



REVISION TOTAL HIP REPLACEMENT FOLLOWING PROSTHETIC FAILURE IN A YOUNG ADULT: A CASE REPORT

Orthopaedics

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ABSTRACT

Total hip replacement (THR) is rarely performed in young adults, and long-term follow-up can reveal unique challenges including prosthesis failure. Management often involves complex revision procedures with potential complications. We report a case of a 33-year-old male who underwent primary THR five years ago for a right neck of femur fracture. The patient presented 2 months ago following a slip-and-fall injury 10 months ago, leading to THR prosthetic failure of the right hip. Revision surgery was performed involving corticotomy for prosthesis removal followed by revision total hip replacement (rTHR). This case highlights the surgical challenges in managing failed hip prostheses in young adults and the importance of meticulous planning in revision hip arthroplasty.

KEYWORDS

Total Hip Replacement, Prosthesis Failure, Revision Arthroplasty, Corticotomy, Young Adu

INTRODUCTION

Total hip replacement (THR) in young patients is relatively rare and is usually reserved for cases of severe trauma or degenerative disease. Implant longevity and potential for revision surgery are key concerns in younger populations due to increased activity levels. Prosthesis failure, although uncommon within the first five years, can occur due to trauma or mechanical loosening. The unique biomechanical demands in younger, more active patients increase the likelihood of implant-related complications over time.

In cases of early prosthetic failure, identifying the underlying cause is critical for guiding appropriate management. Revision THR poses additional challenges, including removal of well-fixed components, potential bone loss, and the need for reconstructive strategies that ensure long-term implant stability. Corticotomy is a valuable adjunct in such complex scenarios, enabling controlled bone access for safe implant extraction.

Herein, we present a case of prosthetic failure in a young adult managed successfully with corticotomy and revision total hip arthroplasty. This report aims to highlight the technical considerations and postoperative outcomes associated with such complex interventions.

Case Presentation

A 33-year-old male, previously healthy, underwent right-sided THR five years ago following a displaced fracture of the femoral neck. He remained asymptomatic until a slip-and-fall accident from two wheeler occurred 8 months prior to presentation, with surgery performed 2 months ago.

Post-injury, the patient experienced right hip pain, inability to bear weight, and reduced range of motion. Clinical examination revealed tenderness over the right hip, limb shortening, and positive Trendelenburg sign.



Figure 1: Preoperative anteroposterior (AP) pelvic X-ray showing mechanical failure of the right hip prosthesis with varus angulation and femoral stem loosening.

Under the supervision of Dr. Rahul Kadam, the patient underwent a corticotomy to facilitate extraction of the loosened prosthesis. Intraoperatively, it was noted that the acetabular cup and liner were well-fixed and could not be removed without risking bone damage. Therefore, only the femoral stem and head were revised while retaining the original acetabular components. This was followed by revision total hip arthroplasty using a cementless modular femoral stem and femoral head.



Figure 2: Postoperative AP pelvic radiograph showing a well-aligned revision total hip prosthesis with cerclage wire stabilization following corticotomy and prosthesis replacement.

Postoperative X-ray (Figure 2) confirmed successful placement of the revision prosthesis with proper orientation and stabilization using cerclage wires.

The patient had an uneventful postoperative recovery and was mobilized with partial weight-bearing by week 2. At two months follow-up, he reported no pain and had regained nearly full range of motion with no evidence of implant loosening on follow-up imaging.

DISCUSSION

Prosthesis failure in young adults is uncommon within the early post-THR years but can be precipitated by trauma. Corticotomy is a valuable technique for removing well-fixed implants and preserving bone stock, especially in younger patients. This case reinforces the

importance of individualized surgical planning and technique in revision cases.

This Case Is Unique Due To:

- The early failure of the prosthesis due to trauma
- Use of corticotomy in a non-infective failure scenario
- Successful outcome in a young, active adult

Comparable cases in literature emphasize prosthesis longevity concerns in young adults, but few detail surgical approaches like corticotomy in this context.

CONCLUSION

This case underscores the importance of considering mechanical complications even years after primary THR, particularly following trauma. Corticotomy is a useful surgical adjunct in revision THR, allowing for safe prosthesis removal and successful reconstruction.

Patient Perspective

The patient expressed satisfaction with the surgical outcome and reported significant improvement in quality of life and daily functioning post-revision.

Author Declaration

Patient Consent : The Authors confirm that written informed consent was obtained from the patient for the publication of this case report and accompanying images. The patient understands that his identity will not be disclosed and due efforts will be made to conceal it.

Conflict Of Interest : None of the authors have any conflict of interest to declare

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Ethical Approval : Ethical approval was not required for this case report, as per institutional policies for single case descriptions with patient consent.

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