Fractures Of The Neck Of The Femur- Treated With Multiple Cannulated Screws In Younger Patients –A Study Of 40 Cases

S Kumar, D Bagchi

Citation

S Kumar, D Bagchi. *Fractures Of The Neck Of The Femur- Treated With Multiple Cannulated Screws In Younger Patients –A Study Of 40 Cases*. The Internet Journal of Orthopedic Surgery. 2009 Volume 18 Number 1.

Abstract

Intracapsular fractures of the neck of the femur are an enigma (4, 6, and 7) to orthopedic surgeons and it is a curse for an individual. Still it remains an unsolved problem in modern day's orthopedics. The treatment in younger patients lacks any consensus among us. Review of literature gives strong and clear mandate for three things.No. 1 - Osteosynthesis in extra capsular fractures of the neck of the femur (1, 4) , irrespective of the age. No 2 - Osteosynthesis in case of intracapsular fractures of the neck of the femur in younger (1, 4) individuals.No 3 - Replacement surgeries in intracapsular fractures of the neck of the femur in elderly greater than 60 years (1,4). The aim of this study was to see the efficacy of closed reduction and stabilization of intracapsular fractures of the neck of the femur in young adults <50 years of age with percutaneous multiple cannulated hip screw fixation. This study comprised of 40 patients over 5 years. Among 40 patients, 8 patients were either of Garden classification I or II type and rest of the patients were of type III & IV. The average age was 40 years ranging from 34 to 56 years. The average timing of surgery after trauma was 7 days. The results in all the 8 patients in Garden I & II were very good. They progressed to solid union with nearly normal hip. In the rest of the 32 patients of Garden III & IV they had variable results. 9 out of 32 patients (Garden III & IV) required some kind of revision surgery. In these 9 patients 7 had non-union and 2 patients had AVN.

INTRODUCTION

Intracapsular fractures of the neck of the femur are an enigma (4, 6, and 7) to orthopedic surgeons and it is a curse for an individual. Still it remains an unsolved problem in modern day's orthopedics. The treatment in younger patients lacks any consensus among us.

Review of literature gives strong and clear mandate for three things.

No. 1 - Osteosynthesis in extra capsular fractures of the neck of the femur (1, 4) , irrespective of the age.

No 2 - Osteosynthesis in case of intracapsular fractures of the neck of the femur in younger (1, 4) individuals.

No 3 - Replacement surgeries in intracapsular fractures of the neck of the femur in elderly greater than 60 years (1,4).

The aim of this study was to see the efficacy of closed reduction and stabilization of intracapsular fractures of the neck of the femur in young adults <50 years of age with percutaneous multiple cannulated hip screw fixation. This study comprised of 40 patients over 5 years. Among 40 patients, 8 patients were either of Garden classification I or II type and rest of the patients were of type III & IV. The average age was 40 years ranging from 34 to 56 years. The average timing of surgery after trauma was 7 days. The results in all the 8 patients in Garden I & II were very good. They progressed to solid union with nearly normal hip. In the rest of the 32 patients of Garden III & IV they had variable results. 9 out of 32 patients (Garden III & IV) required some kind of revision surgery. In these 9 patients 7 had non-union and 2 patients had AVN.

MATERIAL & METHODS

This study consisted of 40 patients having an intracapsular fracture of the neck of the femur. Patients having extra capsular fractures were discarded from the study. Patients having co morbid medical component like diabetes, thyroid abnormalities, heart diseases were also excluded from the study. The upper limit of age was 50 years. 8 patients were female. The patients were in between 31 to 50 years of age with mean age of 40 years. The patients with polytrauma

were excluded. The patients were investigated completely. The prognosis was explained to the patients and there parties. The average interval between trauma and surgery was 7 days. All patients were given regional anesthesia. On orthopedic table reduction of the fracture was achieved by standard methods under image intensifier. Fractures were stabilized with 3 or 4 partially threaded 6.5mm cancellus screws. Only 3 of these 40 patients required open reduction and internal fixation. I.V antibiotics were given for 2 days followed by oral antibiotics for 10 days. Patients were put to static quadriceps, active ankle movements and pelvic lifting exercises from 1st post op day. Patients were made to sit from 2nd day with leg hanging from the bed. They were allowed non weight bearing crutch walking from 3rd post op day. Patients were discharged from the hospital on 3rd post op day with oral antibiotics. Patients were followed in OPD on 2nd, 4th, 6th week, 3 months, and 6 months and so on. In normal course ,X-ray of concerned hip joint were taken at 2nd, 6th week, 3 months and 6 months. They were assessed clinically and radio logically. Following a specific protocol we allowed patients to bear weight on the operated limb at the end of 6 weeks with the help of crutches.

RESULT

Out of 40 patients, 9 had complications. 31 times the hip united. 9 hips headed for complication in which 7 were non-union and 2 were AVN. All the patients of Garden I & II variety headed for complete union without any complication. In 32 patients of Garden III & IV variety 9 patients had complications which make 28% which is quite significant. However, the average time of union was 16 weeks.

Figure 1

Case 1 Fig. 1 - Fracture of the neck of the femur Garden type 2.

Figure 2

Case 1 Fig. 2 - Post operative picture showing fixation with cannulated hip screw undergoing union.

Figure 3

Case 1 Fig. 3 - Lateral radiograph of the same patient.

Figure 4

Case 2 Fig. 4 - Garden Type 4, fracture of the neck of the femur.

Case 2 - Fracture union with implant in situ.

Figure 5

Case 2 Fig. 5 - Lateral view of the same patient.

DISCUSSION

Irrespective of the age of the patients, intracapsular fracture of the neck of the femur of Garden I & II variety behaved nicely with CHS(2) and resulted in union. In rest of the 32 patients of either Garden III or IV variety, our results were not very encouraging. If we consider our group to be of these 32 patients, then 9 patients had complications like non-union and AVN. Therefore, the rate of complications is very high- 28.1%. If we consider total 40 patients then the complications stands as 22.5%.

Analyzing the rate for such high failure we found some deficit in our part. Our average time of surgery post trauma was 7 days ranging from 4 to 10 days. We found all the 9 patients who had complications were operated in between 8 to 10 days. All the 7 patients which had gone for non- union were of Garden III & IV. In all patients there was significant amount of posterior communition and the reduction was quite difficult. So, delay in surgery, posterior communition (3) difficult surgeries, early loss of reduction (3), convergent screw placement (1) might be the risk factors for non union.

A recent study in 2009 by Majernicek M et al (5) found 73.4% union rate in intracapsular fractures of the neck of the femur fixed with DHS while the complication rate was mentioned to be 26.6% though the average age in the studies was 21.5 years.

Lu- Yau et al (9) showed an occurrence of non union in 23 to 37 % of displaced fractures and AVN in 11to 19 % in their met analysis.

In our series of 40 cases we found 7 non union and 2

AVN.So, we had a non union rate of 17.5%,union rate of 82.5% and AVN to be 5 %.

CONCLUSION

Osteosynthesis in fractures of the neck of the femur in young adults being a challenge to every orthopedic surgeon, there are a number of implants and surgical techniques to address the problem. Our result being encouraging in comparison to the literature we recommend to fix the fracture with multiple cannulated hip screws as it is simple, less invasive and provides reasonable amount of stability. Moreover, the anatomy is not disturbed and the revision surgeries are not difficult.

References

1. Management of fracture neck of femur, Hardas Singh Sandhu, IJO April 2005, volume 39: number 2: page 130-136.
2. Unstable recent intracapsular femoral neck fractures in young adults: Osteosynthesis and primary valgus osteotomy using broad dynamic compression plate .M P Singh, Aditya Aggrwal, Anil Arora, Ish K Dhammi, Jagjit Singh, IJO volume 42/issue1/Jan-March 2008, Page 43-48
3. Internal Fixation of femoral neck fractures in young adults: comparison of closed and open reduction –A prospective randomized study –A Upadhyay, L Maini, P Jain, S K Kapoor and V K Goutam. JBJS-British volume, volume 90B, Issue supp-1,9
4. Raaymakers EL, fractures of femoral neck : A review and personal statement .ACTA Chir orthop traumatol Cech.2006: 73(1) 45-59
5. Majernicek M, Dungi-P, Kolman J, Malkus T, Vauculik J, osteosynthesis of intracapsular femoral neck fratures by dynamic hip screw fixation , ACTA Chir orthop traumatol Cech,2009 aug: 76(4):319-325
6. Dickson JA. The unsolved fracture of protest against defeatism. JBJS(Am). 1953.35:805-822
7. Grewal K S, fracture neck femur. Kini memorial oration : Annual conference of Association of surgeons of India, Jaipur 1959
8. Rinaldi E, Marenghi P, Negriv V, osteosynthesis with valgus osteotomy in the primary treatment of subcapital fracture neck of femur. Ital J Orthop Traumatol 1984:10:313-320
9. Lu- Yao GL, Keller RB, Littenberg B, Wennberg JE. Outcomes after displaced fractures of the femoral neck. A meta analysis of o reports. JBJS (Am) 1994: 76:15-25

Author Information

Sanjay Kumar
Asst professor, Orthopaedics, NRS medical college

Dibakar Bagchi
RMO cum clinical tutor, Surgery, North Bengal Medical College