Intraprosthetic dislocation is a rare entity but a unique complication of bipolar arthroplasties. But when they do occur, they usually co-exist with dislocation of the prosthesis from the native acetabulum. There have been relatively few prior reports of this serious complication which have highlighted upon the exact mechanism of occurrence of this entity. The most common and widely highlighted mechanisms behind component dissociation is dislocation in immediate post op period with an attempted closed reduction. If the femoral head component locks against the acetabular rim during dislocation, and the component sizing is not accurate, simultaneous dissociation can occur. Other possible etiology could be as a result of a weak or defective polyethylene locking ring. A defective locking ring can allow slippage to occur such that dissociation may take place even without traditional extraacetabular dislocation. We are here reporting a unique case with intraprosthetic dislocation in which no earlier known mechanism has played a role.

Case Report

A 64 year old female sustained injury to her left hip four years back and was diagnosed as subcapital fracture neck of femur for which bipolar hemiarthroplasty left hip was done. Post Op she was asymptomatic for almost 4 years and reported after 4 years of surgery with click heard at her left hip and painful limp on the affected side while attempting to get up from squatting position. Radiographs of the hip was taken which showed intraprosthetic dislocation. The patient was operated with Southern approach with extended trochanteric osteotomy and a revision Total hip Arthroplasty was done. Implant which was retrieved had a failed anti dissociation mechanism. In most reported cases only implant related factors have been considered and discussed with no emphasis on any patient related factors. The current case would be the first to be documented with no history of any dislocation or closed reduction maneuvers in immediate post operative period, and is associated with squatting and sitting cross legged after years of uneventful hip.

Conclusion:

Long term follow up comparison studies between simple unipolar and bipolar prostheses has shown no significant difference in the functional outcome and complication rates. Hence the common use of bipolar implants with a unique complication of intraprosthetic dislocation becomes questionable especially in a developing country like India with a lower economic status of most people. Proper implant selection with individualized approach is a must to avoid long term debility and pain and to ensure patient’s satisfaction and early return to function.

Keywords: Intraprosthetic dislocation; bipolar hemiarthroplasty; neck of femur fracture

Abstract

Case Report: A 64 year old female sustained injury to her left hip four years back and was diagnosed as subcapital fracture neck of femur for which bipolar hemiarthroplasty left hip was done. Post Op she was asymptomatic for almost 4 years and reported after 4 years of surgery with click heard at her left hip and painful limp on the affected side while attempting to get up from squatting position. Radiographs of the hip was taken which showed intraprosthetic dislocation. The patient was operated with Southern approach with extended trochanteric osteotomy and a revision Total hip Arthroplasty was done. Implant which was retrieved had a failed anti dissociation mechanism. In most reported cases only implant related factors have been considered and discussed with no emphasis on any patient related factors. The current case would be the first to be documented with no history of any dislocation or closed reduction maneuvers in immediate post operative period, and is associated with squatting and sitting cross legged after years of uneventful hip.

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Introduction

Intraprosthetic dislocation is a rare entity but a unique complication of bipolar arthroplasties. But when they do occur, they usually co-exist with dislocation of the prosthesis from the native acetabulum. There have been relatively few prior reports of this serious complication which have highlighted upon the exact mechanism of occurrence of this entity. The most common and widely highlighted mechanisms behind component dissociation is dislocation in immediate post op period with an attempted closed reduction. If the femoral head component locks against the acetabular rim during dislocation, and the component sizing is not accurate, simultaneous dissociation can occur. Other possible etiology could be as a result of a weak or defective polyethylene locking ring. A defective locking ring can allow slippage to occur such that dissociation may take place even without traditional extraacetabular dislocation. We are here reporting a unique case with intraprosthetic dislocation in which no earlier known mechanism has played a role. The post op period of this patient was uneventful and she started squatting and sitting cross legged leading to intraprosthetic dislocation after four years of surgery.

Case Report

A 64 year old female sustained injury to her left hip four years back and was diagnosed as subcapital fracture neck
of femur. Hemiarthroplasty left hip was done with an uncemented modular bipolar prosthesis by Southern approach. The fixation was stable and the post operative period was uneventful. Patient was mobilized initially non weight bearing with the help of walker for 4 weeks and then full weight bearing later on. She was on regular follow up every 3 months till one year after which she stopped visiting the hospital. She reported after 4 years of surgery with click heard at her left hip and painful limp on the affected side while attempting to get up from squatting position. On extracting detailed history, she admitted that she started squatting and sitting cross legged in last one year. Radiographs of the hip was taken which showed intraprosthetic dislocation (Fig. 1). The patient was operated with Southern approach with extended trochanteric osteotomy and a revision Total hip Arthroplasty was done (Fig 2). Implant which was retrieved had a failed anti dissociation mechanism (Fig 3).

**Discussion**

Hemiarthroplasty using unipolar femoral endoprosthesis was commonly associated with painful loosening and erosion at the implant acetabular interface [1]. It was in the early 1970s that bipolar femoral prostheses were introduced with an idea to answer these complications associated with unipolar prosthesis. Bipolar design allows movement to occur at patient’s native acetabulum and the prosthesis as well as within the prosthesis [2]. The theoretical advantages are less wear and tear as well as lower risk of dislocation, with variable head and neck size and an increased range of motion [3,4,5]. However recent studies have not shown any significant difference in functional outcome and complication rates in long term follow up [2,4,6]. Intraprosthetic dislocation (IPD) has come to lime light since last decade with the advent of dual mobility cups used in THRs with reported incidence is approximately 1.9% to 5.2% [8]. Philippot et al reported that intraprosthetic dislocation has been associated with cup loosening, extrinsic blocking of the polyethylene liner or polyethylene wear [7]. IPD is a still rare complication with bipolar hemiarthroplasty with reported incidence in literature is less than 1%.

**Table 1: Review of Literature**

<table>
<thead>
<tr>
<th>AUTHOR, YEAR</th>
<th>NUMBER OF CASES</th>
<th>LIKELY CAUSE OF DISSOCIATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEORGIU G et al 2006</td>
<td>5 cases</td>
<td>Closed reduction following dislocation ’bottle opener’ effect.</td>
</tr>
<tr>
<td>HASEGAWA M et al 2004</td>
<td>7 cases</td>
<td>Failure of outer locking ring</td>
</tr>
<tr>
<td>LEE H H et al 2008</td>
<td>1 case</td>
<td>Wearing of insert</td>
</tr>
<tr>
<td>LAWSON KA et al 1991</td>
<td>4 cases</td>
<td>Poor outer shell and cup design with weak ret system at site of primary articulation</td>
</tr>
<tr>
<td>JAMES GIBBS et al 2004</td>
<td>1 case</td>
<td>Manufacturer defect or autoclaving of one or part of bipolar implant may lead to inner head out</td>
</tr>
</tbody>
</table>
Various mechanisms have been highlighted in previously reported cases as mentioned in the table 1. Majority of documented cases of intraprosthetic dislocation in bipolar had a history of early postoperative dislocation and a closed reduction maneuver done. This could lead to the ‘bottle opener’ effect wherein the cup locks on the posterior actabular rim while traction is applied and damage the anti dissociation mechanism in the modern bipolar implants [5]. ‘Bubble sign’ could be seen on plain radiographs where the liner has lost its attachment with the cup. In above mentioned cases only implant related factors have been considered and discussed with no emphasis on any patient related factors. The current case would be the first to be documented with no history of any dislocation or closed reduction maneuvers in immediate post operative period, and is associated with squatting and sitting cross legged after years of uneventful hip. When such a dislocation occurs the treatment of choice is open reduction or a conversion into a total hip arthroplasty. THR solves the future alignment problems and avoids need for further surgery keeping in mind the usual age of these patients.

The effect on economic and health conditions of these intraprosthetic dislocations are catastrophic. These patients with revision surgery have a longer hospital stay with more costly medical co morbidities. Revision arthroplasty is a cumbersome job for the operating surgeon with possibility of bone loss, peri prosthetic fractures and increased rates of infection.

**Conclusion**

Long term follow up comparison studies between simple unipolar and bipolar prostheses has shown no significant difference in the functional outcome and complication rates [2,4,6]. Hence the common use of bipolar implants with a unique complication of intraprosthetic dislocation becomes questionable especially in a developing country like India with a lower economic status of most people. Proper implant selection with individualized approach is a must to avoid long term debility and pain and to ensure patient’s satisfaction and early return to function.

**References**


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**Source of Support: NIL**