THE MANAGEMENT OF INTERTROCHANTERIC FRACTURES OF FEMUR BY DYNAMIC HIP SCREWArvinder Singh¹**HOW TO CITE THIS ARTICLE:**

Arvinder Singh. "The Management of Intertrochanteric Fractures of Femur by Dynamic Hip Screw". Journal of Evolution of Medical and Dental Sciences 2014; Vol. 3, Issue 74, December 29; Page: 15575-15579, DOI: 10.14260/jemds/2014/4101

ABSTRACT: Intertrochanteric fracture is a serious injury in the elderly population. Surgery is the best line of treatment for these injuries. Out of the various extramedullary and intramedullary implants available to fix these fractures, we used Dynamic Hip Screw in 20 elderly patients. There were 12 males and 8 females with an average age of 68.2 years, all had a fall at home. There was 100% union rate. The average time of union was 16.04 months. We had 5 patients with shortening of < 2cm, one superficial infection, eight patients with terminal limitation of hip movement. It is concluded that apart from careful patient selection, surgeon related variables like choice of implant, its position and stable reduction are crucial for good results.

INTRODUCTION: Intertrochanteric fracture is the most commonly operated fracture with highest post-operative mortality,¹ equivalent to breast carcinoma.² Osteoporosis is the main risk factor for hip fracture, common in elderly patients. Conservative treatment is appropriate only in patients with serious medical co-morbidities. There is general consensus that surgery is the best line of treatment of these injuries.

Two categories of implants are used for the fixation of intertrochanteric fractures; extra medullary- Dynamic Hip Screw and Condylar Blade Plate; intramedullary- Reconstruction Nail and Gama Nail. Simon et al³ compared the results between Gama Nail and DHS. He reported secondary femoral fractures with Gama nail. Goldmen et al⁴ compared the results of DHS and Gama nail and noted similar fracture healing but 3-6% refracture rate with removal of Gama nail. Mikovie et al⁵ supported the role of external fixator in high risk patients.

MATERIALS AND METHODS: This retrospective study was conducted on 20 patients consisting of 12 males and 8 females with an average age of 68.2 years, ranging from 58 years to 75 years. All patients sustained fractures due to falls at home. Only patients with non-pathological fractures were selected. The fractures were classified according to Jensen-Evans classification system.⁶ Type VI or reverse oblique fractures were not selected in the study as DHS is not the ideal choice of implant for these fractures. There were 2 type II, 5 type III, 10 type IV and 3 type V fractures. All the patients were operated within 72 hours.

The average surgical time was 80 minutes, ranging from 45 minutes to 120 minutes. Four hole plate was used in 18 patients and 5 hole plate was used in 2 patients. Satisfactory union was achieved in 100% patients. No delayed union or nonunion occurred. Union time ranged from 12 weeks to 30 weeks with an average of 16.04 weeks. Patients on admission were resuscitated and skin traction applied. Standard radiographs for patients with suspected hip-fractures include an antero-posterior view of pelvis with hips in 20 degrees of internal rotation and lateral radiograph of the affected hip. All patients were operated on a fracture table. Reduction was achieved under

ORIGINAL ARTICLE

fluoroscopic guidance by incremental longitudinal traction in external rotation and varying degrees of abduction at hip to correct varus followed by internal rotation. Posterior sag in comminuted fractures required manual correction and posterior support or elevation with a bone hook.

Baumgaertner et al⁷ proposed the concept of tip apex distance. In his series of 198 intertrochanteric fractures, 16 had loss of fixation due to lag screw cut-out. No cut-out occurred when TAD was < 27mm regardless of quality of reduction, fracture stability or bone quality. Cut-out rate was 60% when TAD was > 45mm. Active quadriceps exercises were started the next post-op day and progressive weight bearing walking was started the 3rd day after surgery. Postero-medial cortical continuity, lag screw placement in the central zone, TAD of < 25mm and anatomical reduction are the hallmarks of good post-fixation stability.

COMPLICATIONS: Five patients had shortening of less than 2cms, one patient had superficial infection which resolved with I/V antibiotics, eight patients had terminal limitation of hip movement.

**Jensen Evans type 5 Intertrochanteric fracture
with less than ideal placement of lag screw**

Jensen-Evans type 2 fracture with stable reduction and good position of implant

DISCUSSION: DHS is widely used in recent years in the management of intertrochanteric fractures.⁸ The average age of patients in our study is 68.2 years while Desjardin et al,⁹ Baumgaertner et al⁷ reported ages greater than 80 years and EckerMalcom¹⁰ an average age of 75.1 years. This can be explained by lower average life expectancy of Indians.

We had 65% unstable and 35% stable fractures. Jacob RR¹¹ had 30% unstable and 70% stable fractures while Radford et al¹² reported 40% unstable and 60% stable fractures.

Average operating time in this study was 80 min, Desjardine et al⁹ and Gargan et al¹³ reported and average operating time of 83minutes and 47 minutes respectively.

Infection rate in this study is 5%, Desjardine et al⁹ and Radford et al¹² reported infection rate of 3.5% and 4% respectively.

Kaufer et al¹⁴ described three surgeon related variables which determine the mechanical integrity of fracture implant construct- reduction, type of implant and its position. We had no fixation failure, Radford et al¹² had 3% and Clark and Robbin¹⁵ had 2% fixation failures while Butt et al¹⁶ reported an incidence of 12.5%.

Union time in our series ranged between 12 to 30 weeks with an average of 16.04 weeks. 25% patients had shortening of less than 2cms, Frew¹⁷ noted shortening in 36.16% patients.

The average time for partial weight bearing walking in our patients is < 1 week as compared to >8 weeks in patients managed conservatively by chacko and Mohanty.⁶

Chacko and Mohanty¹⁸ treated 53 cases of intertrochanteric fractures and found simple non-operative methods less satisfactory than patients who underwent DHS.

ORIGINAL ARTICLE

Meta-analysis by Hardy Dominique¹⁹ of cephalomedullary nails for intertrochanteric fractures shows significantly increased risk of fracture of femoral shaft and increased re-operation rate.

CONCLUSION: Early and stable fixation of intertrochanteric fractures is required to prevent various complications associated with recumbence in elderly patients. Various studies have proven excellent results of DHS. Surgeon related variables like choice of implant, its position and stable reduction are crucial for good results. We conclude that the DHS remains gold standard in the treatment of intertrochanteric fractures.

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