

# Case Report - Death of Bipolar Hemiarthroplasty: Meeting Patient Expectation

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**Abstract:** *Although patient-centred care will help increase the value of healthcare treatment, practice variations in hip surgery showed that surgeon guide clinical decisions more than patients do. Complications in managing frailty fracture are common with high one year mortality rate. A better understanding in patient expectation is crucial in the development of treatment strategies for patient. Choice of treatment can be made acceptable by proper explanation to the patient with realistic expectations.*

**Keywords:** bipolar hemiarthroplasty, dislocation, patient expectation

## 1. Introduction

Although patient-centred care will help increase the value of healthcare treatment, practice variations in hip surgery showed that surgeon guide clinical decisions more than patients do. This raises the question whether treatment outcomes still meet patients' expectations. This case report concluded fulfils both surgeon and patients' main expectations (i.e. decreased pain or improved functioning) are the fundamental in healthcare treatment.

## 2. Case Presentation

MR.C who is a 91 years old chinese man presented to emergency department with chief complaint of expose right hip implant for 6 months duration. Patient has underlying ischaemic heart disease done bypass surgery. Patient underwent right bipolar hemiarthroplasty for right hip fracture one year prior. Post operatively patient is semidependent and requires assistance for ambulation. Patient was previously been staying in nursing home. However 3 months post operatively patient complaint of pain and discomfort over the right hip. Since then patient has been bedridden. He also noticed breakdown of wound and occasional discharge from right hip wound (figure 2). Patient was treated with regular dressing. Upon examination patient was orientated to time, place and person. Right lower limb contracted, adducted with severe muscle wasting. The implant was exposed over right hip with purulent and foul smelling discharge. Blood investigation was unremarkable. Radiograph of right hip showed dislocated right bipolar hemiarthroplasty (figure 1).

Family conferences was conducted and preceded with surgery. Patient underwent right resection arthroplasty under general anaesthesia. Patient was put on lateral position, surgical site was clean and draped in usual manner. Prophylactic antibiotic was given prior skin incision. Right hip wound was excised and debrided. Implant was not loosened intraoperatively. Proximal femur was resected at the level of proximal femur to ease removal of implant. After removal of bipolar hemiarthroplasty implant, cement was removed from right femur canal. Debridement was continue and wound was washed with copious amount of normal saline and diluted povidone. Wound close in layer and drain inserted. Post operatively patient is well and wound healed well.



Figure 1



Figure 2



Figure 3

### 3. Discussion

Bipolar hemiarthroplasty is a choice of treatment in treating displaced neck of femur fracture in elderly age group<sup>3, 4, 6</sup>. Bipolar hemiarthroplasty consists of two articulating surfaces: one between the femoral head and polyethylene liner, and one between the metallic shell and acetabulum. This dual articulating design is thought to be associated with less acetabular wear than unipolar prostheses<sup>1</sup>. A suggested but unproved advantage of the bipolar design is improved stability of the prosthesis and resistance to dislocation<sup>1</sup>. Bipolar hemiarthroplasty is also proposed as one of choice of treatment in treating recurrent dislocating total hip replacement. When dislocation does occur with bipolar hemiarthroplasty, closed reduction can be difficult. Aggressive treatment to reduced risk of dislocation is recommended when bipolar hemiarthroplasty is dislocated.

Hip fractures are frailty fractures typically related to malnutrition which are accompanied by sarcopenia, insecure coordination and walking and sensory deficits<sup>2</sup>. Complications in managing frailty fracture are common with high one year mortality rate. A better understanding in patient expectation is crucial in the development of treatment strategies for patient. Mr. C who is a 91 years old man with underlying ischaemic heart disease has been bed ridden for few months following dislocation of bipolar hemiarthroplasty. This raises a question to us when deciding on the choice of treatment for him. Family members were called to better understand their expectation<sup>7</sup>. Following what was concluded from the discussion the best treatment should be single surgery which could address his issues with least mortality risk<sup>8</sup>. However the primary goal of treating patients with hip fractures is always returning to the prefracture functional status.

The first head and neck resection of femur was done in 1818 by Anthony White in a 9-year-old child with septic pseudarthrosis of the hip. Later the surgery was popularized by Gathorne Robert Girdlestone. He reported his technique in 1928 in the treatment of tuberculosis of the hip. His technique was very invasive at first and consisted of a transverse approach of the hip with resection of a large portion of the gluteal muscles as well as the greater trochanter, resection of the neck and femoral head and removal of all acetabular cartilage<sup>5, 6</sup>. Current technique is much less invasive, but the term of "Girdlestone procedure"

has remained. The Girdlestone resection arthroplasty is a salvage procedure for a recurrent or persistent prosthetic joint infection of the hip<sup>8</sup>. With the advancements in revision hip technique and technology, Girdlestone resection arthroplasty is rarely indicated as a primary procedure.

As this patient was already has a significant functional disability, this procedure will undoubtedly lead to a critical situation that makes patient functionally dependent in their daily activities. Social support is very important in improving the quality of life in this patient. Meeting patient expectation is crucial goal in treating his condition and to improve the quality of life. Girdle stone may also be considered as the first stage of a two-stage revision. The decision to perform a resection arthroplasty without re-implantation of a second prosthesis is based upon multiple factors. Important considerations include infection with multiple organisms or bacteria resistant to antibiotic therapy, poor quality local soft tissues, unacceptable complexity of the reconstruction, refusal by the patient to have another operation after removal of the implant, and patients with systemic disease, poor overall health, inadequate bone stock or combinations of these factors. The problem of repeated operations, prolonged morbidity, intercurrent illnesses and repeated invasive investigations after an infected prosthesis leads to depression and dissatisfaction.

Favourable outcome determinant in performing girdlestone procedure are old patient, male, unilateral, healed wound, non-diabetic, smooth inter-trochanteric line, no cement left in the femoral canal, less limb shortening/conservative proximal femoral resection, reduced level of expectation and unfavourable preoperative condition with strong pain or persistent infection. Our patient and his family member are very happy following the surgery. Patient wound healed well, infection was controlled, pain improved and he was able to be discharge back home.

### 4. Conclusion

In evolving orthopaedic surgical era now, the Girdlestone's resection is rarely indicated as a primary procedure. However, it retains a place in the arsenal of surgical hip techniques. It is a simple procedure giving a mobile, painless and stable hip, at the cost of a shortening. Choice of treatment can be made acceptable by proper explanation to the patient with realistic expectations.

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