



## TO STUDY THE FUNCTIONAL OUTCOME AND COMPLICATIONS OF FRACTURE NECK OF FEMUR IN YOUNG ADULT TREATED WITH CANNULATED SCREW FIXATION

### Orthopaedics

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### ABSTRACT

**Background :-** The objective of this study is to analyze the functional outcome and complications in fracture neck femur in young adult treated with 6.5mm cc screws.

**Method :-** 53 patients of age ranging 17-55 years with intracapsular fracture neck of femur treated with CC screws were followed for 2 years and assessment of complications and results done by using Harris hip scoring system.

**Results:-** Out of the 53 patients Excellent results were achieved in 39 patients [73.58%], Good result in 7 patients [16.98%], Fair in 3 patient and poor in 4 patients[7.54%].

**Conclusion:-** The fracture neck of femur in young adults with 6.5mm CC screw fixation gave excellent to good functional outcome in 86.80 %.

### KEYWORDS

Femoral neck fracture, young patient, Cannulated Cancellous (CC) screw, Harris Hip score

### INTRODUCTION

Fracture neck of femur is major fracture of our skeleton and continue to be burning problem among orthopedic surgeons. The frail patient, the hollow femoral neck, the precarious blood supply, difficulties of reduction and fixation are the problem of fracture neck of the femur. Because of this Sir Astley coppers3 (1824) renamed it as a "unsolvable fracture". Even after the fracture gets united there is a risk of avascular necrosis and late segmental collapse leading to poor functional result. This fracture hence, has been called "Unsolved fracture" by Dickson in 1953.2 Intracapsular fracture neck of femur is associated with a high incidence of nonunion and avascular necrosis Dedrick. 8

Since the recognition of the existence of intracapsular fracture neck femur by Ambrose Pare almost 400 years ago, the management of intracapsular neck femur fracture has undergone many changes.1 No single method of treatment has been able to achieve 100% result.

An important part of rationale for prompt treatment of the fracture is preservation of the blood supply to the femoral head which is critical for a better long term result. The fracture is regarded as a vascular injury to the bone's blood supply. The degree of vascular compromise is thought to directly correlate with the displacement of the fracture which affects fracture union and leading to complications. Hence, intracapsular fracture neck of femur is regarded as an orthopedic emergency and needs to be reduced with rigid internal fixation as early as possible which is believed to improve the circulation of femoral head and prevent the non-union and avascular necrosis.

Von Langenback4 first treated femoral neck by open reduction and internal fixation in 1850 and used a screw. By 1931, advances in metallurgy and medicine, made it possible for Smith Peterson5 to successfully introduce his three flanged nail. It fixed the head fragment firmly enough to allow these patients to quickly get out of bed or ambulate on crutches. Original S.P. Nail was noncannulated but later Johansson 1932 modify the nail and make it cannulated triflange nail, making it possible to use a guide wire to insert the nail. Lawson Thornton of Allanta soon thereafter developed a plate with the nail attached, which could be fastened to the shaft of the femur to give more stability.

The cannulated cancellous screws can be inserted relatively simply and atraumatically compared to other methods. In view of these considerations, present study of management of intracapsular fracture neck of femur with 6.5 mm cannulated cancellous screws fixation is taken up.

### MATERIALAND METHODS

The study was conducted over 53 patients prospective and retrospective from December 2018 to November 2019. Clinical records of these patients were reviewed retrospectively by obtaining their bed head tickets from record room and by contacting the patients personally through phone and calling them for evaluation. Patients aged 17 to 55 years old and having post traumatic intracapsular fracture neck of femur who have given their consent for surgery were included and Patients with Pathological fractures, Fracture more than three week of trauma, Severe osteoporosis6 (Singh's index grade I, grade II and grade III) were excluded in this study. In our series the average interval between trauma and surgery was 7 days & closed reduction and cancellous cannulated screw fixation of femoral neck fractures done under spinal anesthesia in all cases.

Patients were transferred to a radiolucent traction table. The pelvis was rested on the perineal support and the unaffected limb was placed at about 400 of abduction. The foot of the affected limb was held in the foot holder of fracture table. Closed reduction was done by the closed manipulation by firstly rotating the hip joint externally followed by abduction, then a longitudinal traction applied to limb and subsequently reduced by internal rotation and adduction of limb. Reduction was confirmed will AP and lateral views under image intensifier.

After confirming adequacy of reduction was evaluated clinically by the heel-palm test and radiologically by Garden's alignment index. The fractures were stabilized with 2 or 3 partially threaded 6.5 cc screws. A applying compression bandage and boot & bar, patient were shifted to ward. I.V. antibiotics were given for 3 days followed by antibiotics for 10 days. Patients were put to static quadriceps, pelvic lifting exercise and active ankle movements from 1st post op day. Patients were discharged after 4th post op day with oral antibiotics and were advised to report after 6 weeks, 12 weeks, 6 months and final follow up at 1 year. Modified Harris Hip scoring system was used for evaluation. Non weight bearing walking were allowed after stitch removal on 10th day. Clinical examination was done regarding the pain, tenderness, active range of movements of hip and limb length discrepancy. Radiographs of affected hip in AP and lateral view was taken and looked for progressive signs of union or any complications like the appearance of any coxa vara or screw backing out or breaking or signs of avascular necrosis. If trabecular continuity at the fracture was present, patient was advised partial weight bearing with walker for a further period of 6

weeks. After this period X-rays were taken and once fracture union was confirmed, patients were permitted to walk full weight bearing on the affected limb.

## RESULTS-

In our series of 53 patients of fresh fracture neck of femur in young adults age 17-55 years treated surgically by internal fixation with cannulated cancellous screw. The mean age is 35.22 years and 38 [71.70%] patients were male and 15 patients were female [28.30%]. Majority 35 Patients [66.04%] affected were due to road traffic accident, 17 patients [32.08%] due to fall and 1 patient [1.89%] due to assault injury. Garden's classification system was used for operative evaluation. The most common type of injury type was Type 3 i.e.; 24 patients [45.28%]. 20 patients [37.73%] had undisplaced fractures i.e.: Garden stage 1 & 2, and 33 patients [62.27%] had displaced fractures i.e.: Garden stage 3 & 4. All of them underwent closed reduction and cannulated screw fixation. Most of the patients were operated between 1st to 3rd day of trauma i.e.: 33 patients [62.26%] out of 53 patients. In majority of patients we used 3 screws for each hip fixation. In 46 patients we used 3 screws and in 7 patients used 2 screws due to size of femoral neck.

The average time taken for union was 3.5 months. Most of the patients showed union in 3-5 months [77.36%]. Two patients [3.77%] did not have radiological signs of union till 9 months of follow-up, 5 patients had AVN of femoral head, out of which 4 patients are managed with hemiarthroplasty and one patient had refused for surgery. 2 patients had NON UNION, out of which one is managed with Hemiarthroplasty. Excellent results were achieved in 39 cases [73.58%], good in 7 cases [13.20%] fair in 3 cases [5.67] and poor result in four cases [7.55%]. Excellent results were observed equally irrespective of timing of surgery in our series i.e.; within 7 days.

## DISCUSSION-

In our study, fractures are commoner in the 18-40 years age group, with mean age being 35.22 years. Our findings are comparable to the studies made by MP Singh et al<sup>12</sup> (mean age=36 years) and G.J.Haidukewych et al(35.4 yrs).

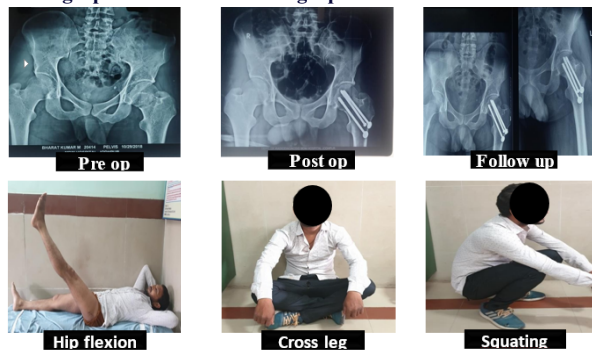
In the current study, Garden's classification system was used for operative evaluation. The most common type of injury was type 3 [24 cases] and 2[17 cases]. Our study is comparable to that of M.F.Swiontkowski et al.<sup>10</sup>

The functional results of the present study (using harris hip score 1-100) were comparable with that of MP Singh et al and Sibaji Chaudhuri<sup>11</sup> with 73.58% having excellent results, 13.20% having good 5.67% having fair results and poor results in 7.5%.

In our series we have allowed early non weight bearing strictly for 3 months.

Following this period based on clinical and radiological signs of union allowed unaided full weight bearing. The range of motion hip was retained to near pre trauma level in almost all the cases.

## Radiographs And Clinical Photographs



## CONCLUSION :-

Intracapsular Fracture neck of femur in young adults between 18-40 years were most commonly injured is increasing due to road traffic accidents. Gardens classification was used for operative evaluation. It was found most common type of injury was type 2nd and type 3rd. In our study undisplaced fractures consistently showed excellent results.

The key factors in treating femoral neck fractures should include early diagnosis, early surgery i.e. within 7 days, anatomic reduction and stable internal fixation. Allowed early non weight bearing ambulation with a walker strictly for 3 months. Following this period based on clinical and radiological signs of union allowed unaided full weight bearing. Hence we conclude that intracapsular fracture neck of femur young adult treated surgically by close reduction and internal fixation with 6.5 mm cannulated cancellous screw fixation gave excellent to good functional outcome in 86.8 %. Hence this would be the best procedure for intracapsular fracture neck of femur.

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