Cementless hemiarthroplasty on patient 93 y old lady: A case report

Introduction

Displaced femoral neck fractures are a common injury among the elderly population, often requiring surgical intervention to restore function and mobility [1]. Hemiarthroplasty has emerged as a widely accepted treatment option, with both cemented and cementless techniques being utilized [2]. While cemented hemiarthroplasty has traditionally been the preferred approach, cementless hemiarthroplasty has gained increasing attention due to potential advantages,[3] such as reduced operative time, decreased blood loss, and preservation of bone stock for future revisions [4].

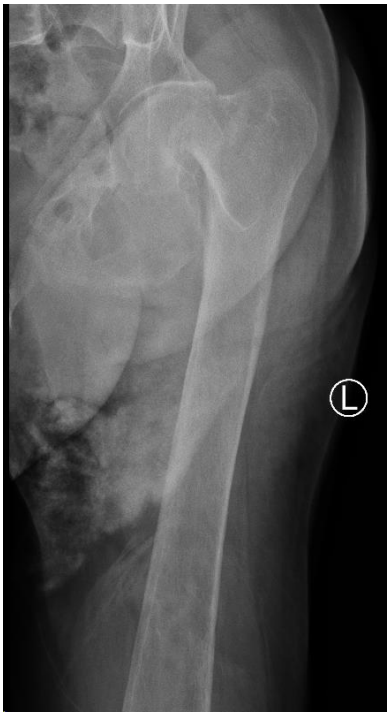
However, the application of cementless hemiarthroplasty in the oldest-old patient population, defined as individuals aged 85 years and above, remains an area of ongoing research and debate. This case report presents the successful use of cementless hemiarthroplasty in a 93-year-old female patient with a displaced femoral neck fracture. The case highlights the feasibility and potential benefits of this technique in the management of hip fractures in the very elderly population.

Case presentation

A 93-year-old female with a history of hypertension, old cerebrovascular accident, osteoarthritis of both knees, hearing impairment, dementia (Alzheimer's), chronic kidney disease, diabetes mellitus, osteoporosis, and limited mobility with previous right femur ORIF, presented to the ER with left hip and leg pain following a fall at home two days prior. Examination revealed stable vitals, alertness, oriented status, normal heart sounds, clear lung fields, a soft non-tender abdomen, palpable lower limb pulses, and no new neurological deficits. A non-enhanced CT brain scan showed no acute hemorrhage or major infarction but noted multiple ischemic insults, a small meningioma, and age-related changes.

X-rays confirmed a left neck of femur fracture. The anteroposterior view of the pelvis shows a clear fracture of the left femoral neck. The fracture appears to be displaced, as indicated by the misalignment of the femoral head with the acetabulum. This type of fracture would require prompt medical attention and likely surgical intervention to properly realign the

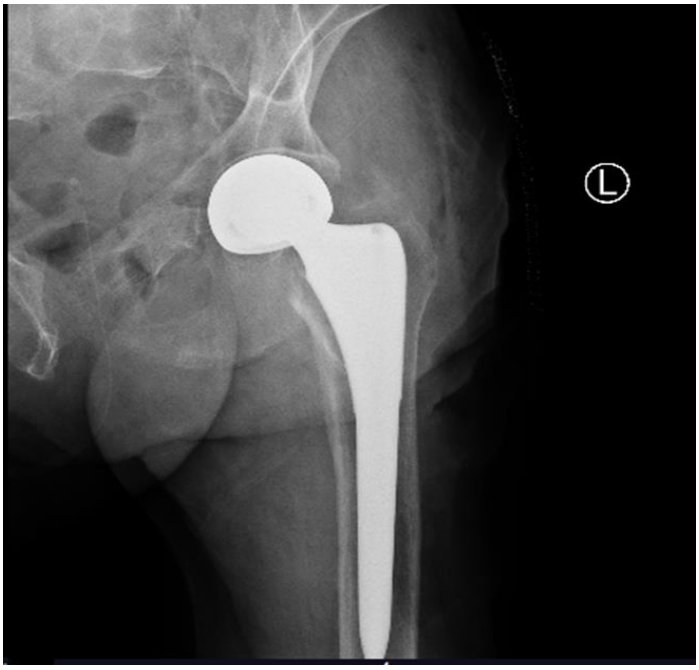
joint and promote proper healing. The lateral view confirms the presence of a displaced femoral neck fracture. The fracture line is visible, and the femoral head is not in its normal anatomical position, indicating the fracture is displaced. There is no obvious soft tissue swelling or hematoma visible in this view, but clinical correlation would be necessary to fully assess the extent of the injury.





Cementless hemiarthroplasty was performed, ensuring stability in all ranges of motion. The procedure was carried out under aseptic techniques using the lateral Harding approach. the femoral head was carefully resected and the acetabulum inspected allowing for optimal placement of the prosthesis. The femoral component was then securely implanted without the use of cement, benefiting from the patient's bone quality that allowed for good initial fixation. Postoperative stability was confirmed through a full range of motion tests. Meticulous attention was paid to achieve proper leg length and offset to ensure balanced biomechanics. Hemostasis was carefully managed to minimize blood loss. The wound was closed in layers, starting with the deep tissues, followed by the fascia, subcutaneous tissue, and finally the skin, ensuring a secure and aesthetically acceptable closure.
The patient tolerated the procedure well, with no intraoperative complications. Postoperative care included standard pain management, early mobilization with the assistance of physical therapy, and regular monitoring for signs of infection or other complications. The case highlights the feasibility and potential benefits of cementless hemiarthroplasty in managing hip fractures in the very elderly population, particularly in those with multiple comorbidities





Discussion

The management of displaced femoral neck fractures in the elderly, particularly in the oldest-old population, presents unique challenges due to comorbidities and frailty. This case report demonstrates the successful use of cementless hemiarthroplasty in a 93-year-old female, emphasizing its feasibility and potential benefits.

Advantages of Cementless Hemiarthroplasty

Cementless hemiarthroplasty offers several potential advantages over the cemented approach. Notably, it can reduce operative time and decrease the risk of intraoperative and postoperative complications such as cement-related cardiovascular events and fat embolism syndrome [3][5]. Additionally, cementless techniques preserve bone stock, which is particularly beneficial for potential future revisions, an important consideration given the increasing life expectancy even in nonagenarians [4][6].

Patient Considerations

Our patient's extensive medical history, including hypertension, cerebrovascular accident, osteoarthritis, dementia, chronic kidney disease, diabetes mellitus, osteoporosis, and limited mobility, added complexity to the surgical management. Despite these comorbidities, the cementless approach was chosen, guided by her bone quality which allowed for secure initial fixation without cement. This aligns with studies suggesting that

with appropriate patient selection, cementless hemiarthroplasty can yield excellent outcomes even in the very elderly [4][7].

Surgical Technique and Outcome

The lateral Harding approach was used, providing excellent exposure and minimizing soft tissue damage. Postoperative assessments confirmed stability in all ranges of motion, proper leg length, and balanced biomechanics. The meticulous closure in layers and careful management of hemostasis minimized complications, aligning with best practices in surgical techniques to enhance recovery [1][8].

The patient's positive outcome, with no intraoperative or early postoperative complications, highlights the importance of a tailored approach considering individual patient factors. Early mobilization and comprehensive postoperative care, including pain management and physical therapy, were crucial in facilitating recovery and functional improvement.

Comparative Analysis

Cemented hemiarthroplasty remains a widely used technique, particularly favored for its immediate stability and ability to accommodate poorer bone quality [2]. However, in selected patients with adequate bone quality, cementless hemiarthroplasty can provide comparable, if not superior, outcomes. The debate between cemented versus cementless approaches continues, with ongoing research needed to refine patient selection criteria and optimize surgical outcomes [3][9].

Conclusion

This case report underscores the feasibility and potential benefits of cementless hemiarthroplasty in managing hip fractures in the very elderly population. It highlights the importance of individualized patient assessment and the potential for positive outcomes even in patients with significant comorbidities. Further studies are warranted to expand the evidence base and refine guidelines for the use of cementless techniques in this demographic.

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