

## Original Article Orthopaedics

# MANAGEMENT OF TRANSCERVICAL AND BASICERVICAL FRACTURE OF NECK FEMUR WITH DHS & DEROTATION SCREW - A PROSPECTIVE STUDY

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### Abstract

**Introduction:** Transcervical region of femoral neck is located just proximal to base of femoral and basicervical region of neck is junction at base of neck intertrochanteric line. In our study we have evaluated the results of fixation of transcervical & basicervical fractures of femoral neck with DHS and Derotation screw.

**Methology:** 18 patients of transcervical and basicervical fractures of femoral neck with age more than 20 years were treated by DHS with derotation screw & followed up at regular intervals.

**Results:** Most of the patients in this study were between the age group of 50 to 65 years, with male female ratio being 3:1. In all cases clinical & radiological union was observed and average time for union was 12 weeks. There was 1 case of superficial infection and 2 of non specific hip pain. According to Harris hip score there was excellent result in 74.32% cases.

**Conclusion:** it is concluded from this study that DHS with derotation screw is an effective, safe, and promising method for fixation of transcervical and basicervical fracture of neck of femur with minimal complications.

**Keywords:** Transcervical, Harris hip score, Derotation screw.

## Introduction

Transcervical and basicervical fractures of neck of femur are located between the subcapital and intertrochanteric region of femoral neck. Fracture of femoral neck is most notorious for complications of osteonecrosis and non union. In this study we tried to manage these fractures by fixation with dynamically hip screw and derotation screw after meticulous anatomical reduction and evaluated the results.

## Material and method

It is multicentre study carried out from December 2017 to October 2018 followed up for a minimum period of six months with average follow up being one year. One patient was lost to followed after eight months follow up but it was included in the study. 18 patients of transcervical and basicervical fracture of age ranging between 20 years to 65 years, 12 Males and 6 females were included in this study. Patient with medical co-morbidities and compound fractures were excluded from the study. Meticulous clinical examination was conducted and initial radiographs of pelvis with both hips and lateral view of the affected femur with hip joint was taken. Informed written consent of patient was taken and the patients and his relatives were explained about the study and consent was taken that they agree to be part of the study. The patients were prepare for surgery under GA/SA/EA. The injured part was shaved and part painted with betadine solution. Preoperative Injection of ceftriaxone + 1.5gm sulbactam and 500mg of injection amikcin was administered about half an hour before surgery and continued twelve hourly for three days. From fourth day 500mg cefuroxime axetine and lincomycin

500mg given orally twelve hourly up to seven days.

The anesthetized patients were placed supine on fracture table and the extremities are secure to traction food piece. Closed reduction was tried first under the image intensifier. If failed open reduction was carried out under direct vision. Reduction was categorized as good if the femoral neck angle was  $<10^\circ$  of varus or  $<15^\circ$  valgus compared to contralateral hip.<sup>1</sup> and near anatomical reduction in both AP and lateral view checked by Lowell's method, with trabecular angle of  $160^\circ$  to  $170^\circ$  in AP radiograph and trabecular angle of  $170^\circ$  to  $180^\circ$  in lateral radiograph. A standard lateral approach to trochanteric region and proximal shaft was made. The entry point for the guide pin insertion was marked approximately 2cm below the trochanteric flare, just opposite the tip of the lesser trochanter, midway between the anterior and posterior cortices. The lateral cortex was drilled with 2mm drill bit. The threaded guide pin was inserted into the femoral neck and head with the help of  $135^\circ$  angle guide pressed against the middle of the femoral soft. The guide pin was placed as centrally as possible in femoral neck and head in both AP and lateral view and advanced into the subchondral bone under the C-arm guidance. With the direct measuring guaze slid over the guide pin the length of pin within the bone was read off directly.

Another guide pin was inserted 12 mm proximal to the first, parallel to 1<sup>st</sup> pin. We insert a cannulated drill bit over this guide pin and pass it to the subchondral bone 10mm away from the articular surface. Then we remove the drill bit and take the tract and insert 6.5mm cannulated cancellous screws with 16mm threaded tip with washer which acts as derotation screw.

The DHS triple reamer was set to correct depth so that the reaming ended 10mm short of subchondral bone. Tapping was continued until the required length as marked on the tape. Lag screw was driven in to the femoral head by turning the wrench until the zero mark on the wrench reached lateral femoral cortex. The plate was fixed with the femoral shaft by 4.5mm cortical screws. The traction was released at this point and compression of the fracture was achieved with compression screws put inside the lag screws. The wound was closed in layers using a non absorbable suture material. Sitting up in the bed was encouraged on the first post operative day. Quadriceps exercise and range of movement exercises of the hip and knee started on the first postoperative day with limits of pain. Stitches were removed on eleventh to fourteenth postoperative day. The progressive weight bearing was started once radiological evidence of union was observed on radiographs. Further follow up was carried out at 6, 9, 12, 16 weeks and then two months interval.



## Discussion

Most of the patients included in this study were between age group of 50-65 years with mean age of the patients being 50.4 years. Other authors like Kuokkanen (1991).<sup>2</sup>

Found the average to be 72 years in the basicervical fractures which treated with various methods. Saarenpaa et al (2002).<sup>3</sup> Su et al (2006)<sup>4</sup>. Boghdady et al (2007)<sup>5</sup>. Massoud et al (2010)<sup>6</sup>. Reported the average age to be 79 years, 67-69 years, 75 years (M) and 78 years (F), 68.9 years respectively. The male female ratio being 3:1.

The time interval between trauma and surgery was average 7.4 days. The average operating time was 50-60 minutes. Enocson et al (2012)<sup>7</sup> the mean operative time, in these fracture treated with DHS with Derotation screw to be 65 minutes.

Fracture union was found in 100% of cases and average time for union was 12 weeks Massoud et al (2010)<sup>6</sup> found the average time for union to be 11.5 weeks in his cases treated with DHS & Derotation screw with no cases of non union. Enocson et al (2012)<sup>7</sup> found 0.02% of non union in his basicervical fracture cases treated with DHS & antirotation screw, Fracture collapse of 10% was found in 20% of cases with resultant shortening. Massoud et al (2010)<sup>6</sup> found severe collapse in only 7.21% of his cases, rest having mild collapse.

No cases of mortality & no cases of AVN were found. There was one case of superficial nitrated which resolved on oral administration of cefuroxime 500 mg BD and lincomycin 500 mg BD & 2 cases of non specific hip pain. Enocson et al (2012)<sup>7</sup> in his study found 2 cases of lateral pair. Enocson et al (2012)<sup>7</sup> in his study found 2 cases of lateral pair from the DHS plate or laterally protruding screw (2.15%), 2 Cases of deep infection (2.15%) and 1 case each of sub trochanteric fracture, post traumatic osteoarthritis and AVN. (1.08% each). Yamakawa et al (2013)<sup>8</sup> did not find any complication in his study.

There was excellent results according to Harris hip score in 74.32% cases, good results in 15.68%, poor results were found in 10% cases, with mean Harris score being 88.5. Massoud et al (2010)<sup>6</sup> in their study of basicervical fractures treatment evaluated functional results using Kyles et al modified criteria & found 92.86% excellent results 4.76% good and 2.38% fair results with no poor results.

### Conclusion

It is concluded from this study that management of transcervical and basicervical fractures of neck of femur with DHS and derotation screw is most reliable effective and reproducible method and provides excellent results in terms of fracture union, subject to condition maintenance of length, apposition, axial alignment and normal rotational alignment are addresses satisfactorily. Functional outcome is more influenced by quality of fracture reduction. There was better functional outcome with good reduction of fractures

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