

TO FIND OUT THE COMPLICATION AND FUNCTIONAL OUTCOME OF TIBIAL FRACTURE MANAGED BY VARIOUS METHODS

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Abstract

Background: Proximal tibial fracture is the most common type of injuries and it's occurring due to high energy trauma. There is severe loss of bone and soft tissue injuries and high chance of open injury. Proximal tibia fracture is in bimodal distribution and high energy trauma to young and low trauma energy in adult.

Aim: To find out the complication and functional outcome of Tibial fracture managed by various methods.

Methodology: The present observational and prospective study was conducted in the Department of Orthopaedic, Govt. Medical College, Jammu, J&K for period of 1 year on 25 patients. General information including age, sex, side of fracture etc. was noted on separate sheet. All fractures were classified as per knee society score system.

Results: In present study majority of incidence is between 18-29 years patient it's about 32% followed by 30-49 year which was about 24% and then above 50 year which was about 20%. In observation male was the most important and prone to injury 68% and right sided were the most involved side. RTA was the most common cause of injury in around 80% and type 4 and type 5 masts the most common type of injuries. Complication is infection and wound dehiscence 8% varus and knee stiffness which was about 4%.

Conclusion: There is about 80% percent of RTA in proximal Tibial fracture and there are very scarce rules in india so we are recommended to the authorities that strict traffic rules are applied and over speeding of vehicle is decreased and hence proximal tibial fracture.

Introduction

Knee injuries are very complex due to intra-articular in nature and proximal Tibial fractures are very difficult as these are subcutaneous location in antero-medial surface. Soft tissue and severe bone loss are not infrequent and there is very high chance of open injuries as compared to other long bones¹. Fractures in proximal tibia are bimodal in distribution high-energy trauma in young patient and low-energy trauma in elderly patients⁶. In young patients, these injuries has been associated with increased incidence of complication like non-union, infection, restriction of motion, and post traumatic arthritis⁶². The primary goal of the treatment of Tibial plateau fractures, precise and congruent reconstruction of articular fragment, axial alignment, stable fixation and early mobilization to preserve the knee function⁵.

Methods

A prospective study was conducted in Govt. Medical College Jammu from 2019-2020. Twenty-five patients

were included in study after taking written consent and meeting inclusion and exclusion criteria. There were seventeen male and eight females. Six-month follow up was done after operative intervention. Functional outcome by using knee society scoring system and Complications like superficial infection, delayed union, non-union, deep infection, implant failure, varus and valgus mal-alignments looked for with the help of clinical observation and radiological investigation.

Inclusion criteria

1. Patient managed operatively.
2. Age > 18 years.
3. Follow-up for 6 months.

Exclusion criteria

1. Patient lost follow-up before 6 months.
2. Polytrauma patients.
3. Patient having co-morbidities.
4. Associated neurovascular injuries.

Results

Table1: Age of incidence.

Age of incidence	Number of patients	percentage
18-29 yr	8	32%
30-39 yr	6	24%
40-49 yr	6	24%
50-60 yr	4	16%
Above 60 yr	1	4%
total	25	100%

Our present study age of incidence is 32% in 18-29 yr, 30-39 and 40-49 years 24%, 50-60 year 16% and then above 60 year which is 4%.

In our evaluation male sex are more prone and about 68% were male and 32% were female.

In our study left side involvement of the limb is 40% and right sided is about 60%. Both limbs were not available.

Table 2: Male / Female ratio

Sex	Number	Percentage
Male	17	68%
Female	08	32%
Total	25	100%

Table 3: Side of Injuries

Side of injuries	Number	Percentage
Left side	10	40%
Right side	15	60%
Both right and left	0	0%
Total	25	100%

Table 4: Mode of Injury

Mode of injury	Number	Percentage
RTA	20	80%
Other high energy trauma	05	20%
Total	25	100%

In our study 80% are the causes of energy are Road Traffic Accident and 20% is other high energy truma.

Table 5: Type of Fracture

Type of fracture	Number	Percentage
Type I	4	16%
Type II	3	12%
Type III	3	12%
Type IV	5	20%
Type V	6	24%
Type VI	4	16%
Total	25	100%

In our study about type V fracture was about 24%, then about type IV fracture which was about 20%, type VI and type I was about 16% and type II and type III was about 12%.

Table 6: Complications

Post-operative complication	Number	Percentage
Infection and wound dehiscence	2	8%
Varus deformity	1	4%
Knee stiffness	1	4%
Normal	22	84%
Total	25	100%

In all cases around knee fracture it's the most common complication. In our study it also complication is established. 84% knee was in usual statement where there is no deformity. Infection and wound dehiscence is about 8%, varus knee deformity is about 4% and knee stiffness is about 4%.

Table 7: Functional results by using knee society scoring system

Grading	Number	Percentage
Excellent	17	68%
Good	6	24%
Fair	2	8%
Poor	00	00%
Total	25	100%

Functional results were important and about 68% have an excellent results, 24% have an good result and 2 patients with in fair results.

Discussions

Table 1: Age of incidence

Age of incidence	Number of patients	percentage
18-29 yr	8	32%
30-39 yr	6	24%
40-49 yr	6	24%
50-60 yr	4	16%
Above 60 yr	1	4%
Total	25	100%

The cause of peri-articular trauma to knee is most commonly high energy trauma and it cause challenges to treating physician. In present study 84% out of 100% patients are 18-50 years age group. The same results were also found in Singh et al⁵ which shows the 76.7% patient in 31-50 years old.

Table 2: Male / female ratio

Sex	Number	Percentage
Male	17	68%
Female	08	32%
Total	25	100%

In our present study the male was about 68% and about 32% female is found. This can be the fact that male are more prone to high energy trauma. This could be the explanation by our Indian setup where female population mostly works indoor and less prone for injuries. Our present study could also enhanced by Aseri MK et al.⁶

Table 3: Side of injuries

Side of injuries	Number	Percentage
Left side	10	40%
Right side	15	60%
Both right and left	0	0%
Total	25	100%

In present study about 60% about right Tibial fracture and 40% in left side and there is no bilateral fracture.

Table 4: Mode of injury

Mode of injury	Number	Percentage
RTA	20	80%
Other high energy trauma	05	20%
Total	25	100%

In our study 80% population had Road traffic accident and 20% others had other high velocity energy trauma. As proximal tibial fractures are high energy trauma and studies done by the Dendrinos GK *et al*⁸, Barei DP *et al*⁹, and Patil DG *et al*⁸ also confirmed that Road Traffic Accident was the major cause.

Table 5: Type of fracture

Type of fracture	Number	Percentage
Type I	4	16%
Type II	3	12%
Type III	3	12%
Type IV	5	20%
Type V	6	24%
Type VI	4	16%
Total	25	100%

In our study type V was the most common fracture encountered 24%, followed by type IV which was about 20%. Type I @ type VI was about 16% and type II @ type III was 12%. The majority of trauma in our series is high trauma and all are managed operatively. It was concluded that in our study fractures are most commonly in type 5, type 6 and type 1. Is in our study it is also compared to tempredre hospital finaland of cases and wellesley hospital Toronto of cases.

Table 6: Complications.

Post-operative complication	Number	Percentage
Infection and wound dehiscence	2	8%
Varus deformity	1	4%
Knee stiffness	1	4%
Normal	22	84%
Total	25	100%

In present study about 84% in normal knee, but 8% percent was the infection and wound dehiscence, 4% was in varus knee deformity and knee stiffness is about 4%. Good range of motion in our study is due to early mobilization and early physiotherapy. Around 12-16 weeks of rest and clinical and radiological signs of union, patent were allowed to partial weight bearing. Despite of all injuries infection and dehiscence, varus knee and knee stiffness was the most common and accurse due to delay in post-operative CPM. Our result also comparable to studies of schatzker and seepo *et al*⁹.

Table 7: Functional results by using knee society scoring system

Grading	Number	Percentage
Excellent	17	68%
Good	6	24%
Fair	2	8%
Poor	00	00%
Total	25	100%

In present study about 68% patients were in excellent condition and about 24% patients were in good condition and 8% patients were in fair condition.

Conclusion

From current concept all the proximal fracture managed by the operative methods have very good outcome as compared to non-operative methods. Achieving a congruous joint surface and other correct alignment is by closed or open method and stable internal fixation is goal of the treatment. Timing is very important to

achieving a good result and prevents infection and other complication. Early mobilization is the key to patient management and final outcome and early physiotherapy and full weight bearing should be delayed until union is present and prevent collapse of fragments. To our traffic police we sensuously conclude that kindly make sure that whole population is within the limits of crossing

more than speed limits so that traffic police accident has brought down.

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