

# Orthopaedic and Trauma Services during COVID 19 at Karnali Academy of Health Sciences: an Early Experience

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## ABSTRACT

**Introduction:** World Health Organization (WHO) declared first pandemic caused by group of corona virus family, severe acute respiratory syndrome corona virus 2 (SARS-CoV-2) on late 2020<sup>1</sup>. One of the major challenges during the evolving COVID-19 pandemic was to deliver continuity of care to outpatients in the trauma and orthopaedic department. With increasing pressure on staffing and hospital resources, it's a great challenge to deliver regular services on outpatient and inpatient departments. So, analysis of orthopaedic and trauma service during corona may provide overview of specialist care and its challenges during corona pandemic.

**Methods:** All patients coming to Karnali Academy of Health Sciences from 14 March 2020 to 16 Sept 2020 were included and analyzed in terms of highest number of OPD, inpatient and OT cases. Clinical profiles, causes of admission, type of procedures were analyzed. Data analysis was done using excel and SPSS version 17.

**Results:** Result were analysed on the basis of patients coming to OPD, Ward and Operation theater during 14 March 2020 to 16 Sept 2020. In OPD, out of 3035 cases, 27% was fracture. Majority of cases coming to OPD were male (57%). Total admission in orthopedic ward during this period was 249. Out of which majority were male (72%) with fracture being most common cause of admission. Out of 212 surgical cases, 78.7% were male. Most common surgical procedure is K wire fixation for fracture. Maximum number of operation was done in the age group of 0-11 years which was 66 (31%), followed by age group of 11-20 years i.e. 42 (19.8%).

**Conclusion:** Orthopedic service at Karnali Academy of Health Sciences has continuously been delivered amidst COVID 19 chaos. Orthopedics consists of major bulk of cases in our institution so proper strategy for preparation and handling of cases should be made during pandemic.

**Keywords:** COVID 19; Orthopaedic; Pandemic; Trauma

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## INTRODUCTION

World Health Organization (WHO) declared first pandemic caused by group of corona virus family, severe acute respiratory syndrome corona virus 2 (SARS- CoV-2) on late 2020.<sup>1</sup> One of the major challenges during the evolving COVID-19 pandemic was to deliver continuity of care to outpatients in the trauma and orthopaedic department. With increasing pressure on staffing and hospital resources, it's a great challenge to deliver regular services on outpatient and inpatient departments. There was an increased emphasis on reducing direct consultations to reduce the chance of transmission of coronavirus infection.<sup>2</sup>

Karnali Academy of Health Sciences is a tertiary care centre located in rural part of western Nepal, where availability of resources is a major challenge during initial days of corona pandemic. Orthopedic conditions and traumatic fractures are of the most common cases we got in our institution as because of difficult and uneven topography. To deal with pandemic, several modifications in orthopedic services have been made.<sup>3</sup> So analysis of orthopedic and trauma service during corona may provide overview of specialist care and its challenges during corona pandemic.

## MATERIALS AND METHODS

All patients coming to Karnali Academy of Health Sciences from March 2020 to Sept 2020 were included and analysed in terms of highest number of OPD, inpatient and OT cases. Clinical profiles, causes of admission, type of procedures were analysed. Ethical clearance was taken from institutional review committee of Karnali Academy of Health Sciences (Ref no. 076/077/42). Consent from participant was attended. Purposive sampling was done. Data entry was done in MS excel and analyzed using SPSS 17 version.

## RESULTS

The result of the orthopedic services during covid-19 at tertiary care Hospital, Jumla are categorized into 3 parts i.e. services at OPD , services at orthopaedic ward and services in operation theatre during the period of lockdown due to covid-19 pandemic.

### Services at Out-patient Department during Covid -19

The total number of cases encountered in outpatient department was 3035. Among these 1618 (53%) of them were male patients and 1442 (47%) of them were female. Per month the average number of OPD visited patient was 400. The major case seen in OPD was fracture 828 (27%).

Figure 1: Distribution of top five cases in outpatient department.

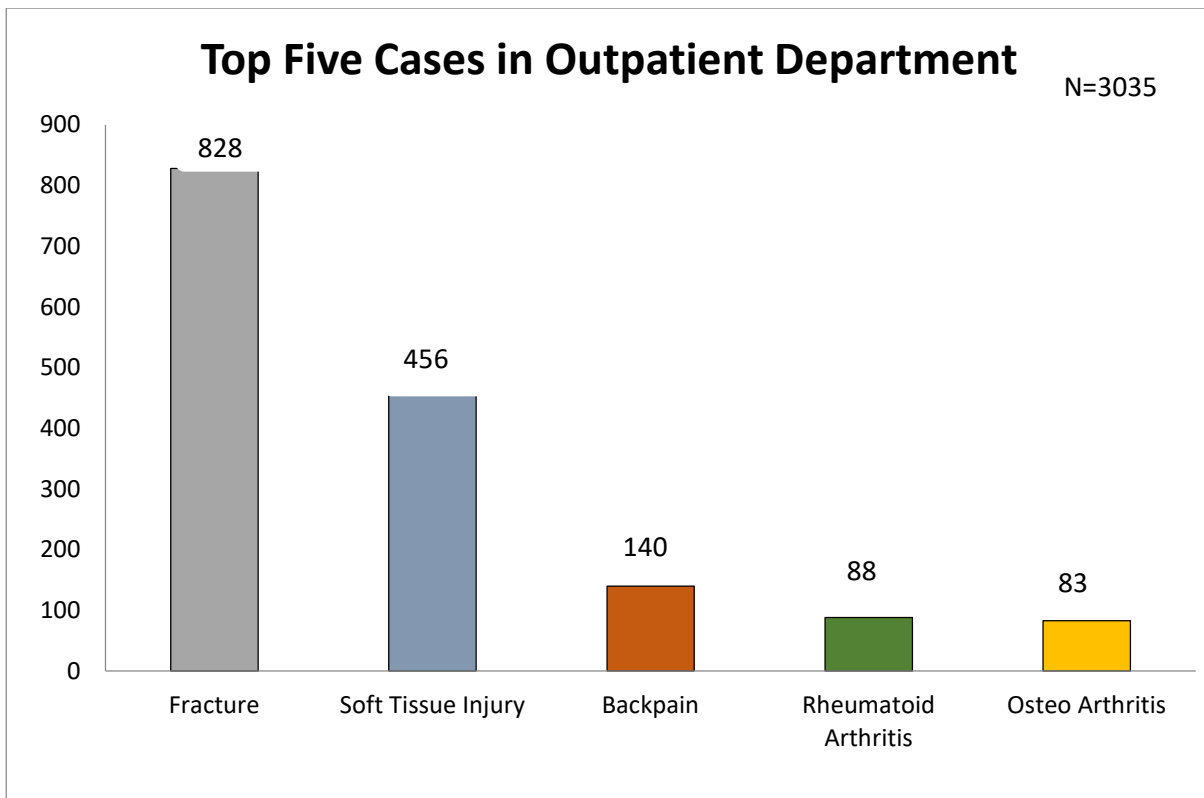


Figure 1 showed the distribution of top five cases in outpatient department with the highest cases of fracture i.e. 828 cases. The majority of orthopedic procedure was slab application (89) and cast application (37) with minimal of K-wire application (5). No any referral cases were encountered in outpatient department.

#### Services at Orthopedic ward during Covid-19

Total admission in orthopedic ward during the period of six months pandemic was 249. Among them 181 (72%) were male and 68 (28%) were female patients. The average hospital stay was of 6 days ranging from 0-28 days. The majority 176 (70.6%) of the cases admitted in the hospital were of fracture limbs. Upper limb fracture comprises of 111 (63%) of limb fracture and lower limb fracture comprises of 65 (37%) of limb fracture. Among upper limb fracture, the highest frequency of admitted cases were seen of fracture radius and ulna 30(27%) and fracture of shaft of

femur 32 (49%) found in lower limb fracture. No any referral cases and no mortality were observed in orthopedic ward. No rate of infection in ward was recorded.

#### Services at Operation Theatre during Covid-19

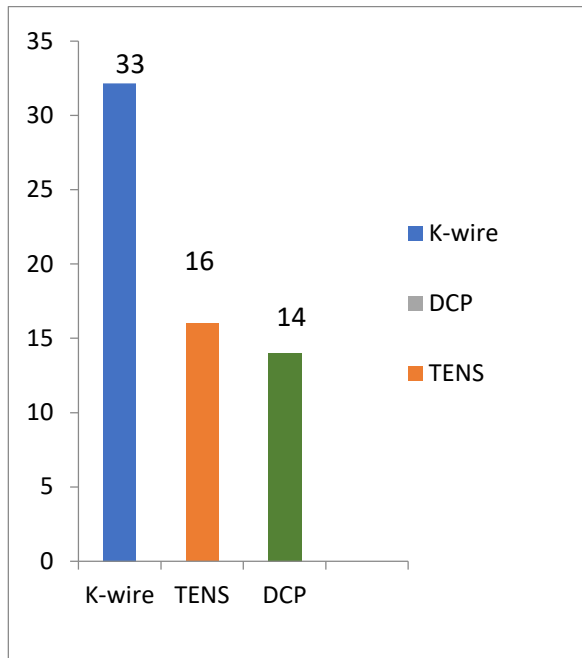
The total orthopedic operating day in a week is 2 days. With the adequate use of personal protective equipment the operation was carried out with precaution. PCR report of every case before operation was carried out. The total number of cases for operation in the six month period was 212. Among them 167 (78.7%) of them were male and 45 (21.3%) were female. Maximum number of operation was done in the age group of 0-11 years 66 (31%), followed by age group of 11-20 years 42 (19.8%) and the lowest was seen in the age group of 60 and above i.e. 7 (3%).

Total major operation carried out were 150 (70.7%) and 62 (29.3%) was minor operation carried during the six months period of covid-

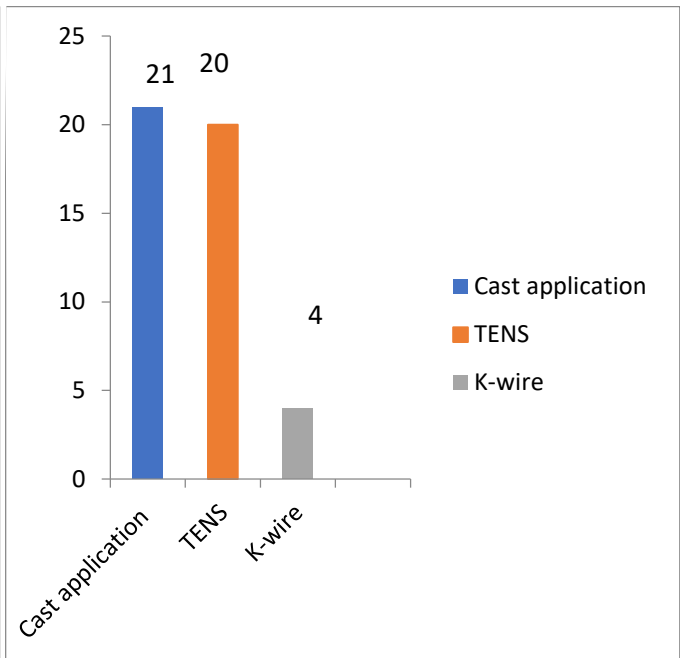
19 pandemic. The highest number of residence was from the nearest district Kalikot

i.e 75% and minimal were from Humla i.e 3%. No any infection was recorded.

Figure 2: Bar graphs showing the 3 most common procedure in open and closed reduction .  
Open Reduction



Close Reduction



## DISCUSSION

The incidence, prevalence and patterns of orthopedic cases vary from province to province and most especially it varies from rural to urban areas with differences in environmental and demographical characteristics. During this period, the analysis of the Orthopaedic cases and the pattern of the management of those cases are crucial for the immediate management cases on the basis of identified highest number of cases and procedures done during the period of covid-19 pandemic. This makes every Orthopaedic surgeons and health personnel to be ready for the emergency management considering the prevention and spread of pandemic. Thus, this study gives the snapshot of the Orthopaedic cases and services provided at

the rural tertiary level hospital with the clear picture of outpatient, in-patient and operation theatre department so that management will be beforehand in pandemic scenario.

The study revealed that highest percentage of the cases in outpatient department is of male (53%), ward (72%) and Operation Theatre (78.3%) which is parallel to the study conducted in India<sup>4, 5,6,7</sup> where the percentage of male patients are higher than the female patients. The major plausible reason for male being affected is due to occupational exposure, and the geographical structure of the Jumla district where male are usually a busy in doing the agriculture in terrain, getting the fodder in the sloppy and hilly areas. Fracture 828 (27%) is the major cases seen in outpatient Department which is parallel to the

study<sup>4</sup> conducted in Kathmandu (33%) which explains the highest number of traumatic fracture. The other leading reasons for OPD visit were soft tissue injury (15%) and osteo and rheumatoid arthritis (6%) and soft tissue injury (4%). Although the prevalence and symptoms varies over the countries major reasons to visit outpatient department is due to arthritis, mechanical back pain, soft tissue injuries, tendinopathy and ligament problems.<sup>4,8</sup> The highest procedure done in the outpatient department was slab application (89) and cast application (37) and the minimal was K-wire application during the covid-19 pandemic to reduce the hospital stay and prevent infection.

In the present study the average hospital stay of the patient admitted in ward was 4 days which is consistent with the study conducted in Kathmandu.<sup>9</sup> The present study revealed that fracture limb was highest reported cases in the ward which is similar to findings of the study.<sup>7,9-11</sup> Upper limb fracture was seen 63 percent of the clients which is consistent with the finding of the study.<sup>8,9</sup> This is consistent as there is reported evidence of highest number of radius and ulnar fracture which is most commonly seen in developing countries<sup>4,11</sup>. Upper extremity fractures are common as the most common mechanism of injury was slipped fall on out stretched hand. The study revealed that maximum operation done in operation theatre was of male 167 (78.7%) which is explained by the meta-analysis study<sup>8</sup> of South Asia which reported that most of the fall injuries occurred in male along with the

highest operating procedure. The maximum number of operation was done in the Paediatric populations from aged group 6-10 (31%) followed by the age group of 11-20 years 42(19.8%). This is supported by the study conducted in India<sup>12</sup>. The slipped fall injury was the commonest cause of injury in Paediatric clients. The study showed that major operation in theatre was 70.7%. Among this 60% of them were open reduction and 40% of them was close reduction. The comparative study conducted among open and closed reduction for the treatment of open reduction and internal fixation (ORIF) is parallel with the present study which explained the highest number of open reduction as a management of fractures<sup>13</sup>. During Open reduction and internal fixation, K-wire fixation comprises of the major frequency of 33 whereas in close reduction and internal fixation, K-wire fixation comprises only the frequency of 4.

## CONCLUSION

Orthopaedic service at Karnali Academy of Health Sciences has continuously been delivered during corona Pandemic. Orthopaedics consists of major bulk of cases in our institution so proper preparation and handling of cases should be done during COVID 19 period.

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