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Management of Intracapsular Fracture Neck of Femur By Percutaneous Cannulated Cancellous Screw Fixation

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I. Introduction

Civilization ushered in high injury rates with increased fracture pattern by virtue of high speed transportations accidents, industrial accidents, sports and recreational injuries. Fractures of the neck of femur have always presented great challenges to orthopaedic surgeons and remain in many ways even today the unsolved fracture as far as the treatment and results are concerned. With life expectancy increasing with each decade our society is becoming more and more geriatric society with significant numbers of hospitalised and nursing home patients suffering from femoral neck fractures and their sequale.

The quotation 'we came into world under brim of pelvis and go out through the fracture neck of femur' reflects the defeatist attitude that has long been held by medical and lay personnel towards femoral neck fractures. Though most of these fractures are due to trivial trauma the elderly age group in which they commonly occur, lead to catastrophic consequences unless early mobilization out of bed is made possible.More over successful union with conservative management is uncommon. So operative intervention has become the routine for all types of femoral neck fractures.

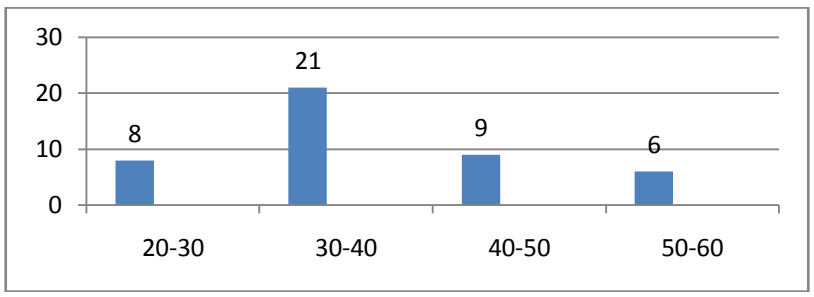
II. Materials And Methods

The present work 'Management of intracapsular neck of femur by percutaneous multiple cannulated cancellous screw fixation is carried out
in the department of orthopaedics, Government General Hospital Vijayawada from May 2012 to April 2015. All the patients were pre-operatively assessed to grade the type of fracture by Garden's classification[1] and prepared for surgery. All fractures were reduced by Leadbetter's method[2].

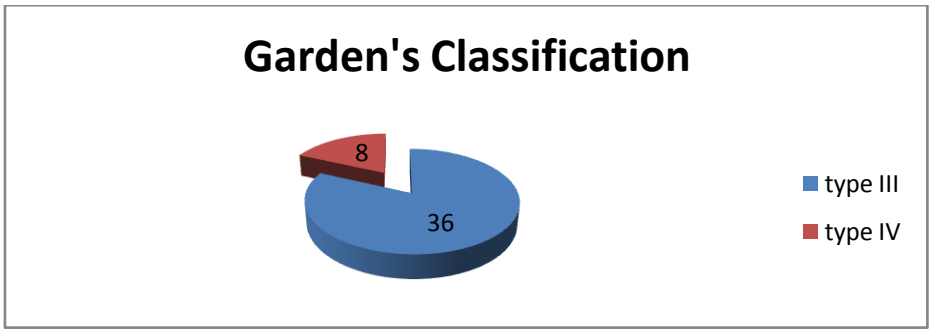
A total of 44 cases of intracapsular fracture neck of femur in adults were treated after accurate reduction and rigid fixation with 2 to 4 cannulated cancellous screws by percutaneous method. Post operatively all patients were mobilized in the bed with quadriceps exercises. Sutures were removed on 10th day. A pair of crutches were advised with no weight bearing on fractured limb till the fracture has united.

III. Results

This study includes 44 cases of Intracapsular fracture neck of femur treated at Government General Hospital, Vijayawada between May 2012 to April 2015. Of 44 cases treated with percutaneous cannulated cancellous screw fixation, male patients were 30 and female patients were 14. This study includes the patients of age between 21-60 years. Most of our patients are between 30-40 years. In our study, 34 cases were due to fall from height and 10 cases were due to road traffic accidents. In our study, 36 cases belong to Garden's grade-III fractures and 8 cases were Garden's grade-IV type. All cases were treated by percutaneous method by using 2 or 3 cannulated cancellous screws. Mean healing time was 10 weeks (range 8-12 weeks).



Age Incidence



In our study, 2 cases developed deep seated infection for which they treated with Girdlestone arthroplasty. In our study, Two cases developed absorption of head of femur for which they treated with Bipolar hemiarthroplasty. In our study, 4 cases developed avascular necrosis of femoral head and treated with Bipolar hemiarthroplasty.

S.No.	Complication	No. of Cases
1.	Deep seated infection	2
2.	Avascular necrosis of femoral head	4
3.	Absorption of head of femur	2

IV. Discussion

The femur total number of cases of fracture intracapsular neck of femur are 44,treated by percutaneous cannulated cancellous screws and followed up from one year to two and half years. Male patients are more than female patients. The commonest age group of the followed cases is between 31 to 40 years. The series has male predominance.

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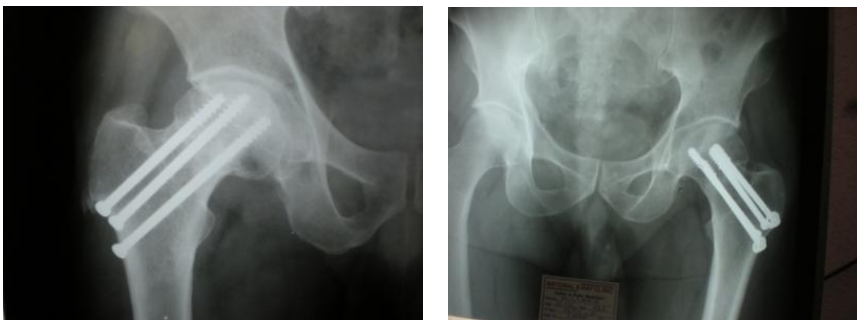
All the patients are explained regarding the precautions to be followed after the surgery. The reduction of fracture is obtained by Leadbetter's method[2] without fail. The reduction is confirmed on both AP and lateral views on portable radiographs. Through percutaneous stab incision sited a point distal to the flare of the greater trochanter, the fracture is fixed by multiple cannulated cancellous screws. In most of the cases the fixation of fracture is by two or more than two screws to prevent rotation of proximal fragment. The threaded portion of the fracture line to get a better lag effect. Two cases resulted in absorption of head of femur,for which Bipolar hemiarthroplasty was done. Two cases had deep seated infection for which screws were removed and Girdlestone's arthroplasty was done. Four cases went into nonunion with avascular necrosis of femoral head for which bipolar hemiarthroplasty was done. The grading of results is as follows

Excellent: There is sound bony union of the fracture, no avascular necrosis of head, hip joint is normal with full range of movements,full weight bearing, no pain or tenderness.

Good: There is a sound bony union of fracture, no avascular necrosis of the head, no pain or tenderness but minimal restriction of movements particularly last degree of flexion and abduction.

Fair: Sound bony union but restriction of hip joint movements and pain on walking with discomfort to squat.

Poor: No bony union, malunion, avascular necrosis of the head.



POST-OP X-RAYS

V. Summary

In this series ,we have operated upon 44 patients who are in the age group of 20-60 years. We have used cannulated cancellous screws with various pitch 16 TPI and 32 TPI by percutaneous method under radiographic control. We have encountered 8 cases of poor results out of which 2 cases landed in infected nonunion for which Girdlestone's operation was done two cases had resorption of femoral head for which bipolar hemiarthroplasty was done. Four cases had avascular necrosis of head for which Bipolar hemiarthroplasty was done. The average follow up is from 12 months to 2 years.

Prerequisites for sound healing of intracapsular fracture neck of femur are:

1. Anatomic reduction of fracture.
2. Stable fixation of fracture.
3. Strict post operative physiotherapy.
4. No premature weight bearing.

VI. Conclusions

In the Department of Orthopaedics and Traumatology, Government General Hospital ,Vijayawada the injuries around hip are mostly extra capsular fracture neck of femur followed by intracapsular fracture neck of femur and posterior dislocation of hip.

1. The number of cases of intracapsular fracture of femur are in the age group of 21 -50 years.
2. There is male predominance in this study of intracapsular fracture neck of femur.
3. The nature of violence in this study is fall on to the ground. This injury is usually not associated with other injuries.

In our institute accurate reduction and rigid internal fixation of intracapsular fracture neck of femur done with percutaneous multiple cancellous screws. The results have been encouraging even up to the age of 55 years.

Advantages of cannulated cancellous screw fixation:

- Compression effect produced at fracture site prevents redisplacement and rotations.
- Occupies less volume in the small sized femoral necks of Indian patients allowing better osteosynthesis
- Early mobilization can prevent complications of prolonged immobilization.

Ideal background required:

- Young age
- Accurate reduction by gentle closed manipulation.
- Rigid fixation with more than 2 screws.
- Avoidance of premature weight bearing.
- Disciplined physiotherapy.

The results have been encouraging and better than the implants which do not cause compression at the fracture site or occupy large volume in the femoral neck or allow rotations

The percutaneous technique of multiple cannulated cancellous screw fixation has the following distinct advantages over conventional wide exposures through lateral approach

1. Lesser dissection of soft tissues
2. Shorter operative time.
3. Lesser blood loss.
4. Lesser post operative morbidity and early rehabilitation.
5. Small scar.

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