

Original article:

Study of incidence of intraarticular and extraarticular proximal tibia fractures

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Abstract:

Introduction: Complex kinematics of its weight bearing position and complex ligamentous stability and articular congruency are the main reason why these fractures are of concern to surgeon and cause disability to the patients. The mobility and stability of the lower limbs mostly depends upon a stable and functional knee joint. Various studies have been carried out and different treatment modalities have been advised, consensus has not been reached.

Material and methods: It is a prospective study. 50 cases of proximal tibia fractures including both intraarticular and extraarticular fractures were included in the study. Cases treated in our Tertiary Healthcare Institute from September 2013 to September 2015 were included in the study. Criterion for selection was radiologically demonstrable fracture of proximal tibia and satisfaction of inclusion criterion.

Results: Our study had patients of age ranging between 20 – 60 years in intra- articular and 23 – 65 years in extra-articular fractures, which covered young, middle and elderly groups. Majority of the patients, **59.25%** in intra-articular fractures and 56.52% in extra-articular fractures were from middle age group (31 – 45 years). This constitutes the active age group of the population which is involved in more outdoor activities and has more prevalence of travelling on road by vehicles so prone for Road traffic accidents.

Conclusion: In our study of proximal tibia fractures, incidence of Intra-articular fracture was **54%** while that of Extra-articular fracture was 46%.

Introduction:

Intra-articular fractures of proximal tibia are difficult to treat. Age, skin conditions, osteoporosis further increase the obstacles in the healing process. Various modalities of treatment are available but no ideal treatment has yet evolved. At the Chicago Orthopedic society in 1956 Manson Hole has rightly mentioned that “these fractures are tough”.¹ Complex kinematics of its weight bearing position and complex ligamentous stability and articular congruency are the main reason why these fractures are of concern to surgeon and cause disability to the patients. The mobility and stability of the lower limbs mostly depends upon a stable and functional knee joint. Various studies have been carried out and different treatment modalities have been advised, consensus has not been reached. Emphasizing on good functional outcome being most satisfying for the patient, we started our study with an aim to study different available modalities for treatment of intraarticular proximal tibia fracture and observe functional outcome after their implication.²

Material and methods:

It is a prospective study. 50 cases of proximal tibia fractures including both intraarticular and extraarticular fractures were included in the study. Cases treated in our Tertiary Healthcare Institute from September 2013 to September 2015 were included in the study. Criterion for selection was radiologically demonstrable fracture of proximal tibia and satisfaction of inclusion criterion.

INCLUSION CRITERION:

- 1) Patients of age group 18 to 65 years of both sexes with fracture of proximal tibia.

EXCLUSION CRITERION:

- 1) Children with less than 18 years of age.
- 2) Pathological fracture.
- 3) Associated neurovascular injuries.
- 4) Compound fractures.
- 5) Ipsilateral lower femur or lower tibia fracture.
- 6) Closed fractures with significant soft tissue trauma.(AO types IC 3,4,5, MT 3,4,5, NV 2,3,4,5)

Intraarticular fractures were classified using Schatzkers classification and extraarticular fractures were classified using AO classification.

All the clinical details of patient selected for study were noted in a proforma prepared for the study.50 patients with fracture of proximal tibia satisfying inclusion criteria were included in the study. Of these 27 were intra articular and 23 were extra articular.

Results:

1. Fracture Distribution:

Type Of Fracture	Intra-Articular	Extra- Articular	Total
No.	27	23	50

Table 1: Fracture distribution in Proximal Tibia

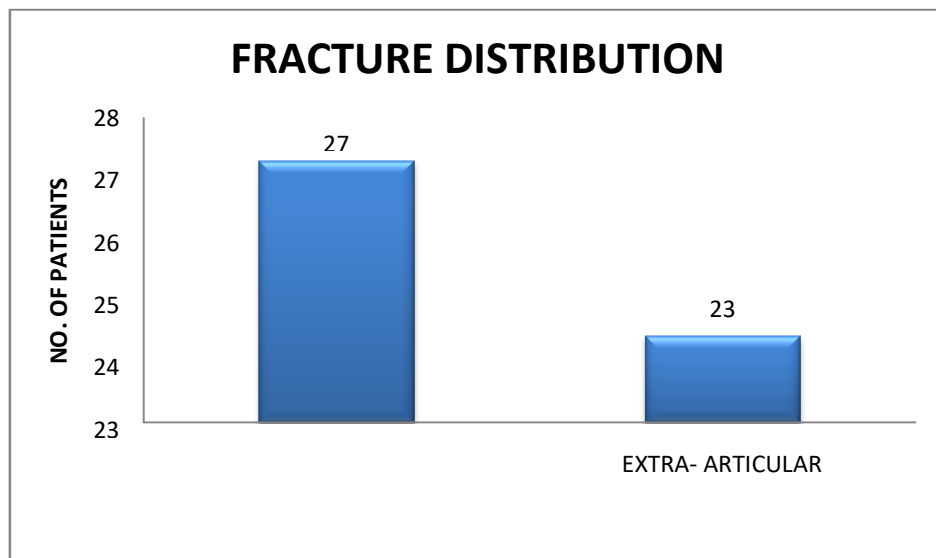


Chart 1: Fracture distribution in Proximal Tibia.

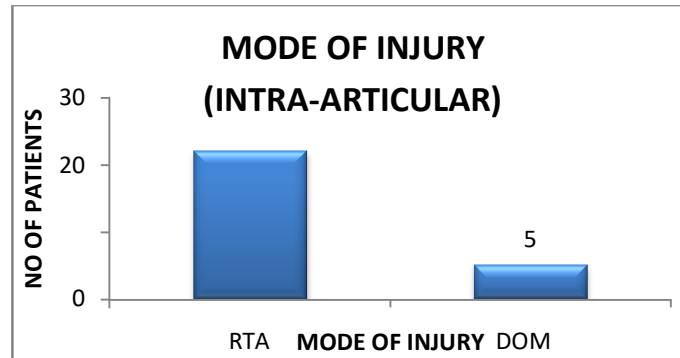
Age Distribution	18-30 Years	31-45 Years	46-65 Years	Total
No	9	16	2	27

Minimum age was 20 years, maximum age was 60 years, and average age was 34.22 years.

Maximum patients were in age group 31 – 45 years; minimum patients were in age group 46 – 65 years

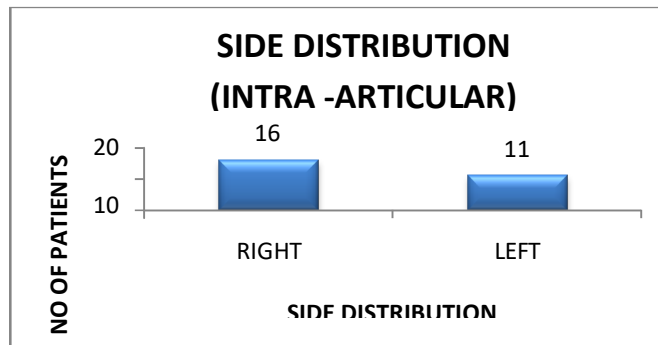
Mode Of Injury	RTA	DOM	Total
No	22	5	27

Table 2- Mode of Injury (Intra-articular)



Side Distribution	Right	Left	Total
No	16	11	27

Table 3 – Side distribution (Intra-articular)



Discussion:

Increased incidence of proximal tibia fracture is observed in recent years due to increased vehicular trauma and sports related injuries. These fractures are difficult to treat. These have high energy mechanism of injury, extensive soft tissue trauma, comminution, intra articular extension presenting with difficulty in reduction and maintenance of reduction. There can be collapse of fracture site, malunion and secondary osteoarthritis.³

Different treatment modalities are available and multiple studies have been done, but no common consensus has yet been reached. This study was undertaken to study different available modalities of treatment and observe the

functional outcome after its implication.⁴

50 patients with proximal tibia fracture satisfying the inclusion criteria were included in the study. **27** were intraarticular and **23** were extra-articular. Of the 27 intra-articular fracture 5 were treated with closed reduction and cast, 9 were treated with closed reduction and cannulated cancellous fixation and 13 were treated with open reduction and internal fixation with buttress plate. Of the 23 extra-articular fractures, 4 were treated with closed reduction and cast, 12 were treated with closed reduction and internal fixation with intramedullary interlocking nail, and 7 were treated with open reduction and internal fixation with a Buttress plate.

Our study had patients of age ranging between 20 – 60 years in intra- articular and 23 – 65 years in extra-articular fractures, which covered young, middle and elderly groups. Majority of the patients, **59.25%** in intra-articular fractures and **56.52%** in extra-articular fractures were from **middle age group** (31 – 45 years). This constitutes the active age group of the population which is involved in more outdoor activities and has more prevalence of travelling on road by vehicles so prone for Road traffic accidents.^{5,6,7}

Our study has **higher** incidence of Road traffic accident than study by Avinash et al. this may be due to higher incidence of patients in middle age group who are more involved in vehicular transit and hence Road traffic accident.

Conclusion:

In our study of proximal tibia fractures, incidence of Intra-articular fracture was **54%** while that of Extra-articular fracture was **46%**.

References:

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