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Research Article

Fracture of Tibia: An Autopsy Study

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Abstract: The tibia also called as shinbone, is the commonly fractured long bone in the body. A tibial shaft fracture may occur along the diaphysis, upper 1/3rd and lower 1/3rd region. The Leg bone fractures include fractures of the tibia and fibula bone. The tibia is the only weight bearing bone so tibial fracture is more common. In this study, all fatal road traffic accident and fall from height cases autopsied during the period 1st January 2011 to 31st December 2014 were analyzed at the Department of Forensic Medicine & Toxicology, AIMS, BG Nagar, and Karnataka. The incidence, age wise distribution of cases and types of tibia fracture were noted. In our study total numbers of autopsied cases during 2011 to 2014 are 453. In that 40 cases had tibia fracture. Maximum number of victims belongs to 21-30 years (14 cases) decade followed by 31-40 years (12 cases). Manner of fracture was Road traffic accident in 36 cases and fall from height in 4 cases. 23 cases had tibial Shaft Fractures and 09 cases had fracture at upper 1/3rd region. Since tibial fracture is one of the most common long bone fractures, treatment is aimed at achieving a stable, aligned, mobile and painless joint and to minimize the risk of post-traumatic complications.
Keywords: Tibia, Fracture, Road traffic accident

INTRODUCTION

The tibia also called as shinbone, is the commonly fractured long bone in the body. A tibial shaft fracture may occur along the diaphysis, upper 1/3rd and lower 1/3rd region. The Leg bone fractures include fractures of the tibia and fibula bone. The tibia is the only weight bearing bone so tibial fracture is more common. Since skin and subcutaneous tissue are very thin over the tibia and because of this, open fracture are more common.

In United States of America, incidence of long bone fracture is 11.5 per 100,000 persons, with 40% occurring in the lower limb [1]. The most common fracture in the leg occurs at the tibial diaphysis [2]. High-energy collisions like road traffic accidents are common causes of tibial shaft fractures, usually results in comminuted fracture. Fall from height and sports injuries are also responsible for significant tibial bone fractures. Tibial fractures are usually caused by high force or falls from height. Spiral fractures of the tibia caused by violent twisting injuries, usually occurs in sport persons. The fibula is fractured in 75-85 % of cases with fractures of the tibia [3]. The sharp ends of tibial shaft fracture would cut adjacent muscles, nerves, or blood vessels and leads to excessive swelling. Open fractures may lead to bony infection.

MATERIAL AND METHODS

In this study, all fatal road traffic accident and fall from height cases autopsied during the period 1st January 2011 to 31st December 2014 were analyzed at the Department of Forensic Medicine & Toxicology, AIMS, BG Nagar, and Karnataka. The incidence, age wise distribution of cases and types of tibia fracture were noted.

RESULTS AND DISCUSSION

In our study total numbers of autopsied cases during 2011 to 2014 are 453. In that 40 cases had TIBIA fracture. Maximum number of victims belongs to 21-30 years (14 cases) decade followed by 31-40 years (12 cases). Manner of fracture was Road traffic accident in 36 cases and fall from height in 4 cases. 23 cases had tibial Shaft Fractures and 09 cases had fracture at upper 1/3rd region.

According to a study done by Pires e Albuquerque R *et al*. [4], 168 patients were male and

most of the patients belong to 5th decade. They reported road traffic accident as the main causal factor. 128 cases were on the left side. 22.6% cases had associated injuries.

According to a study done by Madadi F, *et al*. [5], the highest fractures was seen in the 20-30 year age group in both genders. Women had a higher rate than men in people aged > or =50 years old. The most common cause was road traffic accidents. 54% of all injuries were reported to be closed fractures and rests were open.

According to a retrospective study done by Chang WR *et al*. [7], all tibial football fractures that presented to a teaching hospital was undertaken over a 5 year period from 1997 to 2001. There were 244 tibial fractures treated of which 24 (9.8%) were football related. All patients were male with a mean age of 23 years (range 15 to 29).

Table 1: Incidence of TIBIA fracture cases

Total no. of autopsied cases	Total no. of tibia fracture cases
453	40

Table 2: Age and Sex wise distribution of cases

Sl. No.	Age Group	No. of Cases	Male	Female	Total
1	<20 Years	03	03	0	03
2	20-30 Years	14	11	03	14
3	31-40 Years	12	09	03	12
4	41-50 Years	07	05	02	07
5	>50 Years	04	03	01	04
Total		40			40

Table 3: Manner of tibia fracture

SL. No	Mechanism of injury	Number of cases
1	Road traffic accident	36
	Pedestrian	08
	Motor cycle rider	12
	Driver	10
	Passenger	06
2	Fall from height	04
	Total	40

Table 4: Type of fracture

Type of fracture	No. of cases
Upper 1/3rd	09
Diaphysis	23
Lower 1/3rd	08

CONCLUSION

Since tibial fracture is one of the most common long bone fractures, treatment is aimed at achieving a stable, aligned, mobile and painless joint and to minimize the risk of post-traumatic complications. To achieve this best treatment plans are considered by orthopedic surgeons based on criteria such as patient characteristics, severity, risk of complications, fracture depression and displacement, degree of injury to ligaments and menisci, vascular and neurological compromise.

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