

A Rare Case Report of Spontaneous Disassembly of Bipolar Hip Prosthesis in Elderly Patient

Ruchit Shah¹, Urvi Khambhati², Feral Daruwala³

Learning Point of the Article:

Postoperative disassembly of prosthesis can lead to catastrophe if not managed adequately.

Abstract

Introduction: Hip fracture is an established health problem, especially in the elderly population and, its incidence is dramatically rising in the globe. The standard protocol of management in the elderly population for end-stage hip diseases and unstable femur fracture is bipolar hemiarthroplasty. Common complications of hip replacement include infection, fracture, dislocation, venous thrombosis, nerve palsy, chronic pain, and implant failure. In the literature, there are very few reported cases of disassembly of the implant in hemi replacement arthroplasty.

Case Report: We, hereby, present a case of the spontaneous disassembly of the bipolar hip prosthesis, which was timely recognized and treated adequately in an elderly patient.

Conclusion: The use of the cemented bipolar prosthesis can also lead to disassembly of the implant components and thereby the need for open reduction. Identification of the distinction between dislocation of head and disassembly of the prosthetic components is vital for favorable patient prognosis.

Keywords: Hemi replacement arthroplasty, implant failure, disassembly.

Introduction

Hip fracture is a major health concern in elderly people [1, 2]. The standard line of management is hip arthroplasty (replacement), depending on whether it is intracapsular or extracapsular [3]. Hemi replacement arthroplasty is the preferred surgery in the geriatric population, as less mobility and the large diameter of the femur head reduces the chances of dislocation [4, 5, 6]. To date, here mentioned four surgical techniques for hemi replacement arthroplasty are well established: Anterior (Smith-Petersen), anterolateral (Watson-Jones), lateral (Hardinge or Liverpool), and posterior (Moore). There are few reported cases of dislocation and disassembly of the implant between the head and the shell [7]. The availability of different sizes of head and neck in bipolar implant enables the treating surgeon to select appropriate prosthetic taking into

consideration the age of the patient and desired range of motion required. By this way, the complications are significantly reduced for the bipolar implant than unipolar. However, there are severe but few complications associated with bipolar implant such as dislocation and disassembly of the prosthesis [8]. Patients are usually treated by the closed reduction in case of hip dislocations, whereas disassembly of the prosthesis requires the need for open reduction. For timely management and a better outcome, recognition at the right time, as well as differentiation between dislocation and disassembly of the prosthesis, is of paramount importance.

Case Report

A 70-year-old male presented with chief complaints of hip pain, swelling, and restricted mobility following fall in his house 1 day

Access this article online

Website:
www.jocr.co.in

DOI:
10.13107/jocr.2020.v10.i05.1848

Author's Photo Gallery



Dr. Ruchit Shah



Dr. Urvi Khambhati



Mrs. Feral Daruwala

¹Department of Orthopedic, Era's Medical College, Lucknow, Uttar Pradesh, India.

²Department of Radiology, Lilavati Hospital and Research Centre, Mumbai, Maharashtra, India.

³Department of Medical Writing, Nephrolife-The Complete Kidney Care, Surat, Gujarat, India.

Address of Correspondence:

Dr. Ruchit Shah,
Era's Medical College, Department of Orthopedic, Lucknow, Uttar Pradesh, India.
E-mail: ruchit.academic@rediffmail.com



Figure 1: X-ray pelvis view showing right-sided neck of femur fracture.



Figure 2: X-ray pelvis AP view showing disassembly of the bipolar prosthesis.

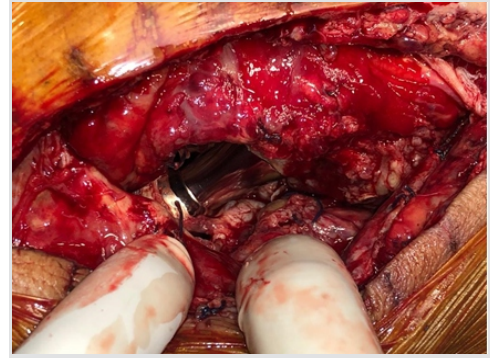


Figure 3: Intraoperative image showing disassembly of the bipolar implant.

back in the month of May 2018 before consulting to us. He underwent a clinical and radiological examination, in which he was diagnosed as a case of fractured neck of the femur of the right hip secondary to age-related osteoporosis, as shown in Fig. 1.

Considering the age of the patient, he was operated for hemiarthroplasty by posterior approach, for which cemented bipolar prosthesis was used. Postoperatively on the 5th day, the patient felt clicking in her right hip while walking and was unable to move her hip as usual. The patient came back to the hospital for the following complaints and was admitted again, after which he underwent clinical and radiological investigations. On examination, there was swelling in the hip region with no open wound, scar, or dilated veins. On palpation, there was tenderness over the right Scarpa's area with bitrochanteric compression test positive. There were no neurological signs or symptoms. The hip radiographs demonstrated dissociation of the components of the bipolar hemiarthroplasty at the femoral head and neck junction (Fig. 2).

Open reduction was performed through the old surgical scar using the posterior approach. The femoral head component was found intraoperatively in the acetabulum and was covered with a well-healed capsule. The tapered part at the inner head and stem neck did not show any scratch marks or defects. Fig. 3 shows intraoperative photos while removing dissociated bipolar hip prosthesis.

Fig. 4 shows the extracted bipolar prosthesis. After the revised surgery, the patient has been followed up for 1 year, and he is

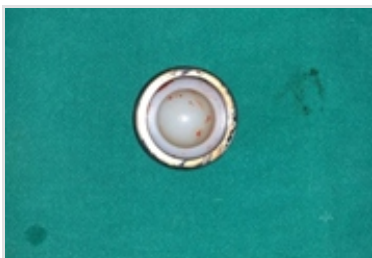


Figure 4: Demonstrates the removed portion of the prosthesis.



Figure 5: Post-operative X-ray showing a prosthetic implant in situ.

asymptomatic with a favorable outcome. Fig. 5 shows the post-operative X-ray of the pelvis with a new femoral head with longer offset assembled to the old femoral stem.

Discussion

Over decades, hip hemiarthroplasty has been used successfully to manage end-stage hip disorders and fracture of femur neck. For this purpose, initially, the unipolar prosthesis was used but due to several disadvantages such as recurrent dislocation, decreased range of mobility, more wear, and friction of the acetabulum, they were superseded by the bipolar prosthesis. In agreement with reported literature, dislocation of the prosthesis is a known complication after primary hemiarthroplasty; however, disassembly of the implant is very rarely encountered, causing significant permanent disability. There is a 2.6% incidence of dislocation reported by Burge et al. [9] in hips treated with bipolar hemiarthroplasty.

In the present case, the most vital cause for disassembly is the weakened bond between the cement and the metal-based socket. The advantages of cemented prostheses are improved post-operative outcome and low rates of implant-related complications such as dislocation, disassembly, or periprosthetic femoral fracture. However, the modular design of the cemented bipolar prosthesis can very rarely lead to disassembly of the components, and Ito et al. [10] reported a disassembly rate of 4% in the study. With this case report, we, hereby, present such a complication.

Conclusion

In summary, the dissociation of bipolar hemiarthroplasty is a complex complication that requires operative treatment. The mechanism and cause of failure should be identified before the operation. To prevent this condition, pre-operative planning and proper techniques should be done as an index procedure. Early diagnosis of this rare complication by orthopedic surgeons and its timely management by open reduction and revision surgery plays a crucial role in decreasing morbidity of

the patient and its successful outcome. The post-operative radiographic examination should be kept routinely as a part of the treatment protocol with patients who have undergone bipolar hemiarthroplasty.

Clinical Message

Hip fracture is a universally well-known health problem which is managed by bipolar hemiarthroplasty. People are aware of its common complications. However, disassembly of the implant is a rare complication. By this report, we want to create awareness regarding this complication to modern generation orthopedics.

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Conflict of Interest: Nil

Source of Support: Nil

Consent: The authors confirm that Informed consent of the patient is taken for publication of this case report

How to Cite this Article

Shah R, Khambhati U, Daruwala F. A Rare Case Report of Spontaneous Disassembly of Bipolar Hip Prosthesis in Elderly Patient. *Journal of Orthopaedic Case Reports* 2020 August;10(5):

