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Spontaneous dissociation of bipolar hip hemiarthroplasty in a patient with nerve palsy: A case report and review of the literature



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ABSTRACT

INTRODUCTION: Dislocation after bipolar hemiarthroplasty is a common complication but dissociation of the prosthesis is rare. There are some reports of bipolar hemiarthroplasty dissociation at the inner head and outer shell. However, there are limited reports on acute spontaneous dissociation of the head and neck at the taper interface in bipolar hemiarthroplasty.

PRESENTATION OF CASE: A 65-year-old female had cemented bipolar hip replacement after fixation failure of a dynamic hip screw. She had left lower limb weakness for ten years after previous spinal surgery. At the sixth week of postoperation, the patient had dissociation of the components of the bipolar hemiarthroplasty at the femoral head and neck junction. The patient had open reduction and femoral head revision. There was no re-dislocation at one-year follow-up.

DISCUSSION: Dissociation of bipolar hemiarthroplasty is a complex complication that can happen from the modularity of the implant. This condition requires operative treatment. The mechanism and cause of failure should be identified before the operation.

CONCLUSION: To prevent this condition, preoperative planning and proper techniques should be done as an index procedure. In the case of marked shortening of the limb after an operation in patients with lower limb muscle weakness, we hypothesize that early full weight bearing with immediate use of a shoe lift might help prevent this condition.

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1. Introduction

Bipolar hemiarthroplasty is one of the treatment options for unstable femoral neck fracture in the elderly [1]. Hip dislocation after hip replacement is a common complication but dissociation of a bipolar prosthesis is rare. There are some reports of bipolar hemiarthroplasty dissociation at the inner head and outer shell [2–5]. However, there are limited reports on acute spontaneous dissociation of head and neck at the taper junction in bipolar hemiarthroplasty. A previous case reported inner femoral head disassembly from the stem-neck taper junction which occurred after revision of the head of a bipolar hip prosthesis [6]. The present study reports an acute disassembly of a primary bipolar hemiarthroplasty at the femoral head and stem-neck taper junction in a patient with nerve palsy. This case report is rare and will be beneficial for surgeons who perform hip arthroplasty in a patient with limb shortening and weakness. Written informed consent was obtained from the patient for publication of this case report.

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2. Presentation of case

A 65-year-old female patient presented with failure of dynamic hip screw fixation for treatment of pathological intertrochanteric fracture of her left hip (Fig. 1). Three years prior to the visit at the clinic, she had pathological intertrochanteric fracture at her left hip from osteomyelitis while she was changing posture from standing to sitting (Fig. 2). She was treated by antibiotic cement spacer and systemic antibiotics. After the infection cleared, she had an operation for dynamic hip screw and bone grafting. At the fifth month of the postoperative period, there were signs of fixation failure. However, the patient refused to have hip replacement after early fixation failure but finally she considered having hip replacement 2 years later. She also had surgery 10 years earlier for spinal stenosis at the lower lumbar spine. After the spine surgery, she developed weakness of her left lower limb. She had no other medical history.

At the clinical visit, the physical examination showed a 6 cm shortening of her left leg compared with the right side. She had left ankle dorsiflexion and toe dorsiflexion motor power grade II and quadriceps motor power grade III. She had decreased sensation over the dorsum of her left foot. A plain radiograph showed loosening of the dynamic hip screw and bone loss in the femoral head.

In this case, the patient chose bipolar hemiarthroplasty for treatment because she was a household ambulator and had a high risk



Fig. 1. Plain radiograph shows failure of dynamic hip screw fixation.



Fig. 2. Initial plain radiograph of fracture.

for hip dislocation following total hip replacement due to her poor muscle condition. An operation for long-stem cemented bipolar hemiarthroplasty was done (CPT, Zimmer, Inc., Warsaw, IN, USA). The operation was done by the posterior approach. After the stem was placed in the femoral canal, the femoral head component was coupled with one stroke of a hammer after the stem neck was cleaned and dried. After insertion of the femoral head, the surgeon inspected the coupling again by trying to pull the head out of the stem neck gently by finger to confirm a perfect coupling.

The postoperative examination found that the patient still had a shortened left leg of 5 cm compared with the right side (Fig. 3). The patient was allowed to ambulate with a walker by full weight bearing after the operation.

At the sixth week of the postoperative period, the patient felt clicking in her left hip while walking and was unable to move her



Fig. 3. Immediate postoperative plain radiograph.

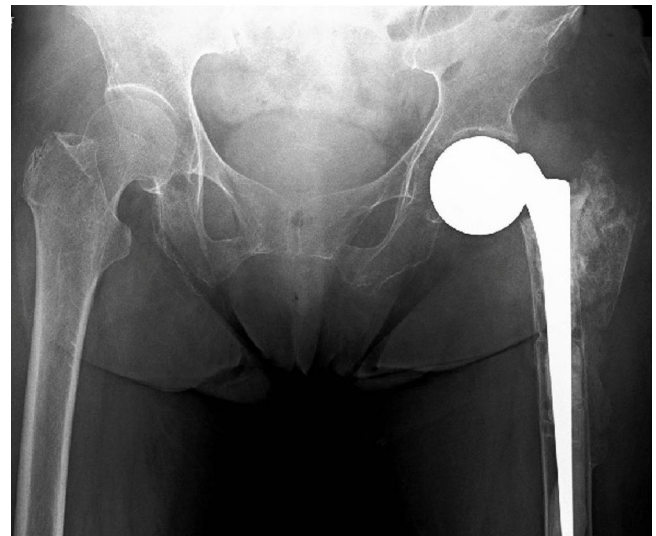


Fig. 4. Six-week follow-up plain radiograph.

hip as usual. She said she didn't use her orthopedic shoe lift and didn't step with full weight on her left foot because she was familiar with non-weight bearing without the shoe lift for a long time. The hip radiographs demonstrated dissociation of the components of the bipolar hemiarthroplasty at the femoral head and neck junction (Fig. 4).

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 didn't show any scratch marks or defects. A new femoral head with a longer offset was assembled to the old femoral stem (Fig. 5).

Postoperatively, the patient received an orthopedic shoe lift to correct the limb length discrepancy and she was encouraged to apply full weight during ambulation. At one-year follow-up, there were no complications. She was able to ambulate with a walker and the Harris hip score was 69.

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