

CASE REPORT

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# Revision Total Hip Arthroplasty + Stabilisation with Stainless Steel Wires for Periprosthetic Fractures

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## Abstract

Total hip arthroplasty (THA) offers a considerable problem in managing periprosthetic fractures surrounding the femoral stem, and the best course of treatment is still debatable. The patient's profile, the ideal fixation mechanism, the decision-making and surgical planning, the reduction strategies, and the construct configuration all provide complex situations for periprosthetic fractures surrounding the hip after THAs. Studies show that advantages of cementless total hip arthroplasty include that they offer a better long-term bond between the prostheses and bones. The preferred treatment for periprosthetic fractures with evident or subtle clinical symptoms of femoral implant failure or challenging fracture patterns is revision THA with stem exchange.

**Keywords:** Periprosthetic; Cementless; Arthroplasty; Fracture

## 1 Introduction

An increasing and substantial technical difficulty for Orthopaedic surgeons is treating periprosthetic fractures surrounding the femoral stem following total hip arthroscopy (THA). This requires expertise in both THA and trauma management.<sup>1</sup> The preferred course of treatment for periprosthetic fractures with evident or subtle clinical symptoms of femoral implant failure or challenging fracture patterns is revision total hip arthroplasty (THA) with stem

exchange.<sup>2</sup>

Since these injuries often affect older people with more severe co-morbidities and osteopenia, revision may also be considered for fragile, elderly patients in order to minimize mortality and prevent additional reoperation.<sup>3</sup> The patient's profile, the ideal fixation mechanism, the decision-making and surgical planning, the reduction strategies, and the construct configuration all provide complex situations for periprosthetic fractures surrounding the hip after THAs.<sup>4</sup> Such

injuries typically demand expensive medical care and can be quite challenging from a socioeconomic standpoint.

Knowing the principles of surgical management in such cases and being able to determine if replacement or fixation is required are essential.

## 2 Case Description

74/M presented with alleged history of bull gore injury following which he sustained injury to his left hip. Patient was brought to R. L. Jalappa Hospital with chief complaints of pain over left hip. Pain was sudden in onset, gradually progressive in intensity and patient was unable to bear weight on the affected side.

**Study Place:** R. L. Jalappa Hospital, Tamaka, Kolar, Karnataka.

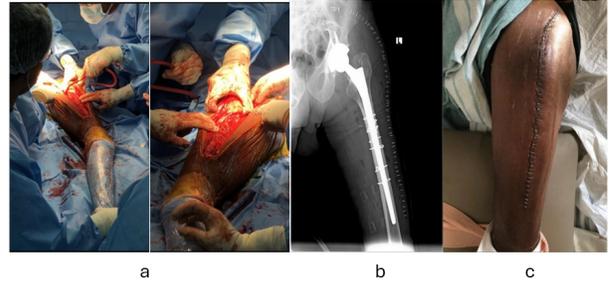


**Fig 1.** X-ray AP view images of left femur showing Periprosthetic fracture with extending into femoral diaphysis

## 3 Procedure

Direct lateral i.e. the Hardinge approach was opted for revision in this case. Patient was placed in lateral decubitus position and a 25cm longitudinal incision was made over the lateral aspect of thigh. Soft tissue dissection was done in layers. The tensor fascia latae incised, retracted anteriorly to expose tendon of gluteus medius. Fibers of gluteus medius detached following which the vastus lateralis was incised and retracted. Fracture site was identified, and fracture ends were freshened. The hip was dislocated and the insitu bipolar implant was extracted out. Acetabular reaming done and acetabular component (size 50) was fixed with screws. Femoral reaming was done, and a long Wagner femoral stem (265mm) was inserted into the femoral canal. Liner was placed and joint reduced.

Following fixation of the femoral stem, cerclage wire passer was inserted from lateral to medial under the fracture fragments of the femur shaft. Stainless steel (SS) wires of size 3.5mm passed into the wire passer and pulled out laterally. The SS wires were tensioned and reduction between the fracture fragments was achieved. Range of movement at the hip was checked in all directions and was full. Closure done in layers and sterile dressing was done.



**Fig 2.** a. Intra-Op images of the procedure, b. Post op X-ray, c. POD-2 dressing images

## 4 Discussion

The preferred treatment for periprosthetic fractures with evident or subtle clinical symptoms of femoral implant failure or challenging fracture patterns is revision THA with stem exchange. This case can be classified as Type B3 under Vancouver classification for periprosthetic fractures. Patient was mobilised non-weight bearing with walker assistance postoperatively. Post operative pain was managed with intravenous analgesics. An extensile lateral approach was used for this procedure. The procedure was done without using bone cement. Studies show that advantages of cementless total hip arthroplasty include that they offer a better long-term bond between the prostheses and bones. Cementless components eliminate the potential breakdown of cement and hence avoids risk of bone cement implantation syndrome.

The disadvantage in this procedure includes longer incision and soft tissue dissection. Press-fit prostheses require healthy bones and patients with low bone density due to osteoporosis may not be eligible for these components. It can take up to three months for bone material to grow into a new joint component. However, in this case dissection was done with minimal soft tissue damage and good fitting of prosthesis was achieved. Reduction between the fracture fragments was achieved and stabilised using SS wires.

Postoperatively, physiotherapy was started for quadriceps strengthening and walker assisted gait training exercises. Patient complied well and post operative period was uneventful. Patient was followed up every month. During the 3 month follow up visit, X-rays showed callus formation and patient was asked to start weight bearing mobilisation with walker assistance.

## 5 Conclusion

The management of periprosthetic fractures around the femoral stem is challenging and these fractures require extensive surgical expertise. The recommended course of treatment in cases with evident or subtle clinical indications of femoral implant failure or challenging fracture patterns is

revision THA with stem exchange.

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