
# SURGICAL MANAGEMENT OF INTRACAPSULAR NECK OF FEMUR FRACTURES IN YOUNG PATIENTS. IS THERE A SUPERIOR INTERNAL FIXATION DEVICE FOR THEIR MANAGEMENT?

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## ABSTRACT

**Introduction:** Intracapsular neck of femur fractures in young patients (age<60) are usually high energy injuries, associated with high complication rates (malunion, nonunion, avascular necrosis, shortening of vertical and longitudinal femoral offsets).

**Aim:** This study aims to present the key points of the surgical management of the intracapsular neck of femur fractures in young patients.

**Material & Methods:** Retrospective review of the literature and outcomes of different internal fixation methods (dynamic/sliding hip screw, cannulated compression screws, femoral neck system).

**Results:** Anatomical reduction and stable internal fixation of the intracapsular neck of femur fractures is imperative. This can be achieved with closed +/- open reduction. Different surgical approaches have been described for maximum visualization of the femoral neck and adequate access for open reduction.

**Conclusions:** Multiple cannulated compression screws are used traditionally between most surgeons for the management of intracapsular neck of femur fractures. Femoral Neck System (FNS) has increasing popularity and evidence showing satisfactory clinical outcomes and clinical efficacy. Nevertheless, multicenter RCTs are needed to draw safe conclusions regarding the optimal internal fixation device for the management of the intracapsular neck of femur fractures in young patients.

The number of people with hip fractures is expected to increase to 21 million/year worldwide.

## INTRODUCTION

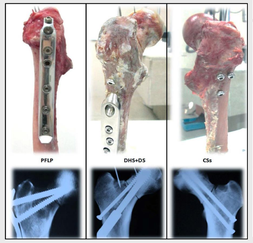
- An intracapsular femoral neck fracture in a young patient is a rare and difficult injury to manage.
- The occurrence of complications following fixation is multifactorial.
- Initial displacement and timing and accuracy of reduction are the key factors affecting outcome.
- The severities of the trauma to the hip and the impact of the intracapsular hematoma also play a role, the importance of which remains poorly understood

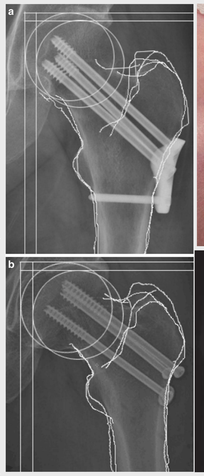
## AIM

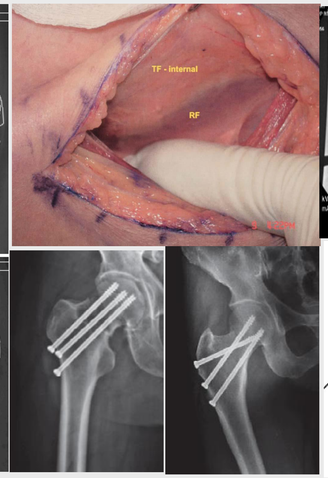
- Failure is defined by screw cutout, implant breakage, varus collapse (<120° neck-shaft angle), or severe fracture shortening (≥1 cm)
- Comparison of 3 methods of neck of femur fracture fixation in the young adult population according to literature
- Which implant may allow surgeons to minimize the severity of failure or the need for secondary conversion to hip arthroplasty

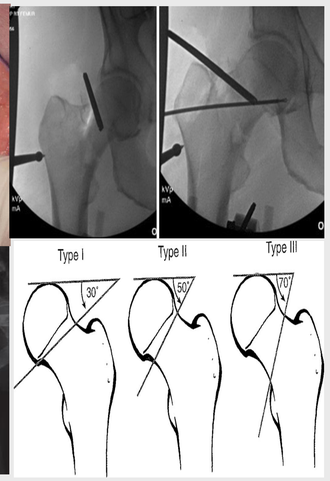
## MATERIALS AND METHODS

- Comparison of the clinical efficacy of a femoral neck system versus cannulated screws
- Cadaveric comparison of DHS + DS, CS and PFLP (plate)
- Comparison of Transverse Cancellous Lag Screw and Ordinary Cannulated Screw Fixations
- Utilization of Modified Heuter direct anterior approach to the hip
- Review of reduction options including tips and tricks




## RESULTS

- Compared with MCS, the use of FNS can reduce the rates of postoperative nonunion and overall complications and minimize femoral neck shortening.
- DHS+DS offers the strongest structure for stabilizing a vertical femoral neck fracture
- Supplemental fixation has biomechanical benefit (inferomedial buttress plate)

## DISCUSSION

- Careful attention to metabolic, genetic, structural, and mechanical factors during treatment and evaluation of the young adult femoral neck fracture will likely pay dividends as we move into the future
- Fixation strategy dictated by fracture pattern and degree of instability
- Importance of achievement of accurate reduction is equally important with material selection

## CONCLUSIONS

- FNS provided higher stability than MCS and the same stability as DHS; moreover, its implantation process was more minimally invasive than DHS.
- Results should be interpreted with caution

## REFERENCES

- Tips and tricks for ORIF of displaced femoral neck fractures in the young adult patient
- Comparison of Transverse Cancellous Lag Screw and Ordinary Cannulated Screw
- Fixation of Femoral Head Fractures Using the Modified Heuter Direct Anterior Approach
- Comparison of Femoral Neck System Versus Cannulated Cancellous Screws for the Fixation of Femoral Neck Fracture in Young Adults: A Systematic Review and Meta-Analysis