

The Use of Long Plate DHS for The Treatment of Subtrochanteric Fractures of Femur in Adults

YAWAR ANIS, KAZI M SAEED, SAEED RAO

Department of Orthopaedic, FJMC/ Sir Ganga Ram Hospital, Lahore

Correspondence to: Dr. Yawar Anis, Associate Professor Orthopaedic, FJMC/SGRH, Lahore

ABSTRACT

Methods and Materials: A total of 120 subtrochanteric fractures of femur performed over a period of 7 years. Out of these 120 patients 100 were included in this study group and were followed up For at least two years. All were treated with long plate 135 degree DHS

Results: All except 5 cases united within 6 months. There were three delayed unions .Two cases went into non union requiring subsequent re-operation. There were 2 implant failures. There were 3 infections which settled after implant removal. There were 3 malunions with shortening greater than 1.5 cm. All patients except 5 were fully weight bearing within 6 months.

Discussion: All cases eventually united. There were only 3 malunions with shortening greater than 1.5 cm. There were three serious infections requiring removal of implants and they settled with implant removal. These results are comparable with any other treatment mode used for this fracture.

Conclusion: All in all this is a cost effective and easy to perform treatment option for subtrochanteric fractures which provides satisfactory results.

METHODS AND MATERIALS

Subtrochanteric fractures are rather difficult to treat because of very strong forces in action at this level(1).internal fixation of these fractures provides better results and is the preferred method of treatment. There are many devices available for fixation of these fractures. They can be grouped together either as extramedullary or intra medullary. We have used dhs as the extramedullary fixation device because of easy availability and affordale price. The operation was performed on 120 patients over a period of 7 years. Out of these only 100 were selected for this study because of either loss of follow up or due to co-morbidities leading to medical complications. These patients were treated with 135 degree long plate dhs. The patients were followed up for at least 2 years.the implants were not routinely removed. Patients with medial instability were primarily bone grafted. Average operating time was 75 minutes.

RESULTS

The 100 cases in this study all but 5 cases had united radiologically by the end of six months. Two of these were non unions. They were subsequently bone grafted and went on to unite .the other 3

were delayed unions. However they united by themselves within 18 months of fixation and did not require any subsequent procedure. There were two cases of implant failure. In one of these the screws came loose and in the other the plate actually broke .in both these cases a longer replacement plate was used and the screws were changed and bone grafting performed .both of them united subsequently. There were 3 serious infections requiring removal of implants. In two of these cases implant removal was delayed untill the fracture had united .in the third the implant had to be removed before fracture united and the patient put on skeletal traction. The fracture united 2 months later. There were 3 cases of malunion with shortening greater than 1.5cm. Two of these cases were due to sliding of lag screw. The third occurred in the patient who was put on skeletal traction following implant removal due to infection. Fractures with medial instability were bone grafted primarily at the time of fixation. All patients were kept partial weight bearing untill there was some evidence of callus formation. However all patints were fully weight bearing by 6 months. Mean time to union was 24 weeks.

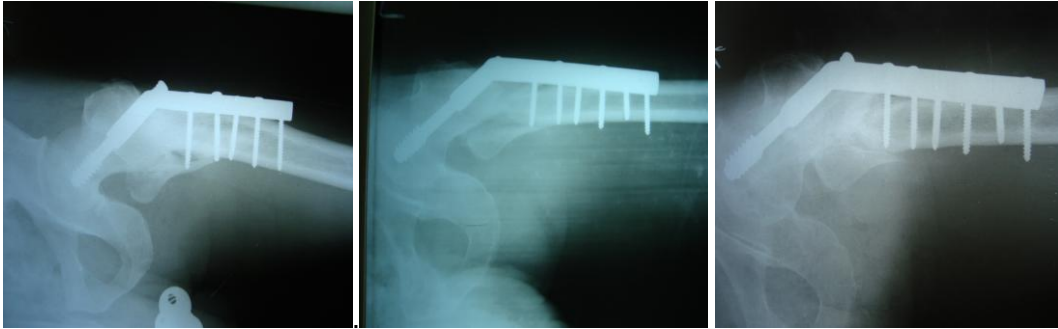


Fig. 1 Fig. 2 Fig. 3

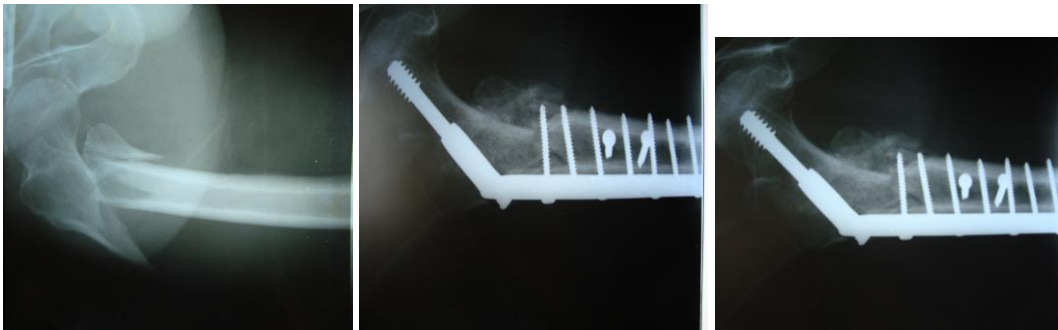


Fig. 4 Fig. 5 Fig. 6

DISCUSSION

As stated earlier the treatment of subtrochanteric fractures has been a matter of debate for some time. What most clinicians agree on is that the treatment should be surgical unless there is a grave contra indication to it(1).there are two types of fixation available , extramedullary as well as intra medullary. Extra medullary implants are dhs ,dcs ,med off plate or dhs along with trochanteric stabilisation plate. Available intra medullary implants are gamma nails, zickel nails, imhs or pfn. The debate is about which of these modalities, intramedullary or extramedullary is superior over the other. There are advantages of using either of these modes but each of them is also fraught with its own set of complications. The extramedullary implants are easier to learn and associated with fewer intra operative complications and are less expensive but they are less stable biomechanically and early full weight bearing can not be performed.

Intra medullary implants are associated with greater no of intra operative complications and technique takes longer to master. Sometimes the y result in periprosthetic fractures. As they are considered to be more stable(1) early full weight bearing can be started. However there is no advantage in mobility at 6 month stage. Some

authors have actually concluded that there is no difference in biomechanical strength of either of these implant groups(2).some authors recommend intramedullary fixation for fractures with medial instability(3).

One of the extramedullary implants under use has been dcs but it has a high rate of implant failure of upto 25%(4),and is therefore no longer recommended although it was originally custom designed for this fracture and replaced its predecessor , 95 degree condylar plate(5,6) .

The cost of an imported western made intramedullary implant in pakistan would be around 200gbp as compared to a local nail which is about 50gbpon. The other hand the price tag for an imported dhs is about 90gbp and that for a local made dhs is around 25gbp. We have chosen to use the local made dhs because of its lower cost.

In our study there were 3 delayed unions and 2 unions. There were 3 malunions and 3 infections which settled after implant removal. All cases eventually united. There were no intra operative complications. Operative time was on the average 75 minutes which is probably longer than the average time quoted for intra medullary devices. However operative time is operator dependant and some authors have actual y stated that operative

time for intra medullary nailing is longer than extra medullary fixation. This view is also shared by us.

The reoperation rate was only 4% which is comparable with 6% shown by Parker (7).

Mean time to union was 24 weeks (8).

Even in cases of medial instability it seems to work reasonably well (9). Although most studies seem to claim that intramedullary nails take less time to perform (10) but some have concluded otherwise (7) and we tend to agree with the latter.

CONCLUSION

It is clear from the presented data that extramedullary fixation of subtrochanteric fractures of the femur is a cost effective method of treatment. It is cheap, relatively easier to learn and perform. It does not usually result in any intraoperative complications. The mobility of the patient at six month stage is the same as in the case of intramedullary fixation. We therefore recommend DHS fixation for these fractures. It is also recommended that any fractures with medial instability should be primarily bone grafted.

REFERENCES

1. Subtrochanteric Fractures William G. DeLong Jr. Rockwood And Green Fractures In Adults Fifth edition page 1665-1679.
2. Proximal Femoral Fractures; A Biomechanical Study To Compare Intramedullary And Extramedullary Fixations Mj Curtis, Rh Jinnah,

- Bw Cunningham. Injury (Mar. 1994) 25(2); 99-104.
3. Treatment of subtrochanteric fractures; a comparison of gamma nail vs DHS. I. Saarenmaa, T. Heikkinen, P. Jalovara. Int. Orthop. (Feb. 2007) 31(1); 65-70.
 4. Extramedullary fixation of 107 subtrochanteric fractures; a randomized study of multicentre trial Medoff sliding plate vs 3 other screw plate systems. Karl Ljunger. Acta Orthop (1999) 70; 459-466.
 5. Mechanical comparison of plates used in the treatment of unstable subtrochanteric fractures. Landy DW, Acevedo JJ, Ganey TM. Journal of Orthopedic Trauma (1999) NO; 13(8); 534-538.
 6. The Dynamic Condylar Screw In The Management of Subtrochanteric Fractures of Femur. DJ Warwick, TPKR Crichtlow, Vg Langkamer, M Jackson. Injury (May 1995) 26; 241-244.
 7. Subtrochanteric Fractures of Femur. MJ Parker, BK Dutta, C Sivaji, GA Pryor. Injury (Mar. 1997) 28; 91-95.
 8. Fixation of Subtrochanteric Fractures of Femur Elsayed Ibraheem, Elsayed Massoud Strat trauma limb reconst. (2009) 4; 65-71.
 9. Bridge Plating Osteosynthesis of 20 Comminuted Subtrochanteric Fractures. PO Cheng LEE Chang Gung Medical Journal (2002) 25; 803-810.
 10. Stabilisation of Unstable Trochanteric Fractures with Trochanteric Stabilisation Plate vs PFN Nuber S., Schonweiss T., Ruter A. Unfallchirurg (Jan. 2003) 106 (1) ; 39-47.