

To Study the Complications and Functional Outcome of Patients of Distal Femoral Fracture Managed Operatively

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ABSTRACT

Background: Distal femoral fractures are most commonly due to high velocity trauma. It has bimodal age of distribution. In young age group high velocity trauma is main cause but in old people even trivial fall can lead to distal femoral fracture. Treatment of distal femoral fracture evolved from non-operative to operative in recent times.

Aim: To evaluate the functional outcome and complication of distal femoral fractures managed operatively.

Methodology: A prospective study was conducted in Govt. Medical College Jammu, J&K from 2019-2020. Twenty-seven patients were included in study. There were eighteen male and nine females. Six-month follow up was done after operative intervention. Record of Functional outcome by using Neer's scoring system and complications were noted in every patient and record on separate sheet.

Results: Delayed union and implant failure were the most commonly encountered complication during post-operative period observed in 7.4% patients followed by superficial infection in 3.7%, deep infection in 3.7%, varus mal-alignment in 3.7%, valgus mal-alignment in 3.7% and non-union in 3.7% patients. As per Neer's scoring system 37% patents had excellent rating whereas, 44.5% had good outcome, 14.8% had fair and 3.7% had poor outcome.

Conclusion: Distal femoral fracture was managed operatively in recent times but complications are very common like infection, mal-alignment, implant failure, non-union and delayed union. Stiffness of knee is also a major

issue. Soft tissue management as well as reduce operative time with proper bio-mechanical stability of fracture are very important aspect in management of distal femoral fractures.

Keywords: distal femoral fracture, functional outcome

INTRODUCTION

Distal femoral fractures are most commonly due to high velocity trauma. They comprise for less than 1% of all fracture and 4-6% of all femoral fractures.¹⁻³ Distal femoral fractures have bimodal age of distribution. In young age group it most commonly occurs due to high velocity trauma but in old age group it is due to sustaining low energy trauma.⁴ Treatment of distal femoral fracture evolved from non-operative to operative treatment and fixation of medial and lateral column according to the fracture pattern.⁵ Definitive treatment of the distal femoral fracture is to maintain articular congruity, restoration of distal femoral alignment and preservation of function.⁶ Distal femoral fractures are difficult to treat and known for complication like stiffness of knee and loss of range of motion may develop due to immobilization.⁷ In obese and diabetics wound healing and infection is also major problem specifically non-unions.⁸ The purpose of our study is to evaluate the functional outcome and complication of distal femoral fractures managed operatively.

METHODOLOGY

A prospective study was conducted in Govt. Medical College Jammu from 2019-2020. Twenty-seven patients were included in the study after taking written consent and meeting inclusion and exclusion criteria. There were eighteen male and nine females. Six-month follow up was done after operative intervention. Functional outcome by using Neer's scoring system and complications like superficial infection, delayed union, non-union, deep infections, implant failure varus and valgus mal-alignments looked for with the help of clinical observation and radiological investigation.

Inclusion criteria

- Patient managed operatively
- Age > 18 years
- Follow-up for 6 months

Exclusion criteria

- Patient lost follow-up before 6 months
- Polytrauma patients
- Patients having comorbidities
- Associated neurovascular injury

RESULTS

Table 1 shows the complications which occurs during the course of treatment. Delayed union and implant failure were the most commonly encountered complication during post-operative period including 7.4% patients followed by superficial infection 3.7%, deep infection 3.7%, varus mal-alignment 3.7%, valgus mal-alignment 3.7% and non-union 3.7%.

Table 1 shows complications viz superficial infection, deep infection, non-union, mal-alignments, delayed union and implant failure

	Number	Percentage
Superficial infection	1	3.7%
Deep infection	1	3.7%
Implant failure	2	7.4%
Delayed union	2	7.4%
Valgus mal-alignment	1	3.7%
Varus mal-alignment	1	3.7%
Non-union	1	3.7%

Table 2 shows functional result according to Neer's scoring system at 6 month followed up. 37% patients had excellent rating whereas, 44.5% had good outcome, 14.8% had fair and 3.7% had poor outcome.

Table 2 showing functional results according to Neer's scoring system

	Number	Percentage
Excellent	10	37%
Good	12	44.5%
Fair	4	14.8%
Poor	1	3.7%
Total	27	100%

DISCUSSION

In our study about 3.7% superficial infection 3.7% deep infection rate was found. It can be due to the fact that distal femoral fracture surgery is time consuming and due to this infection rate increased. Our findings are consistent with previous studies that post-operative infection rates in distal femoral fractures ranges from 5.7% to 20%.⁹⁻¹¹

There were 7.4% patients who had implant failure in our study. One was due to medial plate breakage and other was due to broken screw. The Reason behind implant failure could be poor bone stock in elderly patients due to osteoporosis.¹² Our findings were also comparable to Jhathoth et al¹² and Ramu AC et al.⁹

Delayed union was observed in 7.4% cases. Delayed union in our study can be explained by the fact that distal femoral surgeries are time consuming and it also cause soft tissue damage, mechanical as well as implant construct also contribute to delayed union.¹³

3.7% patients had non-union of fractures which may be due to pre-existing co-morbidities in patient.¹⁴ Non-union in present study is comparable to other studies conducted previously by Arthar MS.¹⁴

Varus and valgus mal-alignment was seen in about 3.7% patient each. Careful intra-operative attention should be given during fracture reduction and fixation and restoration of alignment should be done in all planes. Native bone loss and

comminuted fracture are predisposed to mal-alignment followed by Technical error in placement of implant and early weight bearing can lead to varus or valgus collapse.¹²

Neer's and associates scoring system was used to evaluate the final functional outcome of the patients managed operatively. It is based on clinico-radiological criteria and specifically developed for fracture distal end of femur.¹⁵ In our observation excellent result were observed in 37% patient and good results in 44.5%, followed by fair in 14.8% and 3.7% is poor. Our result were comparable with Ramu AC et al which shows excellent and good results in about 70.7% and Jhath DS who also showed that in 80% patients' results were excellent and good.

CONCLUSION

Distal femoral fractures are managed operatively in recent times but complications like infection, mal-alignment, implant failure, non-union and delayed union are very common. Stiffness of knee is also a major issue. Soft tissue management as well as reduce operative time with proper bio-mechanical stability of fracture are very important aspect in management of distal femoral fractures to reduce.

Conflict of interest: Nil

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