



OUTCOMES IN FRACTURE NECK OF FEMUR TREATED WITH CLOSED REDUCTION AND INTERNAL FIXATION WITH MULTIPLE 6.5 mm CANNULATED SCREWS

Orthopaedics

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ABSTRACT

Objective: To study the union, complications and functional outcomes in fracture neck of femur treated with closed reduction and internal fixation with multiple screws. **Materials And Methods:** 50 cases of intra capsular fracture neck of femur of age group between 18-55 years of age operated in JLN Hospital, Ajmer from July 2020 to November 2022. Neglected fracture neck of femur, Pathological fractures were excluded. **Results:** Intracapsular Fracture neck of femur in young adults is increasing due to road traffic accidents. The results in our study were satisfactory with Excellent [60%], Good [14%], Fair [14%] and Poor [12%] functional outcome by Modified Harris Hip Score. Osteonecrosis of the femoral head and non union are the two most common and challenging complications. **Conclusion:** The intracapsular fracture neck of femur in young adults treated surgically by closed reduction and internal fixation with 6.5 mm cannulated cancellous screw fixation gave excellent to good functional outcome in 74%. Hence this would be a best procedure for intracapsular fracture neck of femur for a long period of time in orthopaedic practice.

KEYWORDS

Cannulated Cancellous Screw, Harris Hip Score, Fracture neck of femur.

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. All above factors leads to common complications of fracture of neck of the femur that includes avascular necrosis and non union. Sir Astley Coppers (1824) renamed it as a "unsolvable fracture". This is reflected by the increasing tendency of abandoning the treatment by close reduction and fixation, and replacing the femoral head with prosthesis. Intracapsular fracture neck of femur is associated with a high incidence of nonunion and avascular necrosis. Furthermore avascular necrosis is more likely to be symptomatic in the younger population. Both non-union and avascular necrosis are so devastating functionally that they affect not only the patient but also the society.

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.

The parallel-screw method appears to set the standard with which other implants must be compared. The cannulated cancellous screws can be inserted relatively simply and atraumatically compared to other methods. Internal fixation with cannulated cancellous screws after good anatomical reduction is the optimum method of treating intracapsular fractures as it has the advantages of decreased blood loss and operative time, lower transfusion requirements and decreased length of hospital stay.

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.

MATERIAL AND METHODS

This study was conducted on number of patients estimated by convenient sampling based on number of fracture neck femur surgery to study the functional outcome and complication of fracture neck of femur treated with 6.5 mm CC screw in Department of Orthopaedics at JLN Medical College Associated Group of Hospitals, Ajmer from July 2020 to October 2022

Inclusion Criteria:

1. Patients aged 18 to 55 years old and having post traumatic fracture

neck of femur who have given their consent for surgery.

Exclusion Criteria:

1. Pathological fractures.
2. Fracture more than three week of trauma.
3. Associated Fractures

All the patients were explained about the aims of the study, the methods involved and an informed written consent was obtained and detailed information was recorded in predefined Proforma.

Clinically patient presented with pain and inability to bear weight. There was shortening of affected limb which was supratrochanteric. Range of movements were painful and restricted. Importance was given to the general examination to rule out any other associated injuries. Appropriate analgesics were given and the patients were put on above knee skin traction to alleviate the pain. Radiographs were taken of the affected hip in AP view. The fractures were classified based on Garden's classification. Routine blood and urine investigations were performed to know the patient fitness to undergo surgery.

In this study we used lateral approach to proximal femur with 6.5 mm cannulated cancellous screws with or without washer.

After surgery appropriate antibiotics and IV fluids were given.

In this study, patients on discharge were advised to report after 6 weeks, 12 weeks, 6 months. At the follow up a detailed clinical examination was done and patient was assessed subjectively for symptoms like pain, swelling and restriction of joint motion.

Harris Hip scoring system (90-100 : Excellent, 80-89 : Good, 70-79 : Fair and <70 : Poor) was used for evaluation.

RESULTS:

Table 1 : Age Distribution

Age Group (Years)	No. of patients	Percentage
18-30	26	52.00
31-40	12	24.00
41-50	9	18.00
51-55	3	6.00
Total	50	100.00

Out of 50 patients, majority of patients 26 [52.00%] are in age group 18-30 years, followed by 12 [24.00%] patients in the age group 31-40 years, 9 [18.00%] patients in age group 41-50 years and 3 [6%] patients in age group in 51- 55 years. The mean age is 31.9 and youngest patient is of 19 years and oldest patient is of 55 years.

Table 2 : Mode Of Injury

Mode of Injury	No. of patients	Percentage
RTA	37	74.00
Fall	13	26.00
Total	50	100.00

37 patients [74%] affected were due to road traffic accident, 13 patients [26%] due to fall. Road traffic accident was the most common mode of injury.

Table 3 : Garden Fracture Type

Garden Fracture Type	No. of patients	Percentage
I	4	8.00
II	18	36.00
III	21	42.00
IV	7	14.00
Total	50	100.00

In our series, Garden's classification system was used for operative evaluation. The most common type of injury type was Type 3 i.e.; 21 patients [42%]. 18 patients [36%] had undisplaced fractures.

Table 4 : Time Of Union (MONTHS)

Time of Union (months)	No. of patients	Percentage
2	9	21.95
3	12	29.27
4	11	26.83
5	9	21.95
Total	41	100.00

Most of the patients showed union in 3-4 months [46%]. 9 patients [18%] did not have radiological signs of union till 9 months of follow-up.

Table 5 : Harris Hip Score

Harris Hip Score	No. of patients	Percentage
90-100	30	60.00
80-89	7	14.00
70-79	7	14.00
<70	6	12.00
Total	50	100.00

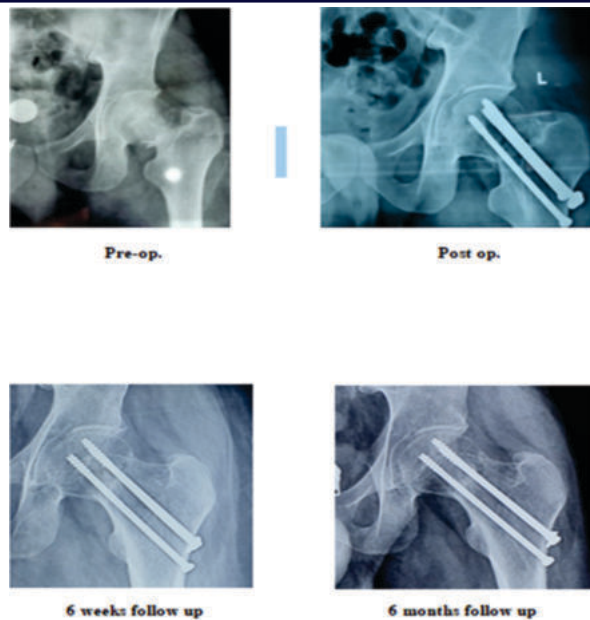
In the present study, out of the 50 patients Excellent results were achieved in 30 patients [60%], Good result in 7 patients [14%], Fair result in 7 patient [14%] and poor result in 6 patients [12%]. Excellent results were observed equally irrespective of timing of surgery in our study. i.e.: within 7 days.

Table 6 : Complications

Complications	No. of patients	Percentage
AVN	6	12.00
Non union	3	6.00
Screw backout	2	4.00
Total	11	22.00

In our study, 11 patients had complications. 6 patients had AVN, 3 patients had non-union, 2 patients had loosening of screw, which was managed with implant removal, rest of the patients with complications were able to lead disability free life. There were no cases of any post operative infections in our series.

Clinical Photographs



DISCUSSION

In our study, fractures are commoner in the 18-40 years age group, with mean age being 31.9 years. Our findings are comparable to the studies made by G.J. Haidukewych et al. (n=55, mean age - 35.4 years).

In the present study, Road traffic accident contributed majority of cases i.e.; 37 patients [74%], followed by fall; 13 cases [26%]. The study was comparable to that of M.F. Swiontkowski et al (RTA -20, Fall - 6). In the current study, Garden's classification system was used for operative evaluation. The most common type of injury was type III [21 cases] and type II [18 cases]. Our study is comparable to that of M.F. Swiontkowski et al (type II - 8 cases and type III - 19 cases) and G.J. Haidukewych et al (type II - 22 cases and type III - 51 cases).

The functional results of the present study were comparable with that of G.J. Haidukewych et al. (73% good to excellent and 27% showed fair to poor results) and Kumar S et al. (66% with good to excellent and 34% showed fair to poor) with 60% having excellent results, 14% having good, 14% having fair results and poor results in 12%. The complications seen in our study are 6 AVN, 3 had non union and 2 had screws backout. Our results were comparable with that of G.J. Haidukewych et al. 23% AVN and 6% non union.

CONCLUSION:

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 74%. Hence this would be the best procedure for intracapsular fracture neck of femur and this going to stay for a long period in orthopaedic practice.

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