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Case Report

Case Report: Management of Complex Acetabular Fracture in an Elderly Patient with Cup-Cage and Cemented Dual-Mobility Acetabular Component

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Abstract

We report the case of an 86-year-old female patient who sustained a complex acetabular fracture involving the anterior column and posterior hemitrasverse fracture with protrusion of the femoral head. She was treated in a single-stage procedure with a cup-cage construct and a cemented dual-mobility acetabular component. Early rehabilitation and progressive weight-bearing were implemented, resulting in functional recovery. At six months postoperatively, the patient ambulated with a cane and had a modified Harris Hip Score of 58.

Keywords: *Acetabular Fracture, Elderly, Cup-Cage, Dual-Mobility Cup, Early Rehabilitation, Early Weight-Bearing.*

Introduction

Acetabular fractures in elderly patients represent a significant challenge due to poor bone quality and comorbidities. Traditional fixation strategies often result in limited postoperative mobilization, increasing morbidity. The cup-cage technique combined with a cemented dual-mobility acetabular component provides immediate stability, allowing early mobilization and weight-bearing. Early rehabilitation is essential for preserving muscle function and preventing complications associated with immobility. [1-5]

Case Presentation

An 86-year-old female patient with a medical history of osteoporosis, controlled hypertension, arrhythmia, and a permanent pacemaker presented following a low-energy fall at home.

Imaging studies, including X-ray and CT scan, confirmed a complex acetabular fracture involving the anterior column with a posterior hemitransverse component and protrusion of the femoral head.

Surgical Intervention

The patient underwent a single-stage total hip arthroplasty using a cup-cage construct with a cemented hip arthroplasty plus a dual-mobility acetabular component. The patient was placed in a lateral position. An extended posterolateral approach was performed with careful exposure of the posterior column. A femoral osteotomy was performed at the neck, preserving the head for later use as a graft to increase fixation. A reduction was performed by direct maneuvering of the columns, followed by careful reaming until bleeding cancellous bone was reached.

An autologous femoral head graft was placed, compacting it in a retrograde manner with the acetabular reamer. The cage was fixed with 3.5 mm screws, and a dual-mobility cup prosthesis was cemented.

The procedure provided stable fixation suitable for early weight-bearing and mobilization.

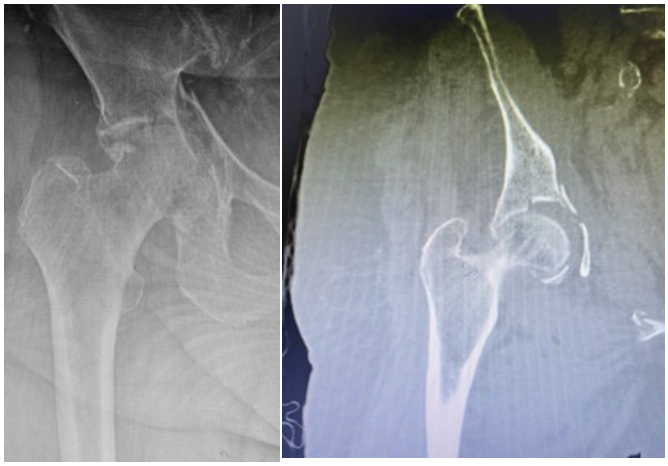

Figure 1. *Anteroposterior right hip x ray showing both column compromise.*

Figure 2. *CT scan both column and quadrilateral plate fracture.*

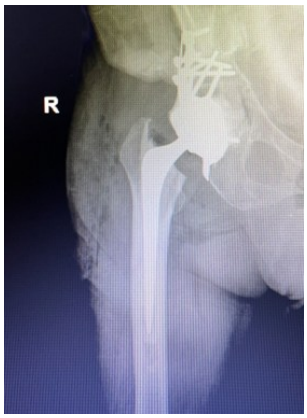

Figure 3. *Immediate ap X-ray.*

Figure 4. *Weight bearing ap hip x ray showing construct stability.*

Postoperative Rehabilitation:

24 hours: Partial weight-bearing with assistance

2 weeks: Progression to full weight-bearing

6 months: Ambulating with a cane, modified Harris Hip Score: 58

Discussion

The cup-cage technique with dual-mobility components offers several advantages for elderly patients with complex acetabular fractures:

1. Immediate Stability: Allows early mobilization and reduces complications from prolonged bed rest.
2. Reduced Dislocation Risk: Dual-mobility cups increase jump distance and improve stability in osteoporotic bone.
3. Functional Recovery: Early weight-bearing and rehabilitation enhance mobility and independence.

Studies indicate that this approach is associated with satisfactory functional outcomes, low complication rates, and improved quality of life in elderly patients. [1-5]

Conclusion

Single-stage cup-cage reconstruction with a cemented dual-mobility acetabular component, combined with early rehabilitation and progressive weight-bearing, is an effective treatment strategy for complex acetabular fractures in elderly patients. This approach allows rapid functional recovery while minimizing the risks associated with prolonged immobility.

Conflict of Interest

The authors declare that there is no conflict of interest.

Acknowledgement

None.

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