

Original Research Article

Impact of COVID-19 related delays on outcome of intertrochanteric neck femur fractures

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ABSTRACT

Background: We are aware of no other study that has examined how the epidemic has affected an emergency service. Hence, the present study aims to determine the functional outcomes of delayed fixation to understand the impact of COVID-19 related hindrance to emergency service.

Methods: During the 1st wave of COVID-19, prevailing staff shortages and need for COVID tests resulted in minimum delay of 10 days between admission and surgeries as compared to the recommended urgent fixation standard. Harris Hip Score was calculated at 1 year follow up for these patients.

Results: The results showed that the mean age of the patients was 68.65 ± 8.03 years. Out of all the patients, 50.9% were males and 49.1% were females. The mean Harris Hip score at 1 year follow-up was 78.76 ± 11.65 . Out of all, 3.63% were lost to follow up, and 20% were expired.

Conclusions: Early surgery seems to improve survival and decline in pressure sores. Conservative management should be well planned and used on patients who actually have a good risk to benefit ratio to it as the patients can develop increased risk of pulmonary, skin, and urinary infections. Efforts should be made to operate patients on within one to two days. Despite the fact that the overall number of trauma cases declined in this unprecedented COVID-19 scenario.

Keywords: COVID-19, Delay, Fractures, Urgent fixation

INTRODUCTION

As our population ages, intertrochanteric fractures (IT) are occurring more frequently. These fractures frequently lead to the loss of the patient's functional independence in fragile patients with numerous medical comorbidities. A great deal of money is spent by patients, their families, and society as a result of the all too frequently troublesome dispositions and extended hospital admissions. Effective treatment methods are crucial for achieving high rates of fracture union and minimal rates of complications. Orthopaedic surgeons should be able to reduce the

morbidity related to the fracture, even though we cannot control the quality of the bone, patient compliance, or comorbidities. To do this, it is necessary to select the proper fixation device for the fracture pattern, identify problematic fracture patterns, carry out precise reductions with the best implant placement while keeping implant costs in mind. We can improve the outcomes for our patients and reduce treatment costs if we treat these fractures quickly, reduce fixation failures, and identify and treat underlying osteoporosis.¹ The world health organization (WHO) and the United States of America (USA) both declared public health emergencies in relation

to the coronavirus disease 2019 (COVID-19), which started as an epidemic with a focus on Wuhan, China, on January 20 and January 31, 2020, respectively. The WHO labelled COVID-19 a pandemic on March 11, 2020, making it the first pandemic to be recognised since H1N1 in 2009. The fatality rate that was first reported, which ranged from 0.4 to 4.3%, was less severe than that for Middle East Respiratory Syndrome (MERS) and severe acute respiratory syndrome (SARS).^{2,3} However, current estimates of the mortality rate for COVID-19 are thought to be inaccurate, with some believing they are overestimated because mild and asymptomatic cases are not included in the denominator, and others believing they are underestimated because the majority of confirmed patients remain as inpatients.^{2,4} Globally, a vast range of interventions, some more effective than others, have been suggested and put into action in an effort to manage this pandemic.

To fulfil the existing and future hospital service needs during the outbreak, a redistribution of staff and resources has been necessary because of the severe disruption caused by the spread of COVID-19. There has been a decrease in elective clinics and surgeries as per suggestions from numerous sources, including specific instructions in orthopaedics, in order to redirect staff into acute specialties combating COVID-19 and make the most of the hospital beds and resources available.⁵ Given the seriousness of the current situation, this quick change in clinic provisions and the rescheduling of patients causes patients great annoyance and may even constitute a risk owing to delayed assessments and treatment.⁶ Surgery and clinic visits should only be made for urgent medical needs in order to prevent needless patient and staff exposure to contaminants. As a result, many patients' assessments are delayed, which ultimately increases the cost of healthcare because some patients may not get treatment until their disease has progressed to the point where hospitalisation may be necessary.^{5,7} Although trauma and orthopaedics may not appear to be on the front lines when it comes to the coronavirus, we do play a crucial role, and this needs to be planned for. In contrast to the advised immediate fixation norm, there was a minimum delay of 10 days between admission and procedures during the first wave of COVID-19 due to staff shortages and the requirement for COVID tests. We are aware of no other study that has examined how the epidemic has affected an emergency service. Hence, the present study aims to compare the functional outcomes of urgent vs. delayed fixation to understand the impact of COVID-19 related delays on outcome of IT fractures.

METHODS

An observational descriptive study was undertaken after ethical clearance from our institutional ethical committee. According to the procedures established at our tertiary care centre, 55 emergency and urgent orthopaedic patients were treated by four surgeons at Hinduhrudaysamrat Balasaheb Thackarey medical college and Dr. R. N. Cooper

municipal hospital, Juhu, Mumbai, India, between March 20th, 2020 and August 30th, 2020. The primary outcomes were Harris Hip score, gender and age of the patient. This tertiary care institution serves a population of about 40 million people and is surrounded by 8 other significant hospitals. Six of these eight hospitals were closed down earlier in the pandemic, in accordance with containment orders from the authorities, as a result of medical staff testing positive for COVID-19 as a result of hospital acquired infections.

Following such events, our centre instituted stringent standards for all patients entering the hospital, including halting all outpatient services save for Accident & Emergency and all elective surgery. Online consultations have replaced all outpatient treatments. Beginning at the hospital's perimeter, segregation was implemented, with separate gates for patients, male and female personnel, ambulances, and private vehicles. Patients with radiographically proven displaced/unstable intertrochanteric femur fractures who reported to orthopaedic OPD or Casualty and underwent surgical fixation during the study period were included in our study. Debilitated and moribund patients, patients with uncontrolled diabetes profile and/or other medically compromised comorbidities were excluded. During the 1st wave of COVID-19, prevailing staff shortages and need for COVID tests resulted in minimum delay of 10 days between admission and surgeries as compared to the recommended urgent fixation standard. Harris Hip Score was calculated at 1 year follow up for these patients. Measures of central tendency for quantitative variables were included in a general descriptive analysis that was performed globally and by time period. If continuous variables had a normal distribution, means and standard deviations (SD) were used to report the data. The statistical programme IBM SPSS version 25.0 (IBM Corp., Armonk, New York, USA) was used for all analyses.

RESULTS

The results showed that the mean age of the patients was 68.65 ± 8.03 years. Out of all the patients, 50.9% were males and 49.1% were females (Table 1).

Table 1: Demographic characteristics of the patients (n=55).

Variables	Observation
Age (years) (Mean±SD)	68.65±8.03
Gender, N (%)	
Males	28 (50.9)
Females	27 (49.1)

The mean Harris Hip score at 1 year follow-up was 78.76 ± 11.65 . Out of all, 3.63% were lost to follow up, and 20% were expired (Table 2). As per the Harris Hip score of the patients at 1 year follow up. It was seen that 22% patients had poor scores, 29.3% had good scores, 26.8%

had fair scores and 22% had excellent Harris hip score after 1 year follow up (Table 3).

Table 2: Mean Harris Hip Score of the patients at 1 year follow up (n=55).

Variables	Observation
Harris Hip Score (Mean±SD) (N=42)	78.76±11.65
Lost to follow up, N (%)	2 (3.63)
Expired, N (%)	11 (20)

Table 3: Harris Hip Score of the patients at 1 year follow up.

Harris Hip Score	%
Poor	22
Good	29.3
Fair	26.8

DISCUSSION

Lockdown and isolation procedures linked to the cessation of commercial operations and foundations resulted in a progressive decline in trauma occurrences, notably IT fracture cases associated to labour and athletic endeavours. Domestic violence at home and traffic accidents dropped gradually over the course of a few weeks, despite the fact that those people were at home and in home isolation. Acute injury cases presenting to trauma centres have drastically decreased as a result of the public campaign launched by the media and the ministry of health to discourage admission to trauma centres unless absolutely necessary. This campaign is related to the concern that everyone will become infected with COVID19. The identical scenario is presented in similar papers by several authors from other nations.^{8,9} Additionally, there was a sharp decline in people using public transportation as a means of communication due to a lack of availability, widespread fear of contracting the disease, and state of lockdown in many areas of the nation. This resulted in a reduction in trauma cases, which is anticipated to last for a few weeks in the near future. The daily wage workers were forced to walk or use other forms of transportation as a result of these lockdown restrictions, the lack of public transportation, and the strictness of maintaining social distance, which increased the severity of injuries and consequently increased the amount of high energy trauma. The paucity of transportation was compounded by the enactment of intra-state and interstate restrictions, which slowed down traffic flow and delayed the presentation. Additionally, patients are being referred to the closest tertiary care facility due to the conversion of more and more local health care facilities into COVID-19 designated hospitals, which is causing a delay in the presentation to the emergency room, as seen in the current study with an increase in referrals for the same time period compared to the previous year. Further, the delay in treatment has been caused by taking into account the economic effects in a developing nation like India, where the majority of

patients are daily wage workers who are unable to pay the therapy because of the lockdown circumstances at the time. There have been few studies about the treatment of the fractures during the pandemic, despite the fact that the majority of the present literature concentrates on the COVID-19 disease itself. This study also clarifies how to handle IT fractures and their short-term results during the COVID-19 epidemic when hospital resources are already stretched thin and higher readmission rates add to the burden. When the circumstances allow, we should think about careful procedures and evidence-based surgical techniques that we are generally confident in and that we are familiar with to prevent error. After surgery, patients should be able to bear weight right away, with extended bed rest being avoided. The optimum hospital administration protocol in the current situation should be to acknowledge a less-than-perfect outcome with the patient and avoid a protracted inpatient admission.

Only one-third of patients in Italy (region ranging from 11% to 60%) have surgery within three days of admission.¹⁰ The ability to perform surgery more quickly after an injury depends on how effectively hospital resources are used. Important contextual factors include the availability of surgeons, anaesthesiologists, and operating rooms as well as the absence of protracted clinical assessments. The findings of this study motivate hospitals to reduce the time from patient admission to hip fracture surgery. To do so, it has been suggested to use risk scores at admission, use multidisciplinary management, and use timing as a quality indicator.¹¹⁻¹³ In comparison to later intervention, early hip fracture surgery does seem to improve survival; it was also linked to a considerable decline in pressure sores. Conservative scheduling tactics should only be used on patients who will gain the most from them (i.e., those who need stabilisation), as they can have a negative impact on a patient's health in addition to using up a lot of resources and medical staff time. The patient is kept in bed for this unavoidable delay, which raises their risk of pulmonary, skin, and urinary infections and may lessen the benefits of the specialist approach. The consultation should be finished within 24 to 48 hours, whenever possible. Administrative lag times are unacceptable. In both high-volume and low-volume hip fracture centres, this approach should be used. Although the early surgery approach is not meant to be a last-minute scramble to operate patients, every effort should be made to guarantee that the majority of patients are operated on within one to two days. The analysis of the data may have been impacted by the lack of a determination of the degree and possible progression of the patients' comorbidities.

CONCLUSION

The COVID 19 pandemic has profoundly changed how we approach treating urgent and emergency situations that require orthopaedic care. early surgery seems to improve survival and decline in pressure sores. Conservative management should be well planned and used on patients who actually have a good risk to benefit ratio to it as the

patients can develop increased risk of pulmonary, skin, and urinary infections. Efforts should be made to operate patients on within one to two days. The analysis of the data may have been impacted by the lack of a determination of the degree and possible progression of the patients' comorbidities. Hence there is still a need for further prospective studies or a randomised trial and results should be compared to outcomes of pre pandemic and post pandemic urgent fixation of fractures to provide clear insights into the consequences of early surgery in this patient population.

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