
**Comparison Of Anterolateral
And Posterior Exposure Of
The Hip For Austin Moore
Prosthesis**

Samin Arbab,* M.B.,B.S.,
F.R.C.S.,
and
Shahabuddin,** M.B.,B.S.,
M.C.P.S., F.C.P.S.,
Postgraduate Medical Institute,
Lady Reading Hospital,
Peshawar, Pakistan.

Summary

A randomised study was performed on 110 patients who had Austin Moore replacement of femoral head from January 1988 to December 1989 and followed up for 18 months.

All patients with intracapsular fracture neck of femur (age more than 60 years) with late presentation and Garden III and IV with early presentation, failed osteosynthesis, other fixation devices and avascular necrosis of the head of femur were included in the study.

Posterior exposure was performed on 67 (60.9%) patients while anterolateral exposure on 43 (39.1%) patients.

The rate of dislocation and subluxation in posterior exposure was 1 case (0.9%) and in anterolateral exposure was 4 cases (3.6%).

The rate of infection in posterior exposure was 5 cases (4.5%) while in anterolateral exposure was 12 cases (10.8%).

The fracture of shaft of femur which occurred during the

* Associate Professor;

** Senior Registrar,
Department of Orthopaedics, Lady Reading Hospital.

operation was 2 cases (1.8%) and late fracture noted was 2 cases (1.8%) in the anterolateral exposure group, while no such complication was noted in the posterior exposure group.

Introduction

In 1940, Moore introduced the first metallic replacement prosthesis for the head of femur. Later on it was modified and other unipolar types like Judet and Thompson were introduced. Meanwhile, bipolar type of prosthesis like Monks, Bateman and Giliberty were used. All these prosthesis needed methyl methacrylate for fixation except the Austin Moore prosthesis. Both anterolateral and posterior approaches are used by different surgeons for insertion of A.M. prosthesis. Both exposures are reported to have their own merits and demerits. We have compared the results of both the exposures in our study.

Material and Method

A randomised study was conducted in our unit from January 1988 to December 1989 for comparing the results of both exposures in terms of time of operation, and early and late complications.

110 patients were included in the study. The male: female ratio was 62 (56.4%): 48 (43.6%).

The indications for operation and the number of patients with sex ratio is as follows:

Indications For Operation	Male	Female	Total
I. Intracapsular fracture neck of femur, more than 60 years age, with early presentation Garden III, IV	31 (28.2%)	27 (24.5%)	58 (52.7%)
II. Intracapsular fracture neck of femur, more than 60 years age, with late presentation	22 (20%)	16 (14.5%)	38 (34.5%)
III. Failed osteosynthesis and other failed fixation devices	5 (4.5%)	3 (2.8%)	8 (7.3%)
IV. Avascular necrosis of the head of femur	4 (3.6%)	2 (1.9%)	6 (5.5%)
Total	62 (56.4%)	48 (43.6%)	110 (100%)

The number of patients operated by two exposures with their indications for operation (as above I, II, III and IV) is shown as follows:

Indications	Posterior Exposure Group	Anterolateral Exposure Group	Total
I	38(34.5%)	20(18.2%)	58(52.7%)
II	21(19.1%)	17(15.4%)	38(34.5%)
III	4(3.6%)	4(3.6%)	8(7.3%)
IV	4(3.6%)	2(1.8%)	6(5.5%)
Total	67(60.9%)	43(39.1%)	110(100%)

All the patients were followed up for 18 months. 2 patients died postoperatively probably due to pulmonary embolism. 13 patients did not come for follow up.

Results

The results of both exposures were analysed with particular emphasis on the time of operation, peroperative complications, and early and late complications.

(A) TIME OF OPERATION

The mean of time of operation from skin to skin in the posterior approach was 35 minutes and for the anterolateral approach 55 minutes.

(B) PEROPERATIVE COMPLICATIONS

- (a) Bleeding: The mean of swab count for posterior exposure was 2 while for the anterolateral exposure it was 5.
- (b) Difficulty in reduction: 5 cases (4.5%) were difficult to reduce in posterior exposure as compared to the anterolateral exposure in which we had difficulty in reduction in 14 cases (12.7%).
- (c) Fracture of the upper end of femur during reduction: There was no fracture during reduction in the posterior exposure while we had 2 cases (1.8%) which had a fracture of the upper end of femur during reduction in anterolateral approach.

(C) EARLY COMPLICATIONS

- (a) Subluxation and dislocation:

There was one case (0.9%) of dislocation of the hip in posterior exposure group while we had 3 cases (2.7%) in the anterolateral

exposure group which got dislocated and one case (0.9%) of subluxation of the hip.

(b) Rotational deformity of the prosthesis:

10 (9%) postoperative x-rays in the anterolateral approach group showed anterversion of the prosthesis while 2 (1.8%) postoperative x-rays in the posterior approach group showed retroversion.

(c) Infection:

In anterolateral exposure group 6 patients (5.4%) had superficial infection, while 4 (3.6%) had deep infection. In posterior exposure group 2 cases (1.8%) got supervidical infection and 2 (1.8%) deep infection.

(D) LATE COMPLICATIONS

(a) Late infection:

2 (1.8%) patients from the anterolateral exposure group developed deep infection after 8 and 9 months follow up, while one (0.9%) case from the posterior exposure group reported a deep infection after 8 months follow up.

(b) Loosening of prosthesis:

3 cases (2.7%) of the anterolateral exposure group and 2 cases (1.8%) of the posterior exposure group were diagnosed to have got loosening of the prosthesis after 9 months to 18 months follow up.

(c) Late fracture of femur around the stem of prosthesis:

2 cases (1.8%) of the anterolateral exposure group came with a fracture of femur around the stem after 9 months and 1 year follow

up, while no such complication was in the posterior exposure group.

Discussion

The comparison between the surgical approach to the hip regarding their merits and demerits has been discussed in the literature elsewhere.

Moore initially recommended the use of posterior approach without reporting any posterior dislocation. Anderson et al¹ reported posterior dislocation in posterior approach in those patients with flexion and adduction contracture of the hip prior to surgery. Eventov et al³ also used posterior approach and reported only one dislocation (3%). In our series we had one dislocation (0.9%) in posterior approach which can be compared with the results of Anderson et al³ and Hinchey and Day⁴. They reported dislocation rate of less than 1% in their series.

In our case the occurrence of subluxation and dislocation in anterolateral exposure group was 4 cases (3.6%) which can be compared with the results of E.A. Salvati et al⁹ who also reported 3.6% dislocation in his series.

The reason for the high rate of dislocation in the anterolateral approach is probably due to excessive anteversion of the prosthesis. Slight anteversion was also seen in our postoperative x-rays in 10 patients (9%) of the anterolateral approach group.

Infection rate in our series in anterolateral group was 5.4% (early superficial), 3.6% (early deep) and 1.8% (late) infection, while in the posterior exposure group the infection rate was 1.8% (superficial and early deep) and 0.9% (late) infection. This can be compared with the results of Salvati et al⁹.

The reason for our high rate of infection in anterolateral exposure group is due to prolonged exposure time, more bleeding and difficulty in reduction as compared to posterior exposure group.

The difficulty in reduction in the anterolateral exposure group was also responsible for fracture of the upper end of femur in 2 cases (1.8%).

The anteversion seen in 10 cases (9%) was most probably responsible for the loosening of the prosthesis in 3 cases (2.7%) and late fracture of femur in 2 (1.8%) cases.

In general, Austin Moore hemiarthroplasty is still the method of choice for the replacement of femoral head, and we recommend posterior exposure which yielded the smallest number of complications as compared to anterolateral exposure.

References

1. Anderson, L.D., Hamsa, W.R. and Waring, T.L.; Femoral Head Prosthesis. *J. Bone Joint Surg*: 46:1049-1065, (1964).

2. Coughlin, Larry, and Templeton, John; Hip Fractures in patients with Parkinsons Disease: *Clin. Orthop.* 148: 192-195, (1980).

3. Evantov, I., Moreno, M., Geller. E., Tardiman, R. and Salama R.; Hip Fractures in Patients with Parkinsons Syndrome: *J. Trauma*, 23: 98-101, (1983).

4. Hinchey, J.J., and Day. P.L.; Primary Prosthetic replacement in fresh femoral neck fracture. *J. Bone, Joint Surg.* 46A: 223-240, (1964).

5. Langan. P.; The Gilberty Bipolar Prosthesis. A clinical and radiological review. *Clin. Orthop.* 141: 169-175, (1979).

6. Moore, A.T. and Bohlman, H.R.; Metal Hip Joint. A case report. *J. Bone Joint Surg.*, 25: 688-692, (1943).

7. Moore, A.T.; Metal Hip Joint. A new self locking vitallium. Prosthesis *South Med. J.* 45: 1015-1019, (1952).

8. Moore, A.T.; The self locking metal hip prosthesis. *J. Bone Joint Surg.* 39 A: 811-827, (1957).

9. Salvati, E.A. and Wilson P.D.; Long term result of femoral head replacement. *J. Bone Joint Surgery*, 55A: 516-524, (1973).

10. Staeheli. J.W.; Frassica F.J. and Sim, F.H.; Prosthetic replacement of femoral head for fracture of the femoral neck in patients who have Parkinsons disease. *J. Bone Joint Surg.* 70A: 565-568, (1988).