INTRODUCTION

The hip joint is a ball-and-socket articulation formed by the articulation of the head of the femur with the acetabulum. The acetabulum cavity is deepened by a fibrocartilaginous rim called the acetabular labrum. The uncemented hemiarthroplasty may result in higher hip scores but appears to carry a high risk of later femoral fractures. Fracture of the neck of the femur occurs predominantly in the older population, typically results from low-energy falls, and may be associated with osteoporosis. Fracture of the femoral neck in the young is a very different injury and is treated predominantly in the older population, typically results from low-energy falls, and may be associated with osteoporosis. Fracture of the femoral neck in the young is a very different injury and is treated predominantly in the older population, typically results from low-energy falls, and may be associated with osteoporosis.

Type I: Incomplete/valgus impacted. Type II: Complete and non-displaced on A.P. and lateral views. Type III: Complete with partial displacement; the femoral head's trabecular pattern does not align with the acetabulum's. Type IV: Completely displaced; this is the sort of bipolar prosthesis that we employed in our study. It has a stem that measures 160 mm in length and 8 mm in thickness. Stainless steel 316L was used to make the stem. It features a vertical shoulder attached to the medial calcar – the neck measures 19 mm in diameter. The inner head is 26/28 mm in diameter and articulates with the metallic (stainless steel) acetabular cup's ultra-high molecular weight polyethylene (UHMWPE) liner. The acetabular cup is available in sizes ranging from 39 to 53 mm, with a 2 mm difference between sizes. The acetabular component and femoral head are pre-assembled at the time of production.

METHODS

Twenty patients with intracapsular fractures of the neck of the femur were treated with the bipolar prosthesis at Government General Hospital, Kurnool, between November 2021 and November 2022. The study was conducted in a tertiary care institute during the study period. The study was conducted after taking proper consent from patients.

Criteria for inclusion

The following criteria were included in the study:
1. Patients over the age of 50
2. History of trauma (road traffic accidents, slip, fall, and trivial trauma)
3. Transcervical and subcapital fractures with displacement and comminution.

Criteria for exclusion

The following criteria were excluded from the study:
1. Intracapsular fracture of the femur neck in those under the age of 50
2. Primary cervical fractures of the femur
3. Compound fractures of the neck of the femur
4. Patients who are medically unfit to have surgery
5. Pathological fractures.

The patients were admitted, and a thorough medical history, general physical examination, systemic examination, and local examination gathered data.

Any previous medical history was logged. Blood tests such as Hb percent, B.T, CT, and complete urine examination (albumin, sugar, and microscopy) were performed as part of the routine. FBS, PPBS, Blood urea, serum creatinine, blood grouping, Rh typing ECG, and other tests are also available. X-rays of the abdomen and chest were obtained. To
determine the type of fracture, quantify the head size, and determine the quantity of calcar, radiographs of the hip joint (A.P. view) or pelvis were taken with internal rotation of the affected limb.

**Surgical procedure**
The patient is positioned in a lateral posture on the unaffected side under spinal anesthesia, and thorough scrubbing and draping are performed. The incision is made around 10 cm distal to the posterior superior iliac spine and continued distally and laterally parallel to the gluteus maximus fibers to the posterior edge of the greater trochanter using Moore’s southern approach. The incision is made 10–13 cm distally, parallel to the femoral shaft. In conjunction with the skin incision, the deep fascia is separated. The gluteus maximus fibers are split by blunt dissection, avoiding damage to the superior gluteal arteries in the proximal region. The gluteus maximus proximal fibers are withdrawn proximally, exposing the greater trochanter, whereas the distal fibers are retracted distally. The sciatic nerve is carefully located and withdrawn. The capsule is revealed after the short external rotators are identified, and sutures are inserted. A T-shaped incision is made over the posterior capsule to open the hip joint. To dislocate the hip joint, the thigh and knee are flexed to 90° and internally rotated, and the head is removed with an extractor or levers. Soft-tissue remnants and ligamentum teres are removed from the acetabular cavity.

**Femur preparation**
A sagittal or giggle's saw cuts the femur's neck, leaving about 5–10 mm of calcar over the lesser trochanter at an angle parallel to the prosthetic shoulder. To avoid fracture of the posterior femoral cortex, cautious use of bone nibblers was favored over an osteotome if neither was available.

**Cemented bipolar hemiarthroplasty technique**
After preparing the proximal femur for the uncemented surgery, a thorough wash with normal saline was performed, followed by the insertion of a ribbon gauge into the femoral canal to dry it. After removing the ribbon gauge, the Ryle's tube was inserted into the femoral canal, cement was pushed into the femoral canal with the help of the index finger, the Ryle's tube was removed, and the bipolar prosthesis was inserted in 5–10° of ante version into the femoral canal, pressurization was done after the prosthesis was well seated over calcar. The hip joint's stability is determined by the ability to move in different directions. A suction drain is kept in place, and the wound is closed in layers. A sterile dressing is put on the wound.

**Post-operative protocol**
The patients were placed in an abduction pillow for 5–7 days following surgery. The Thomas splint was used to immobilize patients with questionable reduction stability. The patient was forced to sit in bed on the 2nd post-operative day. Patients were utilizing a walker by the 3rd post-operative day. As tolerated, full-weight-bearing and ambulation were allowed. After 48 h, the suction drain was removed. After 5 days of parenteral antibiotics, the patient was shifted to oral antibiotics until the sutures were removed. On the 11th day, sutures were routinely dismissed. In every case, check radiographs were taken. By the end of the 2nd week after surgery, most of the patients had been discharged. Patients were told not to sit cross-legged or squat after discharge to avoid putting too much strain on the prosthesis, which would shorten its life span. A 6-week, 3-month, and 6-month follow-up examination was performed. During follow-up, radiographs were obtained to check for any problems. The Harris hip score system is used to evaluate the surgery's success.

**RESULTS AND DISCUSSION**
Between November 2021 and November 2022, 20 cases of femur neck fractures were treated with bipolar hemiarthroplasty in this study. The following observations were made based on the information gathered throughout the study.

**Age**
The patients in the study varied in age from 50 to 80 years old, with an average age of 64.4 years.

<table>
<thead>
<tr>
<th>Age in years</th>
<th>Number of patients</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>50–60</td>
<td>4</td>
<td>20</td>
</tr>
<tr>
<td>60–70</td>
<td>10</td>
<td>50</td>
</tr>
<tr>
<td>70–80</td>
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<td>30</td>
</tr>
<tr>
<td>Total</td>
<td>20</td>
<td>100</td>
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**Sex**
Fourteen females and six men were among the twenty 20 patients in the study.

<table>
<thead>
<tr>
<th>Sex</th>
<th>Number of patients</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>14</td>
<td>70</td>
</tr>
<tr>
<td>Male</td>
<td>6</td>
<td>30</td>
</tr>
<tr>
<td>Total</td>
<td>20</td>
<td>100</td>
</tr>
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</table>

**Mode of injury**
Out of the 20 cases, 18 were caused by trivial trauma, and RTA caused two. There were no related injuries and no pathological fractures in this study.

Sixteen patients (80%) reported with an acute fracture, whereas 4 (20%) patients presented with a late presentation.

**Side**
Twelve of the 20 patients in this study had a left femur injury, and the other eight had a right femur injury.

**Size of prosthesis**
In this study, we employed prostheses ranging from 41 to 47 mm. In general, the patient’s prosthesis size is determined by their build.

<table>
<thead>
<tr>
<th>Size of prosthesis</th>
<th>Number of patients</th>
<th>Percentage</th>
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<tr>
<td>41 mm</td>
<td>7</td>
<td>35</td>
</tr>
<tr>
<td>43 mm</td>
<td>6</td>
<td>30</td>
</tr>
<tr>
<td>45 mm</td>
<td>5</td>
<td>25</td>
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<tr>
<td>47 mm</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>Total</td>
<td>20</td>
<td>100</td>
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</table>

**Follow-up**
All of the patients in this study 20 were followed up on, and the follow-up period lasted 6 months.

**Functional evaluation**

**Pain**
In the present study, 11 patients had no pain, seven had slight discomfort, and two had mild pain at the end of 6 months.

<table>
<thead>
<tr>
<th>Pain</th>
<th>Number of Patients</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>11</td>
<td>55</td>
</tr>
<tr>
<td>Slight</td>
<td>7</td>
<td>35</td>
</tr>
<tr>
<td>Mild</td>
<td>2</td>
<td>10</td>
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<tr>
<td>Moderate</td>
<td>-</td>
<td>-</td>
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<tr>
<td>Marked</td>
<td>-</td>
<td>-</td>
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<tr>
<td>Disabling</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>TOTAL</td>
<td>20</td>
<td>100</td>
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**Function**

**Gait**
Limp
Out of 20 patients, 12 had no limp, seven had a slight limp, and one had a moderate limp.
A score of 5 indicated an excellent range of motion seen in 16 patients (80%), whereas a score of 4 indicated a poor range of motion seen in four individuals (20%).
CONCLUSION

Twenty patients with intracapsular fractures of the neck of the femur with displacement, communication, and neck resorption that were difficult to treat by internal fixation and were above 50 years old were surgically treated with hemiarthroplasty using a bipolar endoprosthesis in this study. After assessing, analyzing, and evaluating the clinical data, the following results were made. Fracture of the neck of the femur is prevalent in the older population. Bipolar H.A.s seem to have better result in HRQoL beyond the first 2 years after surgery compared to unipolar H.A.s. Bipolar H.A.s displayed a later onset of acetabular erosion compared to unipolar H.A.s. The cause for an increased incidence of femoral neck fracture in the old age group is thought to be progressive osteoporosis. When compared to age-matched controls, these patients had reduced bone mineral densities. Another factor linked to this fracture is an increased risk of falling among this population. In this age group, bipolar hemiarthroplasty can be performed safely and with good results. Bipolar hemiarthroplasty allows for early mobilization, pain alleviation, and a high degree of activity while posing little risks. When compared to Austin Moore’s prosthesis, bipolar hemiarthroplasty had fewer complications, such as acetabular erosion and anterior thigh pain. As a result of these findings, we believe that bipolar hemiarthroplasty is the best treatment for intracapsular femur fracture necks.

AUTHORS' CONTRIBUTIONS

All authors have declared that they are interested in the submitted work and have contributed to journal work.

CONFLICTS OF INTEREST

All authors have no conflicts of interest.

AUTHORS FUNDING

All authors have declared that no financial support was received from any organization.

REFERENCES


