



MANAGEMENT OF NEGLECTED MALUNION SHAFT FEMUR FRACTURE WITH OPEN REDUCTION AND FIXATION WITH DCP PLATE

Dr. Etish Agarwal

Junior Resident -2

Dr Dinesh Kumar Meena

Assistant Professor

Dr. Subhash Sharma*

Assistant Professor *Corresponding Author

Dr Manish

Professor

ABSTRACT

Femoral shaft fractures occur in 10–37 / 100.000 patients per year, and mainly male young patients are affected (median age 27 years) compared to the fracture of the elderly in female patients (median age 80 years). Fracture of the femoral diaphysis is a common fracture which is seen frequently in orthopaedic department. Treatment can be operative and nonoperative. Usually operating management is preferred and results are good. In developing countries patients suffer from low social economic conditions which cause problem in seeking treatment so malunion and non union are common. The problem treating malunion are related to restoring the axis; the limb length and joint mobility in the knee and hip. Diaphyseal malunion poses a great challenge for the orthopedic surgeon, and an inundation of morbidity for the patient. Diaphyseal malunion can cause altered gait, adjacent joint osteoarthritis and body dissatisfaction. We present our experience in a case of 11 month old malunited shaft of femur fracture which was treated with open reduction and internal fixation using a broad dynamic compression plate (dcp). The object of surgery was to restore the function. The common indication for operating malunited shaft femur fracture are overlapping, angulation > 10-15° and rotation > 45° with or without angulation (externally or internally) and relieve pain.

KEYWORDS : deformity; malunion; nonunion; femoral osteotomy ; plating; broad dcp ; diaphyseal malunion of the femur

INTRODUCTION

Femoral shaft fractures occur in 10–37 / 100.000 patients per year, and mainly male young patients are affected (median age 27 years) compared to the fracture of the elderly in female patients (median age 80 years). Femoral diaphysis is a common injury which manage well provides good results. In developing countries, neglected forms are not rare and present as non-union or malunion. Generally speaking, a femoral shaft malunion includes either an angular deformity of greater than 10 deg, a rotational misalignment of greater than 10 deg, or shortening of more than 2 cm. The condition is usually caused by inadequate treatment of fractures.

Although various methods of treating pure femoral shaft shortening have been described, treatment of femoral shaft angular or rotational deformity has rarely been reported.

Malunion is a state that has suffered a broken bone union with fracture fragments are in an abnormal position (include shortening, rotational deformity and angular deformity). Femoral malunion defined as shortening by more than 2 cm or angular or rotational deformity of more than 10. Malunion in a lower extremity causes a limp but can also induce joint degeneration, disturbances in gait and posture. There are various classification of diaphyseal femur fracture. The standard and most acceptable is AO classification.

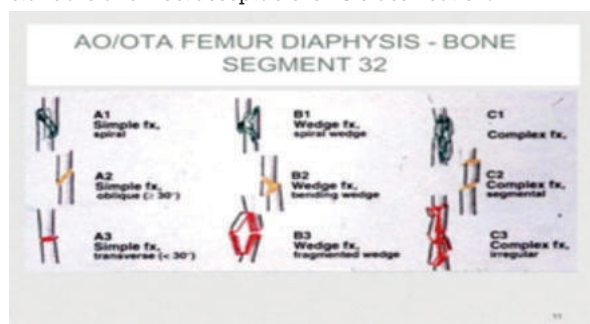


Figure 1 Ao/Ota Femur Diaphysis Fracture

Case Presentation

A 55 year old male, presented to us with history of 11 month old road traffic accident. He had suffered a previous shaft of femur fracture. He had complaint of pain in the thigh as well as stiffness in knee and hip joint. He was having difficulty in weight bearing and mobilization.

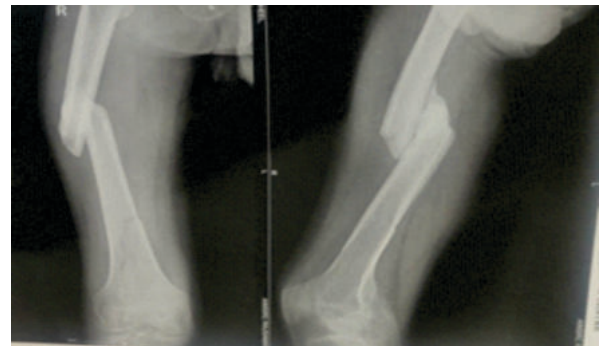


Figure 2- 11 month old Malunion Shaft Femur Fracture

He gave us the history of the road traffic accident which occurred 11 months ago. He was advised for operating management but due to low social economic condition he was not able to afford it. So he opted for a non-operative management with a plaster at that time.

Pt had no other comorbidities and it was a closed fracture; there was no neurovascular deficit, he had mild tenderness around the fracture site.

Evaluation:

Radiographs involving anteroposterior; lateral view of femur with knee of right side shows malunion of shaft of femur

Management:

A detailed staged procedure was planned following pre-anesthetic check up. [2] Using the Direct lateral approach, incision was given over lateral mid thigh. Fracture site was

exposed . [3]osteotomy of the malunited fracture was undertaken and fracture was reduce under anatomical position .It was reduced and held in a position with the help of tens nail and then definitive fixation using a 12 hole broad dynamic compression plate (dcp) with cortical screw of appropriate size.

Post operatively , [5]the patient was stable with no distal neurovascular deficit and no limb length discrepancy. Patient had excellent functional outcome post operatively. Post op period were uneventful. Patient had been mobilizing very well with a normal gait.



Figure 3 - Intra Op Photo

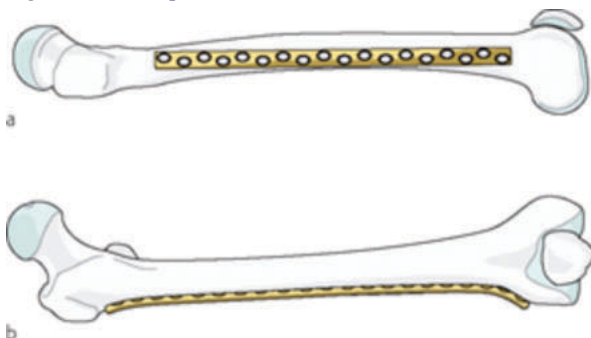


Figure 4- Shaft Femur With Dcp Plate

DISCUSSION

Discussion Treatment of old malunion femoral diaphyseal fractures is well codified. A detailed history and thorough physical examination is always a requirement for any patient who is undergoing for orthopedic surgery. In malunited case it is more so important to find the deformity before making a treatment plan. This should include evaluation of gait ,Joint motion, including the rigidity of the end point, as well as excessive mobility. This should be well documented. We have documented the pain severity and frequency as well as any pain medication taken on a daily basis so can we find the improvement and plan for the treatment. Further investigation should include ap and lateral view of femur. [4]In this case osteotomy was done and fracture was fixed using broad dynamic compression plate (dcp).

The difficulty treating femoral diaphyseal malunion correcting limb shortening involves carrying out the procedure in a single operation. Traction of the limb is transmitted to the soft tissues and can lead to a number of neurovascular complications .[5]Our length gain was obtained intraoperatively in a single procedure on a standard surgical table. We obtained a mean length gain of 2 cm (range, 1.5—4 cm) with no nerve or blood vessel complications. No bone grafting was done.

Postoperative the patient underwent intensive physiotherapy his mobilization and knee flexion was improved . In spite of limited resources, a well-conducted surgical strategy can obtain good results with an osteotomy and open reduction

internal fixation with broad dcp plate. After the procedure pt had significant relieve of pain. He was able to weight bear without any issue and shorting of limb was also corrected.

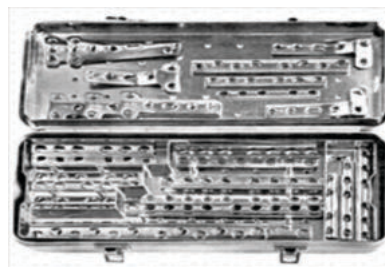


Figure 5- DCP Plate Set



Figure 6- Post Op X Ray



Figure 7 - Post Op X Ray

CONCLUSION

Primary open reduction with Dynamic Compression Plate (DCP) has a definite role in the management of closed fractures of the femoral shaft in selective cases. DCP helps in achieving anatomical reduction and fixation.[1] Finally, if performed as per AO guidelines DCP usage is the one of the best viable procedure for closed fractures of femoral shaft in limited indications and offers excellent to good outcomes in the hands of a competent surgeon experienced in this method of treatment.

In our experience, we were able to achieve good results in malunion shaft femur fracture using broad dcp plate. [5]There was a significant improvement in the pain and shorting of limb ;flexion deformity of the limb was corrected.

Conflict of Interest: None to declare

Source of funding: Nil

REFERENCES

1. AO/ASIF Instruments and Implants: A Technical Manual: Rigmor Texhammar, Christopher Colton - 2013.
2. V. Neumann, N. P. Südkamp, P. C. Strohm. Management Of Femoral Shaft Fractures. Department Of Surgery, Clinic For Orthopaedic And Trauma Surgery, University Of Freiburg Medical Center, Freiburg, Germany. Acta Chirurgiae Orthopaedicae Et Traumatologiae Cechosl., 82, 2015, P.22-32.
3. Michael A. Miranda and Mary Moon. Treatment Strategy for Nonunions and Malunions. 14295 C05.qxd 2006;Page77-99
4. Magerl F, Wyss A, Brunner C, Binder W. Plate osteosynthesis of femoral shaft fractures in adults. A follow-up study. Clinical Orthopaedics and Related Research. 1979 Jan-Feb (138):62-73.
5. Wagner H. Operative lengthening of the femur. Clin Orthop Relat Res 1978;136:125—42.