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STUDY OF MANAGEMENT OF SUBTROCHANTERIC FRACTURE FEMUR BY PROXIMALFEMORAL NAILING

DR.G.KISHORE ROY AND DR.YEDLAPALLI SUBRAMANYAM

Professor and HOD, ASRAM Medical College Hospital, MALKAPURAM, ELURU, - 534005, West Godavari district, Andhra Pradesh.

ABSTRACT

Upper femoral fractures present a peculiar problem of securing effective neutralization of deforming forces.Various upper femoral devices like dynamic condylar screw, dynamic hip screw with barrel plate, gamma nail, proximal femoral nail etc are being used by various centres and each centre claims reasonably satisfactory results with each type of device. The present study was conducted to assess the utility and effectiveness of Proximal Femoral Nail evolved by AO-ASIF in 1997, for various types of upper femoral fractures.This is a prospective study of 31 patients admitted to orthopaedic units of ASRAM Medical College Hospital between May 2007 and April2010. The most common mechanism of injury was a simple fall in females and high velocity injuries in males.This study was done to evaluate the management of subtrochanteric fracture of femur byproximalfemoral nailing.In our series of 31 cases of subtrochanteric fractures treated with Proximal Femoral Nail, 24 patients hadexcellent to good outcome at their final follow up. Fair outcome was seen in 4 patients and poor result was seen in 3 patients probably due to inappropriate reduction intraoperatively and associated degenerative joint disease of the knee.From this sample study, we conclude that Proximal Femoral Nail is a good implant for the treatment of Subtrochanteric fractures of femur provided optimal reduction of the fracture and good positioning of the implant is achieved.

KEYWORDS: **Subtrochantic fracture of femur, Proximal femoral nailing (P.F.N)**

DR.G.KISHORE ROY
Professor and HOD, ASRAM Medical College Hospital, MALKAPURAM, ELURU,- 534005, West Godavari district, Andhra Pradesh.

INTRODUCTION

Among the femoral shaft injuries upper femoral fractures present a challenging problem of securing effective neutralization of deforming forces. The mechanical stresses at this level are very high. These factors have made subtrochanteric fractures demand special consideration in orthopaedic trauma., gamma nail, proximal femoral nail etc are being used by various centres and each centre claims reasonably satisfactory results with each type of device. The present study was conducted to assess the utility and effectiveness of Proximal Femoral Nail evolved by AO-ASIF in 1997, for various types of upper femoral fractures

MATERIALS AND METHODS

The present study consists of the patients admitted to orthopaedic units of ASRAM Medical College Hospital between May 2007 and April 2010. 1267 fracture cases were treated in the Department of Orthopaedics, AlluriSitaramaRaju Academy of Medical Sciences, out of which 264 are femoral fractures and 31 are sub trochantricfractures.Among the 31 sub trochanteric fractures, 11 were females and 20 were males. The mean age of presentation was 50.8 years. The most common mechanism of injury was a simple fall in females and high velocity injuries (fall from height, Road traffic accidents) in males. Seinsheimer type IIIA fracture pattern was the most common type to be seen in our study. Pathological fractures and subtrochanteric fractures of femur with ipsilateral femoral shaft or neck fractures were excluded from the study. Upon arrival the patients were assessed clinically and were stabilized haemodynamically. They were then subjected for radiographs of Pelvis with both hips and full length thigh.They were admitted to orthopaedic wards and were maintained on skin traction over a Bohler - Braun frame till surgery. Appropriate hematological investigations were done and surgical fitness was obtained. All the patients were operated on a fracture table in supine position under image intensifier control using standard techniques. Their post operative period was uneventful. Patients were assessed clinically and radiologically on the 2nd post operative day,and at 6 weeks, 3 months, 6 months and finally 1 year. Healing was judged by both clinical and radiological criteria and functional outcome was reviewed according to the Harris Hip score (modified)[33].Harris Hip Score is slightly modified according to the needs of the Indian patients. i.e squatting; cross legged sitting.

RESULTS

In our series of 31 cases of Subtrochanteric fractures treated with Proximal Femoral Nail, 24 patients had Excellent to good outcome at their final follow up. Fair outcome was seen in 4 patients. 3 patients had poor result.The average time for fracture union was 3.04 months. The mean Harris Hip score at their final follow up was 80.76 which is comparable to international publications in the literature

PRE OPERATIVE AP VIEW POST OP AP VIEW 3 MONTHS POST OP

DISCUSSION

Fractures of the long bones are a major social and economic problem. Of the long bone fractures Subtrochanteric fractures of the femur have peculiar anatomic and mechanical characteristics which pose problems in their management. Closed locked intramedullary devices have a mechanical advantage that effectively addresses these factors. The benefit of minimal surgical exposure, more efficient load transfer through calcarfemorale and decreased tensile strain on the implant because of its shorter lever arm makes proximal Femoral Nail a good choice of implant for subtrochanteric fractures of the femur. Various studies have confirmedProximal Femoral Nail as an acceptable minimally invasive implant for Subtrochanteric fracture. The incidence of subtrochanteric fracture is relatively low. In our study 31 subtrochanteric fractures accounted for 9.7% of all proximal femoral fractures. In other studies 7% - 34% of all femur fractures occurred in the subtrochanteric region [36, 37].Most of our patients were of the elderly age group, the average age being 50.8 years. This is significantly lower compared to that quoted byBoldin et al[23] 73 yrs**,** I.B.Schipper series[13]82.2 years**.** Slight female preponderance was noted in our patients and it was also reported by Boldin et al[23]and I.B.Schipper[34]. The right femur involvement is more in this series as compared to 52% in I.B.Schipperseries[34].Trivial fall was the reason especially in females. High velocity injuries like road traffic accidents and fall from heights accounted for 42.85% of these fractures in males. In W.M.Gadegone's75% of the fractures were due to domestic falls. Fractures were classified according to Seinsheimer's classification and type III A fracture pattern constituted the highest percentage 42.85% of all fracture patterns. Seinsheimer[3] in his original study also noted high incidence of type III A fracture pattern (38.29%) than other fracture patterns. Admission – operation interval in our study varied from 3 – 26 days. Mean interval was high in our series when compared to I.B.Schipper's series[34]where it was 2 days. Most of the patients with long injury – operation interval had pre existing uncontrolled medical co-morbidities. The mean duration of hospital stay in our series was 19.09 days which is at par with I.B.Schipper's series[34]19 days). Intra operatively fracture reduction was achieved by closed means in 94% (30) of patients and 1 patient with delayed surgery required open reduction. The result of the reduction was considered good in 76% (26) of the patients and acceptable in 4.76% (1) of patients. Poor reduction was noted in 19.04% (4) of patients and it was associated

with poor outcome. In I.B.Schipper's series[34]reduction was good to acceptable in 96.2% of their patients and poor reduction was seen only in 2.9% of their patients. Post operatively 1 patient in this study had superficial infection (4.76%) and this settled with parenteral antibiotics. I.B.Schipper noted 4.1% superficial infections and 2.5% deep infections. Fracture union was good in majority of the patients.

CONCLUSION

From this sample study, we conclude that Proximal Femoral Nail (A.O ASIF type) is a good implant for the treatment of Subtrochanteric fractures of femur provided optimal reduction of the fracture and good positioning of the nail and screws are achieved.

ABBREVATIONS

AO : The Arbeitsgemeinschaft fur osteosyntheses
ASIF : Association of study of internal fixation
P.F.N : Proximal Femoral Nailing

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