

Direct Lateral Approach VS Popular Moore's Approach of Hip for Hemiarthroplasty: Incidence of Dislocation

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ABSTRACT

Objectives: To evaluate the rate of dislocation in both lateral and posterior approaches

Study design: Prospective randomized controlled trial

Study setting: Department of Orthopedic Surgery Unit II, Mayo Hospital Lahore, Pakistan

Duration: April 2009- December 2011

Material and Methods: Total of 43 patients of hemiarthroplasty were included in the study, 22 patients (51.2%) with posterior Moore's approach and 21(48.8%) with direct lateral approach. Age of the patients was above 55 years. The two groups were otherwise comparable regarding co-morbid factors. All surgeries were performed in the same department. Patients were followed up for three months to analyze the rate of dislocation. In addition we analyzed the dislocation rate for each approach in three groups (Consultant, Senior Registrars and Senior Residents).

Results: Overall dislocation rate in the posterior approach was 9% (2/22), whereas in the lateral approach group it was 4.8% (1/21). Dislocation rate was also more in the surgeries performed by junior surgeons.

Conclusion: We concluded that because of high mortality associated with dislocations, particularly with posterior approach, the direct lateral approach should be practiced especially by surgical trainees.

Key words: Hemiarthroplasty; Dislocation; Surgical approach

INTRODUCTION

Hemiarthroplasty of the hip was first introduced in 1940 by Moore and Bohman¹ and Moore recommended posterior approach for insertion of prosthesis. Following this other approaches including anterolateral and lateral Hardinge² were utilized. In recent years lateral approach has gained momentum in the western world. Little literature is available on comparison of both approaches³. They did not show a statistically significant difference between the dislocation rates except one study by Unwin⁴. Now in our department both of these approaches are being used extensively for insertion of hemiarthroplasties for fracture neck of femur and we have compared the dislocation rate in both the approaches.

PATIENTS AND METHODS

The outcome of 43 consecutive primary hemiarthroplasties performed for fracture neck of femur between April 2009 and December 2011 was analyzed. The selection of the approach used for hemiarthroplasty was determined by the surgeon's preference. Patients were followed up for three months regarding evaluation for dislocation. All patients with previous hip surgery,

deformity hip and previous infections were excluded from the study. There was no difference of surgical method other than the approach. 45 patients were included in the study but only 43 patients completed the follow up protocol.

Two types of prosthesis were used in this study, Austin Moore and Bipolar Prosthesis (both cemented and uncemented). The overall dislocation rate for posterior and lateral approach was determined. In addition the dislocation rate with each approach was analyzed for seniority of the surgeon i.e. Consultant, Senior Registrar, Registrar.

OPERATIVE PROCEDURE:

Posterior or Moore Southern approach

The hip is approached posteriorly after division of short external rotators and posterior capsule having good exposure to the hip. This approach is more popular in our region.

Anterolateral approach

This is basically a modified Hardinge approach. The hip is approached anteriorly by dividing anterior 1/3 of abductors (Gluteus medius and minimus) having good exposure for

hemiarthroplasty and THR. Moreover, there are no chances of sciatic nerve injury. This approach is popular in UK and Ireland.

RESULTS

All the patients in the study were over 55 years and there was no significant difference in age range in both the groups. Of the total 43 cases included, 22 (51.2%) were performed via the posterior Moores approach and 21 (48.8%) via the direct lateral approach. Of the 43 procedures 12 were bipolar and rest of the other was Austin Moores prosthesis. 13 were cemented including 8 bipolar and 5 Austin Moores prosthesis. Rest of the others was uncemented.

Table 1 demonstrates the dislocation rate for hemiarthroplasty using each of the two surgical approaches. 9 % of the hemiarthroplasties done via posterior Moore’s approach dislocated

compared with 4.8% by lateral approach. This difference is remarkable and significant.

There was no dislocation seen in the follow up of the surgeries done by the consultants but in hemiarthroplasties performed by the senior registrars and senior residents the dislocation rate was 8.7% and 12.5% respectively which again was highly significant.

Table 1: Dislocation rates

	Moore’s approach	Direct lateral approach
Number of Procedures	22	21
Dislocations	2	1
Percentage	9%	4.8%

Table 2: Incidence of dislocation at each level of seniority in the surgical team

	Posterior Approach	Lateral Approach	Total
Consultant	0/6	0/6	0/13 0%
Senior Registrar	1/11	1/12	2/23 8.7%
Senior resident	1/5	0/3	1/8 12.5%

DISCUSSION

In our series the posterior approach included division of short external rotators and posterior capsulotomy. The operated hip is more stable in extension and external rotation.

There are many modifications of lateral approach but our approach was based on division and later repair of anterior 1/3 of tendinous portion of gluteus medius. The operated hip is more stable in flexion and internal rotation.

We have shown that the dislocation rate after hemiarthroplasty is significantly higher if inserted through posterior approach rather than by the lateral approach as was shown by Unwin in his study⁴.

There are many modifications of what is termed the direct lateral approach. In our series the direct lateral approaches involved the division and the later repair of the tendinous portion of gluteus medius. The operated hip is most stable in flexion and internal rotation.

Although suspected by many, this has, to our knowledge, not previously been shown. It is well-

established that patients with preexisting neurological conditions, e.g. previous stroke, epilepsy, Parkinsonism, no matter what the approach, have a higher incidence of dislocation⁵. Despite this bias, the direct lateral route has been shown to be more favorable, and this supports our argument even further.

We would now in favor of the use of the direct lateral approach rather than the posterior approach for hemiarthroplasty because:

1. We feel that the posterior approach does not give sufficient soft tissue cover to a hemiarthroplasty. The re-attached short external rotators do not provide sufficient stability, and the suture line may fail postoperatively. The loss of the strong posterior capsule in the procedure is an important factor in destabilizing the hip⁶. In contrast to this, the direct lateral approach includes an anatomical repair with the re-suturing of the strong tendon of gluteus medius and/or vastus lateralis, and this provides an additional degree of stability.

2. Prohibition of patients sitting postoperatively after a procedure by the posterior approach has not been shown conclusively to reduce the dislocation rate. Nevertheless, because the operated hip is unstable in flexion, many centers adopt such a policy for a period after operation. This is a problem in the elderly, where one must aim to sit the patient out of bed as soon as practicable to prevent the consequences of immobility. As the direct lateral approach is more stable in flexion, patients may sit after operation.
3. Our study has suggested that, in terms of preventing dislocation, there is a steeper learning curve for the posterior approach than for the direct lateral approach. We analyzed the dislocation rates for the three broad grades of surgical trainee. In the senior registrar group, although there is a higher dislocation rate for posterior approaches (8.7%). However, for senior residents, the posterior approach involve a much higher dislocation rate (12.5%). We regard the posterior approach dislocation rate by senior residents to be unacceptable.

PITFALLS OF THE PROCEDURE

Dislocation after hemiarthroplasty can be a disaster with reported death rate from 50 to 65 percent especially in the elderly.^{7,8,9} The posterior approach with dislocation and thrombosis major factors. Although the anterior and anterolateral approaches have their advocates, and indeed have a similarly low incidence of dislocation, they have an increased risk of operative complication, e.g. difficulty of prosthesis insertion, femoral shaft penetration and fracture of the greater trochanter¹⁰. The direct lateral approach is not reported to have such problems.

In our opinion, because of the greatly increased risk of dislocation, we support the use of the direct lateral approach for hemiarthroplasty. We are not the first to condemn the posterior approach. Wilson, as quoted by Boyd and Salvatore¹¹, when considering the posterior approach, stated: "this is a dangerous operation--- it is too easy to do!" Davidson and Bodey¹² stated the unacceptable mortality associated with dislocation following hemiarthroplasty, and the possible improvement in this complication rate with the anterior approach.

CONCLUSION

In our series of cases we found better results with lateral approach as compared with posterior approach for hemiarthroplasty. Regarding dislocations after hemiarthroplasty, we suggest that with lateral approach this complication rate can be reduced. This study also indicates the need for a critical reappraisal of the surgical approach for this operation in future.

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