

A study features of femoral shaft fractures in adults observed in tertiary care institute

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Abstract

Background: The femur is the longest, strongest, largest and heaviest tubular bone in the human body and one of the principal load-bearing bones in the lower extremity. Femoral shaft fractures are among the most common major injuries that an orthopedic surgeon will be required to treat. **Aims and Objective:** To evaluate various features of fracture shaft femur in adults observed in the tertiary care institute. **Materials and Method:** The present retrospective study all patients aged 16 years or more admitted in the institute with a fracture of the shaft of the femur in the year 2014 was selected for the study. During the study duration total 119 cases of femoral shaft fracture were admitted in institute and were selected for the study. The detail information of all the selected patients was retrieved from the case records sheets and noted on a prestructured proforma. The details included the demographic information of patients including age, sex, area of residence, mode injury and side affected etc. Information about general and complete clinical examination was also recorded. Radiographic evaluation findings of the affected and the normal side if available were also recorded. The fracture was classified according to AO classification. **Results:** Majority patients were in the age group of 31-40 years (31.09%) followed by 21-30 years of age (21.01%). Majority of the patients in the study were male (53.78%). In 62.18% patients the fracture was on right side. Road traffic accident (78.99%) was the most common mode of injury in the present study which was followed by fall from height (18.49%) and simple fall (2.52%). According to AO classification majority of the fractures (51.26%) were type A fractures followed by type B fractures (37.82%) and type C (10.92%). **Conclusion:** Femoral shaft fractures were common young male and road traffic accident was the most common mode of injury. Type A fractures were most commonly observed fracture according to AO classification.

Key Words: Femur shaft fracture, mode of injury, AO classification.

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Received Date: 29/07/2017 Revised Date: 23/08/2017 Accepted Date: 12/09/2017

DOI: <https://doi.org/10.26611/1020334>

Access this article online

Quick Response Code:	Website: www.medpulse.in
	Accessed Date: 16 September 2017

INTRODUCTION

The femur is the longest, strongest, largest and heaviest tubular bone in the human body^{1,2,3} and one of the principal load-bearing bones in the lower extremity². Femoral shaft fractures are among the most common major injuries that an orthopedic surgeon will be required to treat.^{2,4} Usually the femoral shaft fractures results due

to high velocity trauma and are seen more commonly in the younger population. However on the other hand, as the population ages, the incidence of femoral shaft fractures in the elderly population also increases due to osteoporosis.^{5,6} Fractures of the femoral diaphysis can be life-threatening on account of an open wound, fat embolism, adult respiratory distress syndrome (ARDS)⁷, or resultant multiple organ failure^{8,9}. Femoral shaft fractures can lead to a major physical impairment, not because of disturbed fracture healing, but rather due to fracture shortening, fracture malalignment, or prolonged immobilization of the extremity by traction or casting in an attempt to maintain the fracture length and alignment during the early phases of healing³.

MATERIALS AND METHOD

The present retrospective study was conducted in the department orthopedics of Dr Ulhas Patil Medical College and Hospital, Jalgaon. The aim of the study was

to study the epidemiology of femoral shaft fractures admitted in the institute in the year 2014. For the purpose of study all patients aged 16 years or more admitted in the institute with a fracture of the shaft of the femur in the year 2014 were selected for the study. For the purpose of study medical records of the year 2014 were studied. During the study duration total 119 cases of femoral shaft fracture were admitted in institute and were selected for the study. The detail information of all the selected patients was retrieved from the case records sheets and noted on a prestructured proforma. The details included the demographic information of patients including age, sex, area of residence, mode injury and side affected etc. Information about general and complete clinical examination was also recorded. Radiographic evaluation findings of the affected and the normal side if available were also recorded. The fracture was classified according to AO.¹⁰

- Type A fracture: Simple, spiral, oblique and transverse fractures.
- Type B fracture: Spiral, bending and fragmented wedge fractures
- Type C fracture: Complex fractures

The collected information was entered in Microsoft excel and was analyzed and presented with appropriate graph and tables.

RESULTS

Table 1: Age and sex distribution of patients

	No. of patients	Percentage
Age group	<20	5.04
	21-30	21.01
	31-40	31.09
	41-50	18.49
	51-60	14.29
	>60	10.08
Sex	Male	53.78
	Female	46.22

It was seen that majority patients in the present study were in the age group of 31-40 years (31.09%) followed by 21-30 years of age (21.01%). Majority of the patients in the study were male (53.78%).

Table 2: Distribution of patients according to various features of fracture

	No. of patients	Percentage
Side	Right	62.18
	Left	37.82
Mode of injury	Motor vehicle accident	78.99
	Fall from height	18.49
	Simple fall	2.52

In 62.18% patients the fracture was on right side and in 37.82% patients the fracture was on left leg. No patient was observed with bilateral fracture in the present study.

Road traffic accident (78.99%) was the most common mode of injury in the present study which was followed by fall from height (18.49%) and simple fall (2.52%).

Table 3: Distribution of patients according to AO classification

AO classification	No. of patients	Percentage
Type A	61	51.26
Type B	45	37.82
Type C	13	10.92

The femur fracture was classified according to AO classification and it was observed that majority of the fractures (51.26%) were type A fractures followed by type B fractures (37.82%) and type C (10.92%).

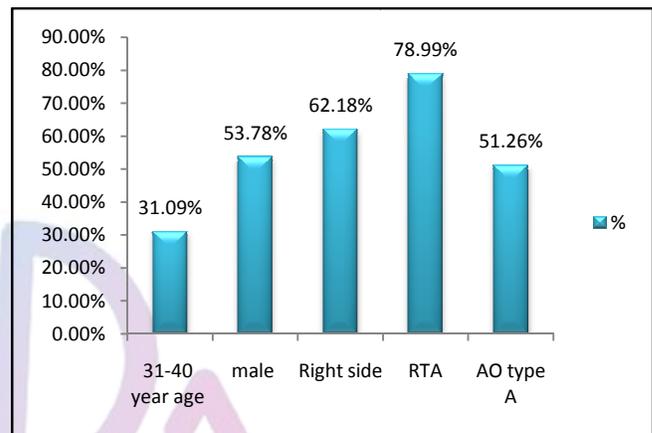


Figure 1: Distribution of patients according to various features of fracture

DISCUSSION

The present study was conducted in the department of orthopedics of Dr Ulhas Patil Medical College and Hospital, Jalgaon with the objective to study the epidemiology of fracture shaft femur. It was seen that majority patients in the present study were in the age group of 31-40 years (31.09%) followed by 21-30 years of age (21.01%). The mean age of the patients in the study was 41.41±14.42 years with range from 20 to 84 years. Hakan Cift *et al*¹¹ in their study found the mean age of patients as 45.93 years with range from 16 to 87 years. Ashik A Bary *et al*¹² reported that the mean age of the patients was 34.8 years with the range of 17 to 67 years in their study. In contract to present study Elisabeth E Husebye *et al*¹³ studied twelve adult polytraumatized patients with femoral shaft fractures and observed that their mean age was 27.6 ± 2.5 (range 18-44) years. Majority of the patients in the study were male (53.78%). Ashik A Bary *et al*¹² and Elisabeth E Husebye *et al*¹³ also observed male predominance in their study. In 62.18% patients the fracture was on right side and in 37.82% patients the fracture was on left leg. Ashik A Bary *et al*¹²

observed that the right limb was involved in 66.7% patients and left in 33.3% patients. No patient was observed with bilateral fracture in the present study. Road traffic accident (78.99%) was the most common mode of injury in the present study which was followed by fall from height (18.49%) and simple fall (2.52%). Similar findings were also observed by Ashik A Bary *et al*¹² where majority of the study population had fracture femur due to Road Traffic Accident. Elisabeth E Husebye *et al*¹³ also observed car accident as the most common mechanisms of injury. Femoral shaft fractures are commonly thought to be primarily associated with severe trauma in young persons. A femoral shaft fracture caused by indirect low energy trauma is an entity different from that of the direct-impact fracture in the young. Low energy violence as a cause of these fractures, especially among the elderly^{14,15,16}. Although the incidence of fractures of the shaft of the femur in the elderly is considerably lower than that of many other fractures among aged persons, the number of senior citizens is increasing, and the clinicians will be more often confronted with the specific problems associated with these fractures.¹⁷ The femur fracture was classified according to AO classification and it was observed that majority of the fractures (51.26%) were type A fractures followed by type B fractures (37.82%) and type C (10.92%). Internal Fixation (ASIF) and, later, the Orthopaedic Trauma Association (OTA) have classified femoral shaft fractures into three main types (simple, wedge, and complex) with three main groups, and three subgroups according to the fracture location, with additional two to five ramifications in the complex type of fractures^{10,18}

CONCLUSION

We conclude that in the present study femoral shaft fracture were common young male and road traffic accident was the most common mode of injury. Type A fractures were most commonly observed fracture according to AO classification.

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Source of Support: None Declared
Conflict of Interest: None Declared