

## POSTERIOR APPROACH FOR HIP ARTHROPLASTY: A SINGLE SURGEON SERIES

**M. Maru**, MBChB, MRCS, MSC, CCT(UK), FRCS(TR & ORTH) UK, Director of Clinical Services & Consultant Orthopaedic and Trauma Surgeon, Kikuyu Orthopaedic Rehabilitation Centre, Kikuyu, Kenya and **J. W. Kinyanjui** MBChB, MMed (Ortho), St. Mary Rift Valley Mission Hospital, P.O. Box 168-20116, Gilgil, Kenya

**Correspondence to:** Dr. M. Maru, P.O. Box 1010 Kikuyu, Kenya. Email: mmarus2000@yahoo.com

### ABSTRACT

**Background:** Approaches for hip arthroplasty are varied dependent on surgeon training and each have their postulated advantages and disadvantages.

**Objective:** Presentation of a case series of primary and revision arthroplasty utilizing the posterior approach.

**Design:** Retrospective case series.

**Methodology:** Records of arthroplasties performed by the primary author at Kikuyu Orthopaedic Rehabilitation Centre over a period of one year were queried and data extracted and recorded.

**Results:** A total of 36 arthroplasties were performed using the posterior approach. The average age was 66 years with a 1:1.6 male female ratio. The most common indication was osteoarthritis. Two complications were encountered; surgical site infection and post-operative cerebrovascular accident. There were no dislocations.

**Conclusions:** The posterior approach is a viable approach for hip arthroplasty for use in Kenya with low complication rates.

### INTRODUCTION

Approaches for hip arthroplasty are varied depending on training of surgeon performing the surgeries. Some approaches are postulated to provide better access to the acetabulum and others better access to the proximal femur. Commonly in Kenya, the anterolateral (Hardinge) approach is utilised. We present a single surgeon series utilising the posterior approach for both primary and revision arthroplasty.

### MATERIALS AND METHODS

Records of hip arthroplasties performed by the corresponding author at Kikuyu Orthopaedic Rehabilitation Centre were obtained from the records department after getting approval from the Kikuyu Hospital Administration. The period of study was from 1<sup>st</sup> November 2012 to 21<sup>st</sup> January 2014.

The operative procedure consisted of a posterior approach skin incision, division of the fascia lata and trochanteric bursa, division of piriformis after tagging the short external rotators and posterior hip dislocation after capsular division. Standard acetabular and femoral preparation then implantation. Closure consisted of reattachment of the short external rotators and posterior capsular repair. The implants used were from a variety of manufacturers but all based on the Exeter hip design with a standard 28mm head. For uncemented hip replacements the acetabular liner all had locking restraints. Post operative regimen consisted of patient

education on standard hip precautions. Abduction braces and knee immobilisers were not used.

Extracted was the demographic data, indication of operation, type of operation, perioperative haemoglobin, amount of blood transfusion, perioperative DVT prophylaxis and antibiotics, hospital stay, comorbid conditions and complications. DVT prophylaxis was with post operative enoxaparin 40 mg once daily postoperatively and oral Aspirin 150mg on discharge for 4 weeks. All patients received 3 doses of intravenous Ceftriaxone 1g. Physiotherapy consisted of full weight bearing as able and abductor strengthening.

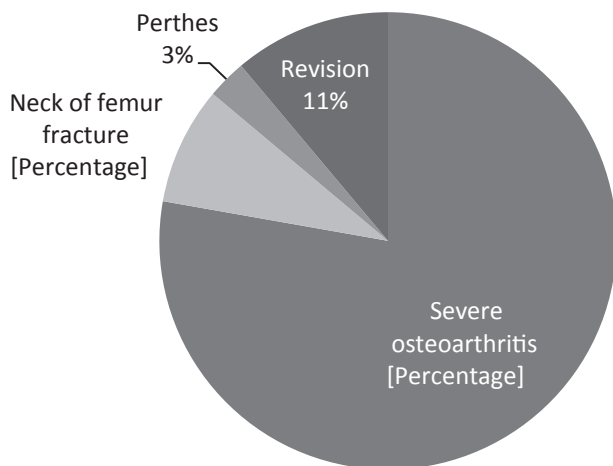
This data was entered into a Microsoft Excel worksheet after appropriate data coding. Data analysis consisted of determination of summary statistics of simple proportions.

### RESULTS

A total of 36 arthroplasties were performed on 35 patients whose average age was 66 years (range 29 – 84 years). The male female ratio was 1:1.6. The most common indication was severe osteoarthritis. Other indications are as shown in Figure 1. The average follow up period was 12 weeks.

There were 25 cemented arthroplasties, 7 uncemented and 4 stem revision arthroplasties performed. The average hospital stay was 5.4 days (range 4 – 30 days). Average preoperative haemoglobin was 13.8 g/dL while the average postoperative haemoglobin was 10.7 g/dL.

**Figure 1**  
Indications for total hip arthroplasty



Twenty eight patients needed blood transfusion with an average of 1.7 pints transfused (range 1 – 4 pints). Twenty six patients had comorbid conditions the commonest being hypertension. There were 2 complications encountered; 1 surgical site infection and 1 cerebrovascular accident postoperatively. There were no dislocations during the follow up period. There were no sciatic nerve injuries.

## DISCUSSION

Despite numerous studies examining the effect of surgical approach on dislocation rates (1-5), there is no firm consensus regarding which approach is associated with higher dislocation rates. The average rate of dislocation after posterior approach is 1 – 9% which is not statistically higher than for the other approaches. This study did not show any dislocation during the follow up period which matches the data in the studies referenced above. However, the follow up period is relatively short and the patient numbers low. Longer follow up and bigger number of patients is expected to give a clearer view of the dislocation rates.

An enhanced posterior soft tissue repair (6) which was applied in the case series presented has been shown to lower the dislocation rates. Comparison between the anterolateral and posterior approaches have shown no significant differences in Oxford hip scores, revision and dislocation rates (7). Recent advances include use of a mini incision posterior approach which involves an incision 6 – 8 cm long and special instruments to implant the components. This has been associated with shorter operative times, less perioperative blood loss and short term outcomes were similar with the conventional posterior approach (7).

The advantages of the posterior approach for hip arthroplasty include better exposure of the acetabular cup for optimal implant positioning, easier femoral exposure for reaming with low risk of femur fracture, hip precaution to prevent dislocation is less disabling and mainly consists of avoidance of hip hyperflexion.

This approach is not commonly utilised in this country probably because of training institution preferences with more senior surgeons utilising the lateral approach and passing on this training to their students. This can be remedied by rotation of orthopaedic registrars in diverse units offering the various approaches allowing them the opportunity to select the most suitable approach for them.

Renewed interest in anterior approach to hip arthroplasty claims benefits of muscle sparing surgery with low risk of dislocation and no need of hip precautions but has the disadvantages of higher risk of femoral fracture and less optimal exposure of the acetabulum. It is also more technically demanding and requires intraoperative X rays for correct implant positioning. There are currently no high quality studies comparing the anterior and posterior approaches for hip arthroplasty.

## CONCLUSION

The posterior approach for hip arthroplasty is a viable approach for use by orthopaedic surgeons in Kenya associated with low complication rates.

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