

An Overview of Rate of Infection and Mortality in Femur Fracture Patients and its Fixation during Covid-19 Pandemic

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ABSTRACT

Aim: To observe the workload of fractures of the femur (shaft and distal femur) and their fixations along with complications in terms of infection and mortality at our hospital during COVID 19 pandemic.

Study design: Prospective study.

Place and duration of study: Dept of Orthopaedic, Ghurki Trust Teaching Hospital, Lahore from 01-03-2020 to 31-07-2020

Methodology: One hundred and thirty-one diagnosed patients with femur fracture (shaft and distal) during pandemic period of COVID were enrolled. Demographic data included (age, sex, implant type, surgical site infection (SSI) and mortality). Since study was done during COVID-19 pandemic, positivity of COVID symptoms was noted as yes/ no on data collection proforma.

Results: There were 105 (80.15%) males while 26 (19.84%) were females with mean age was 39.20±13.02 years. Majority of the surgical interventions were done based on Intramedullary nailing 74.05%, the second prevalent surgeries were done on AO external fixation 8.4%. Infection rate was observed in 7(5.32%) patients. No mortality was seen in any of the cases. Four infected cases were observed after intramedullary nailing procedure, two from AO external fixation and one after locking plate.

Conclusion: There is no significant higher complication rate due to COVID-19 pandemic to patients whom femur fracture fixation was done. None of admitted patient suffered COVID-19 symptoms during hospitalization. It was only pointless fear about orthopaedic intervention during this interval.

Key words: COVID-19, Femur, Infection

INTRODUCTION

The novel corona virus SARS-COV-2 (COVID-19) was initially reported in china when some patients were admitted in the city of Wuhan in December 2019. World health organization declared it as pandemic¹. COVID-19 viral transmission was identified through contact, droplet, airborne, and faeco-oral. As march approached pandemic was spreading everywhere including 190 countries in the world resulting in demise of 20,000 people and 4,50,000 affected². A number of major hospitals across the globe reduced their elective surgeries^{3,4}.

In Pakistan first cases were reported in February but incidence increased at a steady pace and in march significant increase in numbers caused the government to take steps and a complete lockdown was implemented and after that golden month smart lockdown was opted and till now there is a large amount of patient-reported. Globally corona virus has affected health-related facilities in terms of sources, protocols and number of health personals getting ill from corona.

Surgical site infection is a common problem after orthopaedic surgeries as compared to general surgery cases because of implant usage in orthopaedics. We also noted infection in our patients who were included in study. Several factors can lead to infection consisting of patient (diabetes, immunosuppression, open fractures) and surgery factors(long surgery, time poor soft tissue handling).

Our aim of study was to observe any complication especially infection due to COVID-19 in patients operated for femur shaft and distal femur.

MATERIALS AND METHODS

A prospective study was done among patients diagnosed with femur fracture (shaft and distal) at Department of Orthopaedic & Spine Centre, Ghurki Trust teaching hospital during pandemic period of COVID 1st March to 31st July 2020. All the record of patients with acute trauma of femur (shaft and distal femur) present in emergency ward and for operation notes and discharge

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slips computer's help was taken. Study included all the patients of fracture femur (shaft and distal femur). All trauma dealt was fresh and was considered on the basis of acute trauma lines. Any case which was old and was considered in non-union or mal-union was excluded. Femur neck and per troch fracture and all the patients with redo surgery were excluded. After seeking approval of institutional and ethical review committees, a total number of 131 patients presenting to the emergency department fulfilling the inclusion criteria were selected. Convenient sampling technique was used to collect the information from patients. Demographics noted after seeking informed consent. Surgical Site Infection was recorded as any pus discharge, erythema, induration, swelling or sinus formation after the surgery. Mortality rate was defined as any case of death of patient from 1st operative day up to 4 months of surgery either as an inpatient or an outpatient. For patients screening presenting in emergency having fractures a specific set of questions and protocol was being done consisting of travel history and complain of fever, cough and trouble in breathing for last 2 weeks. CXR & CBC was also done of each patient. The patients who didn't have much complains then are admitted in orthopaedics facility for emergency surgery. Since study was done during COVID-19 pandemic, positivity of COVID symptoms was noted as yes/ no on data collection proforma. Data was recorded using structured questionnaire and analysed through SPSS v22.

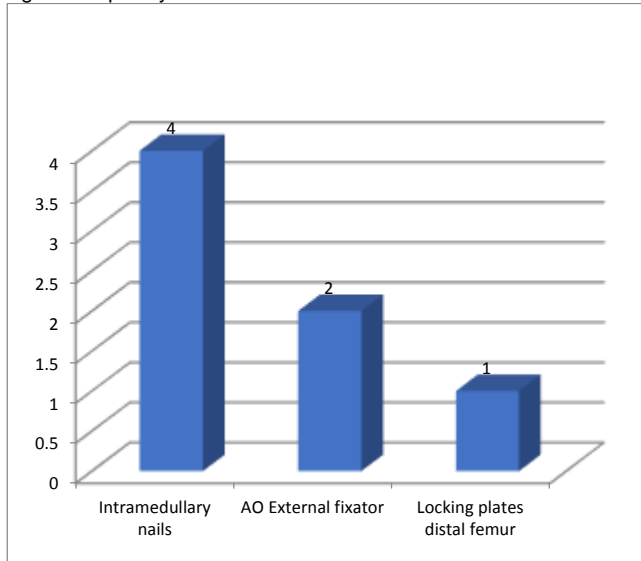
RESULTS

Table 1: Demographic profile of the patients (n=131)

Variable	No.	%
Age (years)	39.20±13.02	
Gender		
Male	105	80.15
Female	26	19.85
Type of surgeries		
AO External fixator	11	8.4
Intramedullary nailing	97	74.05
Locking plate distal femur	9	6.87
DCS for distal femur	5	3.82
Ilizarov	5	3.82
Screw Fixations	4	3.05
Infection		
Yes	7	5.34
No	124	94.66

Majority of the patients were males 105 (80.15%) while fewer were female patients as 26 (19.85%) with an average age of 39.20±13.02 ranged from 7-90 years. The majority of the surgical interventions were done based on intramedullary nailing (74.05%); the second prevalent surgeries were done on AO external fixation (8.4%). The infection rate was observed in seven patients as shown in Graph1. Of infected case 5 out of 7(71.42%) had superficial infection and 2 out of 7(28.57%) had deep infection. No mortality was seen in all cases (Table 1, Fig. 1).

Fig. 1: Frequency of infection



DISCUSSION

Surgical site infection is a dreadful complication of any surgery especially in orthopaedic patients. It can hugely impact cost of healthcare and be a burden to hospital resources. We calculated infection rate in femur fracture fixation done during corona pandemic when virus effected health system all over the world. Like other orthopaedic departments of many hospitals our doctors and paramedical staff was also effected by Covid-19 but we continued to give emergency trauma managements to patients. We followed 1:5 rota of the available staff.

It was observed in our data that 131 patients were operated, and most of them 97 were nailing of femur shaft fractures, 9 distal femur locking plates, ex fix 11, screw 4, and 5 DCS and ilizarov frames applied were 5. Most of the patients presented were males (80.15%) and out of 131 19.75% were females with an average of 39.20±13.02 ranged from 7-90 years. Out of seven infected patients four patients were diabetic. Our study showed an infection rate of 5.73% after femur fixation as compared to 2.55% in Al-Mulhim's work⁵ and 3.76% in other study⁶. Al-Mulhim et al reported 2.55% frequency of SSI in their 5-year analysis of orthopaedic surgery⁵. This was below the reported worldwide incidence of 2.6%

to 41.9%. Our infection rate is much lower than another local study in which the infection rate was 7.8%⁷. Gheiti et al reported that prolonged hospital stay postoperatively is a predisposing factor of PJI⁸. Pulido et al revealed that a longer hospital stay can increase the risk of PJI by 1.09 times, all our patients were discharged within 24 hours after surgery⁹.

The limitation of our study is the selection bias because only 1 specific bone and also consisting a specific portion of that bone shaft and distal portion of femur. Also, our study includes trauma patients and in trauma infection rate is higher as compared to elective procedure because of trauma often leads to open fractures. Also, during our study occasionally number of health personals doing surgeries and patient care were lower as compared to pre corona period.

CONCLUSION

There is no significant higher complication rate due to COVID-19 pandemic to patients whom femur fracture fixation was done. None of admitted patient suffered covid-19 symptoms during hospitalization. It was just fear about orthopaedic intervention during this interval.

Conflict of interest: Nil

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