hospital, Denpasar, Bali, Indonesia

Corresponding author: I Gusti Ngurah Wira Aditya

DOI: <https://doi.org/10.52403/ijrr.20250902>

ABSTRACT

Background: The total hip arthroplasty (THA) procedure has been identified as a reliable treatment for high dislocations of the hip. A patient's optimal surgical treatment may vary depending on their unique circumstances. Femoral skeletal traction assists in the reduction and transient stabilization of pelvic, acetabular, hip, and femoral fractures when splinting is ineffective. This case report aimed to report two stage total hip Arthroplasty in neglected dislocation hip in a young male patient.

Presentation of Case: A 24-year-old male presented with painful and swollen left hip. Patient history with septic arthritis and underwent femoral head excision procedure one year before admitted to hospital. Physical examination reveals surgery marks on the left hip, tenderness (-), Redness (-), LLD 5 cm, limited range of movement of the hip with external rotation position. X-Ray at left hip showed osteotomy at level of neck femur and acetabular roof destruction. Patient underwent two stage total hip Arthroplasty.

Discussion: Managing a two-stage total hip arthroplasty for neglected dislocation hip in young patient is a complex and multifaceted challenge. Success hinges on thorough

infection control, careful surgical planning, and patient-specific considerations to restore function and improve quality of life

Conclusion: Two-stage THA for neglected dislocation hip in young patients can successfully improve quality of life.

Keywords: Neglected Dislocation Hip, Distal Femoral Traction, Two-Stage Total Hip Arthroplasty

INTRODUCTION

Most neglected hip dislocations result from high velocity injuries and inadequate treatment. As a result, both acetabular and femoral parts seem to be disproportionately challenging to treat. It occurs when the femoral head articulates with the iliac bone, creating a pseudoacetabulum. When this occurs, the abductor muscles change their force vector direction from vertical to horizontal, resulting in muscle shortening. [1]

Patients with high hip dislocations may confront several challenges, and the best surgical treatment may vary from person to person. The laxity of the hip joint leads to early weakening and fatigue of the abductors. Depending on the new center of rotation (COR) of the hip after cup placement, hip biomechanics, leg length,

and femur reconstruction will be affected. If the cup is placed in pseudoacetabulum, it may cause high dislocation rates, persistent limps, and component loosening. In order to minimize hip contact stresses, the new COR should be restored to a level equal to the true acetabulum or at least within 1 centimeters of the anatomical hip center. [2] Several researchers have used different methods to lengthen the legs without neurologic complications using THA following limb lengthening.[3]

This case report aimed to report two-stage total hip arthroplasty in neglected dislocation of hip in young patient.

CASE PRESENTATION

W A 23-year-old male presented with painful and swollen left hip. Patient cannot move left ankle and left great toe. Radiculating pain and tingling to left foot denied. Patient is non-weight bearing at affected side for long period of time.

Previous medical history patient is DM type I. Patient medication history is using insulin and stop using insulin 3 month after first surgery. First surgery at (10/05/23) patient underwent a excision femoral head procedure and bone spacer. Second surgery at (20/06/23) patient underwent a operating to remove bone spacer. Third surgery at (20/07/23) patient underwent debridement surgery. After the infection has been stated to be improving, patient is planned to undergo total hip arthroplasty surgery.

Physical examination reveals surgery marks on the left hip, tenderness (-), Redness (-), LLD 5 cm, limited range of movement of the hip with external rotation position. From laboratory finding wbc in normal range and erythrocyte sedimentation rate in normal range. X-Ray at left hip showed osteotomy at level of neck femur and acetabular roof destruction. Patient underwent two stage total hip arthroplasty.



Figure 1. Physical examination revealed LLD 5 cm and lower limb in external rotation position.



Figure 2. Xray show osteotomy at level of neck femur and acetabular roof destruction

SURGICAL PROCEDURE

An extensive soft tissue release was performed first. An incision begins approximately 5 cm distal to the greater trochanter (GT) on the lateral side of the femoral diaphysis using the Posterior Approach. For another 5–7 cm, it curves toward the posterior superior iliac spine, then continues along the posterior GT border. Incisions are made from the skin and subcutaneous fat until the fascia lata and iliotibial band are reached. An incision of the fascia lata and ITB is made longitudinally and proximally to split along the gluteus maximus fibers. The split gluteus maximus can be held retracted by a Charnley retractor. An internal rotation of the hip and identification of the piriformis and other short external rotators (SERs) are performed during deep dissection. The SER are detached from GT near their insertion point, and they are reflected posteriorly with

stay sutures so the nearby sciatic nerve is protected and the hip capsule is exposed. Following a T-shaped capsulotomy, the femoral head and neck are exposed. Internal rotation is performed along with flexion, adduction, and gentle traction, followed by hip dislocation if necessary. When the gluteus maximus insert is partially or fully released, the inferior capsule is incised, and the rectus femoris is released, these procedures can also assist with dislocation and retraction of the hip, particularly at the time of revision. When surgery is carried out, there is a possibility of poor results if forced to install a femoral stem. So the decision was made to install the acetabular cup first and installation of Steinmann pin with heavy traction on the distal femur with the intention to level the trochanter so that it fits the acetabulum to make it easier to install the femoral stem.



Figure 3. Acetabular preparation (arrow) was performed for later cup fixation.

After heavy skeletal traction for about 2 weeks, THA was performed in the lateral position with posterior approach via the previous incision. The acetabulum was exposed, and final reaming was performed. Patient have fracture of the greater trochanter during insertion of the femoral component. Fractures were treated with cerclage wires



Figure 4. Patient underwent second stage THA



Figure 5. X-ray femoral that revealed post insertion of Steinmann pin

OUTCOME AND FOLLOW-UP

The surgery was uneventful. Postoperatively, deep vein thrombosis prophylaxis was given as a routine in all the patients. All patients were encouraged non-weight-bearing mobilization from postoperative day 2 onwards and encouraged to perform hip flexion and extension movements. Partial weight-bearing with the help of a walking frame was allowed after 1 week. patient is educated to avoid flexion, adduction, and internal rotation position. Follow up 3 months after the surgery, the patient felt no more pain in his left hip and was using one crutch to daily activity. Clinical examination showed no complication.

DISCUSSION

There is continuing controversy over the best treatment option for neglected dislocated hips. A number of studies have investigated different operative methods for treating neglected fracture-dislocations, including sub-trochanteric osteotomies, the Girdlestone procedure, hip arthrodesis, hemiarthroplasty and total hip replacement. There are merits to each of these procedures, and they all produce different outcomes. Kumar et al. recommend total hip arthroplasty for hips with posterior dislocations of type IV (fracture of acetabular kidneys and floors) or type V

(fracture of the femoral head with or without other fractures) with dislocations for more than 3 months.[4] Limb lengthening was maximized without neurological complications in 2-stage THA with severe LLD in the present study.[5]

The management of neglected hip dislocations in developing countries has traditionally been based on heavy skeletal traction and open reduction with gross shortening of the affected limb. Lee et.al state that subtrochanteric osteotomy is a common method of THA in patients with severe LLD. Subtrochanteric osteotomies may reduce the risk of neurological complications. Subtrochanteric osteotomies, however, have a number of limitations. First, shortening might result in suboptimal restoration of LLD, and, in addition, functional disabilities could remain with LLD. A reduction in LLD might result in suboptimal restoration and, significantly, functional disabilities may persist as a result of shortening. A second concern with additional osteotomies is nonunion at the osteotomy site. Finally, the options for femoral stems after subtrochanteric osteotomy are limited.[5] Staged THA has also been introduced by Binazzi et al. after extensive soft tissue release by using an external fixator to lengthen after extensive soft tissue release. By using an external fixator, neurological complications can be avoided and the lengthening can be maximized. Although previous studies with THA using an external fixator did not show any infection, it is possible that the use of an external fixator around the arthroplasty site may increase infection risks. Compared with external fixators around the hip joint, we used a Steinmann pin to provide skeletal traction at the distal femur, so infection risks around the hip joint were minimized using a Steinmann pin.[6]

Despite a low risk of disuse osteoporosis, this patient underwent heavy traction for about two weeks before undergoing second stage surgery. All the surgery was performed on the affected side, so this patient is at risk of disuse osteoporosis.

According to post-op x-ray, there is no crack in the Steinmann pin insertion, just a pin entry at 2 cm above the patella. Disuse osteoporosis is a condition characterized by mechanical or pathological unloading of bones, including spinal cord injury, neuromuscular diseases, bed rest, and spaceflight. The loss of bone is attributed to a lack of movement and insertions of the muscles, but lower mechanical stimulation, including microgravity, is thought to have an additional negative effect on skeletal integrity when disused or unloaded⁷. There is no journal that state heavy distal femoral skeletal traction installation in patient that non-weight bearing at affected side for long period time.

CONCLUSION

Treatment of neglected posterior hip dislocation is possible for duration more than one year old in a two-stage total hip arthroplasty procedure. The use of heavy skeletal traction in the 1st stage has made reduction of the viable femoral head or prosthesis in the second stage possible. Success is guaranteed in patients that have good bone stock, hence patient selection is important.

Declaration by Authors

Ethical Approval: None

Acknowledgement: None

Source of Funding: None

Conflict of Interest: No conflicts of interest declared.

REFERENCES

1. Rasi AM, Kazemian G, Khak M, Zarei R. Shortening subtrochanteric osteotomy and cup placement at true acetabulum in total hip arthroplasty of Crowe III-IV developmental dysplasia: results of midterm follow-up. *Eur J Orthop Surg Traumatol.* 2018;28(5):923-30.

2. Talwar, J., Agarwal, S., Agarwal, S., Krishna, L. G., & Rustagi, A. (2022). Step-Cut Subtrochanteric Osteotomy Combined with Total Hip Arthroplasty for Neglected Traumatic Hip Dislocations. *Clinics in orthopedic surgery*, 14(2), 205–212. <https://doi.org/10.4055/cios21104>
3. Lee, S. J., & Yoon, K. S. (2021). Two-stage total hip arthroplasty following skeletal traction after extensive soft tissue release for severe limb-length discrepancy. *Hip international: the journal of clinical and experimental research on hip pathology and therapy*, 31(2), 223–230. <https://doi.org/10.1177/1120700019865742>
4. Kumar, S., Dahuja, A., Narula, M. S., Garg, S., & Kaur, R. (2017). Neglected hip dislocation: an unusual presentation, its management and review of the literature. *Strategies in trauma and limb reconstruction*, 12(3), 189–192. <https://doi.org/10.1007/s11751-017-0285-7>
5. Lee, S. J., & Yoon, K. S. (2019). Two-stage total hip arthroplasty following skeletal traction after extensive soft tissue release for severe limb-length discrepancy. *HIP International*, 112070001986574. doi:10.1177/1120700019865742
6. Binazzi R. Two-stage progressive femoral lowering followed by cementless total hip arthroplasty for treating crowe IV-hartofilakidis type 3 developmental dysplasia of the hip. *J Arthroplasty* 2015; 30: 790–796.
7. Rolvien, T., & Amling, M. (2022). Disuse Osteoporosis: Clinical and Mechanistic Insights. *Calcified tissue international*, 110(5), 592–604. <https://doi.org/10.1007/s00223-021-00836-1>

How to cite this article: I Gusti Ngurah Wira Aditya, Cokorda Gde Oka Dharmayuda. The Challenge of managing two stage total hip arthroplasty for neglected dislocation hip in young patient: a case report. *International Journal of Research and Review.* 2025; 12(9): 7-11. DOI: [10.52403/ijrr.20250902](https://doi.org/10.52403/ijrr.20250902)
