



STUDY OF OPERATIVE OUTCOME OF MINI INCISION IN HIP JOINT HEMIARTHROPLASTY IN ADULT PATIENTS

Orthopaedics

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KEYWORDS

INTRODUCTION

Intracapsular femoral neck fractures account for 50% of all hip fractures. Fractures of the neck of femur have always been a great challenge to the orthopaedic surgeons and has been an unsolved fracture as for as treatment and results are concerned. Fractures of the neck of femur are on increase, not unexpectedly, since the general life expectancy has increased significantly during the few decades and our society is having more and more Geriatric age group people. Replacement of the femoral head and neck with a prosthesis offers a way to prevent complications of internal fixation and is therefore an attractive alternative in the elderly patient. The treatment of geriatric population with cemented bipolar hip hemiarthroplasty is widely accepted method. The procedure is standardised and patients achieve full weight bearing after operation. In recent years, minimal invasive surgery for hip replacement has become common. Due to minimal invasive procedures, the mobilisation might be faster and the hospital stay shorter. The patients show a lesser blood loss and reduced pain levels. These advantages of minimal invasive surgery are essential for geriatric patients, and possibly reduce postoperative mortality.

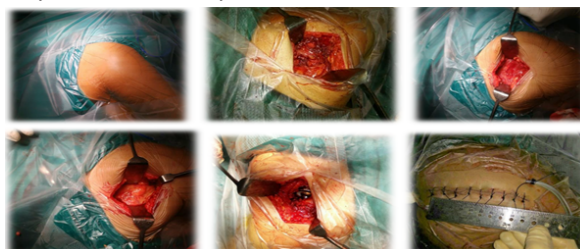
MATERIAL AND METHOD

We have done a study of mini incision hip joint hemiarthroplasty in adult at our institute with follow up of 6 – 24 months. Inclusion criteria for our study is intracapsular fracture neck of femur in patients of age 60 years and above, nonunited fracture neck of femur, fracture neck of femur with avascular necrosis. Exclusion criteria for our study patients below 40 years, avascular necrosis of femoral head with acetabular changes, pathological fractures of neck of femur, patients medically unfit for surgery, patients who were non-ambulatory, prior to the fracture, not willing to participate in the study. Radiographic evaluation was done with anteroposterior radiographs of pelvis with hip. Fracture was managed by bipolar hemiarthroplasty by posterior approach.

OPERATIVE STEPS

Incision around 5-7cm is started approximately 10 cm distal to posterior superior iliac spine and extended distally and laterally parallel to fibres of gluteus maximus to posterior margin of greater trochanter then directed distally towards the shaft of femur. Fibre of gluteus maximus are separated by blunt dissection. After exposing greater trochanter, short external rotators of the hip are identified and stay sutures are placed in the short external rotators. Joint is approached through the fracture by detaching short external rotators and posterior capsule of the hip. The femoral head is dislocated and removed and the size is determined using the head measuring gauge. Remnants of the neck, if any, were nibbled. The next step is to ream the shaft according to the version of the future prosthesis. The version was decided according to the long axis of the leg. A virtual line was drawn perpendicular to its axis, and femoral rasping was done at 15-20° of ante-version. The femoral canal was broached with appropriate ante-version. The prosthesis was selected according to the level of the fracture. Bipolar prosthesis was used in patients where the fracture was near to the lesser trochanter and a calcar replacing prosthesis was used in patients where the fracture was extending distal to the lesser trochanter. A trial bipolar prosthesis was then inserted and trial reduction was done. With the trial prosthesis in situ, the length of the affected limb was compared with the opposite leg. The stability of the implant was checked by assessing the hip movements such as flexion, extension, adduction, abduction, internal and external rotation. Based

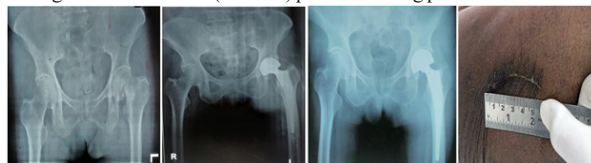
on these tests, the size of the original prosthesis was selected. The next step is cementing of the femoral canal. A cement restrictor is passed in the femoral canal upto the desired level and the canal is packed with a wet gauze. The acetabular cavity is also packed with a gauze to prevent any cement from getting collected there. The cement is then inserted with the cement gun. The appropriate original stem is then inserted in the canal and held firmly till the cement is solidified. Excess cement is removed. The acetabulum gauze is also removed. The trial head is then mounted on to the stem and reduction is done and stability is confirmed. Now based on this, the appropriate original neck and head size is selected and is press fitted over the stem. Reduction is done and stability of the prosthesis is confirmed. The short external rotators were then sutured back to the greater trochanter. The closure of the superficial layers was done over a suction drain after achieving haemostasis. The wound is closed in layers. Radiological assessment was done to know loosening of implant, erosion of acetabulum, protrusion, stem position, subsidence of stem and osteolysis around stem. At final follow up results were rated as excellent, good, fair or poor according to modified Harris Hip Score. Results were rated as – excellent: 90-100; good: 80-89; fair: 70-79; and poor: < 70. Data was analysed at the end of study



OBSERVATION

A total of 30 patients were treated for hemiarthroplasty by minimal posterior approach. The mean age was 68.30% years. 90% were more than 60 years old. 19 (63.33%) patients were in 61-70 age group. 19 (63.33%) were female and 11 (36.66%) were male patients. Most common cause of injury in our study was 19(63.33%) domestic fall. Overall 10% of the patients had associated injuries. One (3.33%) patient had associated injury in form of distal end radius fracture. One (3.33%) patient had head injury and One (3.33%) patient had chest injury. Average time of surgery (IN-OUT TIME) in our series for hemiarthroplasty was 88.66 minute. 14(46.66%) patients were given blood transfusion. 24(80%) patients has equal limb length postoperative. 04(13.33%) patients has limb shortening <0.5 cm, 01(03.33%) patients has limb shortening >0.5cm and 01(03.33%) has limb lengthening. Mean drain output of patients was 50 cc in our study. Mean interval between time of admission and surgery was 4.26 days. The median stay in hospital was 14 days (6-30 days). Reasons for delayed operative treatment included current anticoagulation in 3(10%) and anaemia in 12(40%) and co-morbidities. 26 patients were used cemented modular bipolar, one patient was used uncemented bipolar and 3 patients were used Austin moore prosthesis. Mean length of incision in our study is 5.9 cm. In intraoperative complication, excessive bleeding was seen in one patient, significant hemodynamic abnormality seen in one patient and cardiopulmonary complication was seen in 2 patients. In early post operative complication, superficial wound infection was seen in one patient, dislocation was seen in one patient, limb length discrepancy seen in 2 patients. In delayed

complication, limb length discrepancy was seen in one patient, dislocation was seen in one patient, significant decreased range of movement in 3 patients, thigh pain was seen in 2 patients, loosening of stem was seen in one patient. 06(20.00%) patients having excellent result, 17(56.66%) patients having good result, 05(16.66%) patients having fair results and 02(6.66%) patients having poor result.



Pre op post op 6month follow up incision length

DISCUSSION

The aim of treatment for intracapsular neck of femur fractures patients is to return to preinjury mobility status as early as possible. The surgical options for hip fractures include internal fixation, hemiarthroplasty and total hip replacement. Hemiarthroplasty is considered the optimal treatment for active elderly patients with intracapsular neck of femur fractures and produce satisfactory results[2]. Hemiarthroplasty using the Austin Moore's prosthesis or modular bipolar. Minimal invasive surgical techniques in hip surgery are increasingly being accepted. The new technique aims to reduce perioperative complications and facilitate a faster rehabilitation process. In our study we have used mini incision posterior approach for hip hemiarthroplasty. Out of 30 patients treated in this manner, all cases were available for follow-up period of 6-24 months. The mean age was noted to be 67.53 years. Majority of patients belongs to age group 60-69 years was 63.33%. Elderly are at a higher risk because bones tend to weaken with age (osteoporosis). Poor vision, balance problems and associated comorbidities also make prone to fall. Females were more common 63.33% than males in the present study. Other studies also showed higher number of females who sustained a fracture neck of femur as compared to the male population. Elderly females are more prone to fracture neck of femur due to osteoporosis[3]. Majority of our study patients 19 (63.3%) sustained the injury due to a trivial trauma like fall down or slipping. This is a very common occurrence in elderly population where poor vision and lack of neuromuscular coordination is a problem. Most of such injuries can be classified as 'indirect' trauma. Mean length of incision in our study is 5.9 cm, minimal as comparison with other study had 10-15 cm incision length. Mini incision technique decreases the tissue trauma at operative site and less bleeding in hemi replacement[4]. This results in less dissection and facilitates rapid patient recovery and possibility earlier discharge from hospital. Early rehabilitation done through this technique[5]. 14(46.66%) patients were given blood transfusion, majority 12 of them because their preoperative haemoglobin was less (most of them were old patients with associated medical problems)[6]. Two patients were given blood transfusion postoperative for control of hemodynamic instability. Poignard et al. reported dislocations in about 4.5% of patients after using a posterolateral approach, while Biber et al. reported dislocations in about 3.9% of patients after a posterior approach, and 0.5% after a trans-gluteal approach[7,8]. In one case (3.33%), a dislocation of the prosthesis occurred in our study, reduced by closed reduction under anaesthesia. One patient (3.33%) had experience of superficial wound infection in early post-operative period. Infection had been subsided within 5 days of antibiotic. No patient had experience of deep infection or required wound exploration. Biber et al. described an infection rate of 2.5% after a posterior approach and 3.2% after a trans gluteal approach. The sensitive skin and soft tissue of geriatric patients require a very gentle operative technique. In our study, rate of protrusion of prosthesis 1(3.33%), patient not willing for revision surgery. The periprosthetic fracture rate of 0% in our study. The mortality rate during the acute hospital stay was zero, which was expected. During first year after hemiarthroplasty, mortality rate is 3.33% in our study. In our study, the final Harris Hip Score as evaluated at one year follow up averaged 84.33 with the maximum score being 98. Overall, about 76.66% of the patients achieved an excellent or good result. In our study, HARRIS HIP SCORE is better than other study.

HARRIS HIP SCORE	M.SIRAJ [9]	KALPESH KUMAR [10]	MOORE	OUR STUDY
Excellent	02.3%	64.0%	31.6%	20.0%
Good	32.6%	28.0%	43.3%	56.6%
Fair	39.5%	08.0%	16.6%	16.6%
Poor	25.6%	00.0%	08.3%	06.6%

CONCLUSION

The posterior mini-incision approach is a reliable minimally invasive approach. Its advantages are reduced bleeding and faster initial rehabilitation. Conversion to an open enlarged conventional posterior approach remains possible at any time in case of complication in mini posterior approach. The contraindications of mini-incision approaches must be respected; highly obese patients, associated osteotomy, congenital dislocation of the hip at the luxation stage, a history of acetabular and/or femur osteotomy, and amyloidosis. These more complex indications require wider exposure. This study shows an advantage over the short term related to the choice of a minimally invasive approach compared to the conventional approach, but few advantages over the long term.

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