

## ORTHOPEDIC SERVICES IN COVID-19, EXPERIENCE OF REMOTE RURAL AREA HOSPITAL OF PAKISTAN

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### ABSTRACT:

**Background:** COVID-19 is the worse pandemic disease of this era which has involved all countries and almost every hospital around the world. This disease, until date, has involved more than 50,000,000 populations, and around more than 1,300,000 peoples died worldwide. In Pakistan, there are about 400,000 cases and almost more than 7,000 peoples died. **Objectives:** The purpose of our study is to know the work load of orthopedic department during this deadly pandemic and make arrangements to prepare for the worse conditions likely to happen in near future. **Methods:** Our study was descriptive type that was conducted during the period from 2<sup>nd</sup> March 2<sup>nd</sup> to Nov 2<sup>nd</sup>, 2020 at Mohammad Medical College and Hospital, Mirpurkhas Pakistan. In this study, we included all patients admitted to orthopedic department during the study period. This period was when COVID-19 started to peak and governments announced some lockdown in specific areas of our country. All patients admitted during this period were critically analyzed with their detailed profile such as detailed history, reason for admission; management; delayed surgical intervention if any and hospital stay were noted in structured proforma. Authors utilized SPSS version 25 for data entry and analysis. The data was collected after getting approval from Hospital Ethical committee. **Results:** In our study, 88 patients were admitted to Orthopedic Department. There were 54 (61.6%) males and 34 (38.6%) females. Among study participants, 76(86.3%) patients were admitted due to trauma, 12 (13.6%) patients for infection. There were 66(75%) patients treated surgically and the remaining 22(25%) were treated conservatively. The average stay in hospital was 6.7 days ranging from 3-15 days. **Conclusion:** Trauma is a major reason for disability if not treated properly in any disastrous situation. After a pandemic disease like COVID-19, once situations become normal people with untreated trauma lives a very miserable life with limited mobility and limited working capacity. Hospitals need to be prepared for safety of patients and health care workers. Furthermore, hospitals must also be ready to provide proper and urgent medical care in any sort of natural disaster.

**Key words:** Orthopedics, Covid-19, Pandemic, Trauma

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### INTRODUCTION:

It was December 2019 when Corona virus (COVID-19) first case was diagnosed in Wuhan city of china. Until November 2020, it has involved more than 50,000,000 populations, and around more than 1,300,000 people died worldwide. In Pakistan, there are about 400,000 cases infected till now and number still increasing and more than 7,000 peoples have lost their life, unfortunately, due to this deadly pandemic disease. On 29<sup>th</sup> January 2020, first 4 students studying in china came back home and were tested positive for COVID-19 in Pakistan. After that, in a period of few months all the health care resources of our country were

stretched and thinned out due to the current dangerous pandemic. The whole world was paralyzed. This disease has almost affected every sector of life in all countries of the world. The worse affected services with this pandemic are health care services<sup>1</sup>. Apart of general public, health care workers were also badly affected with this pandemic and all around the world many lost their lives.<sup>2,3</sup>. The healthcare facilities in every hospital has been revised and adjusted to work for only emergency services. All other services have been suspended. Orthopedic departments in all over the world are also very badly affected with this pandemic and we have been told to resume only emergency

services like trauma, tumors, infection and any other limb threatening conditions<sup>4</sup>. In current scenario around the world, health care facilities are struggling to treat COVID-19 patients. Almost all medical services have been suspended; normal OPDs and Elective surgical work have been postponed. Orthopedic department has been labeled as the least important department to work during this pandemic.

Our hospital is also following WHO guidelines. We suspended all elective medical services and departments and we were only treating COVID-19 patients. Initially, orthopedic department was completely closed and all our staff and doctors were shifted to internal medicine department to help our colleagues who were also exhausted due to heavy work. Within few weeks, world realized that trauma management cannot be suspended and WHO released new guidelines in which orthopedic department was allowed to partly open to cater the most unavoidable surgical work as fixation of fractures with trauma patients, treat severe infections and to treat tumor patients who need urgent surgical intervention. We were also allowed to do important emergency surgeries and partly open outpatient services to follow up postoperative or post trauma patients and to see most important cases which really needs orthopedic attention. The purpose of this study is to know the work load of orthopedic department during this pandemic and make arrangements to prepare for the worse conditions like this in future.

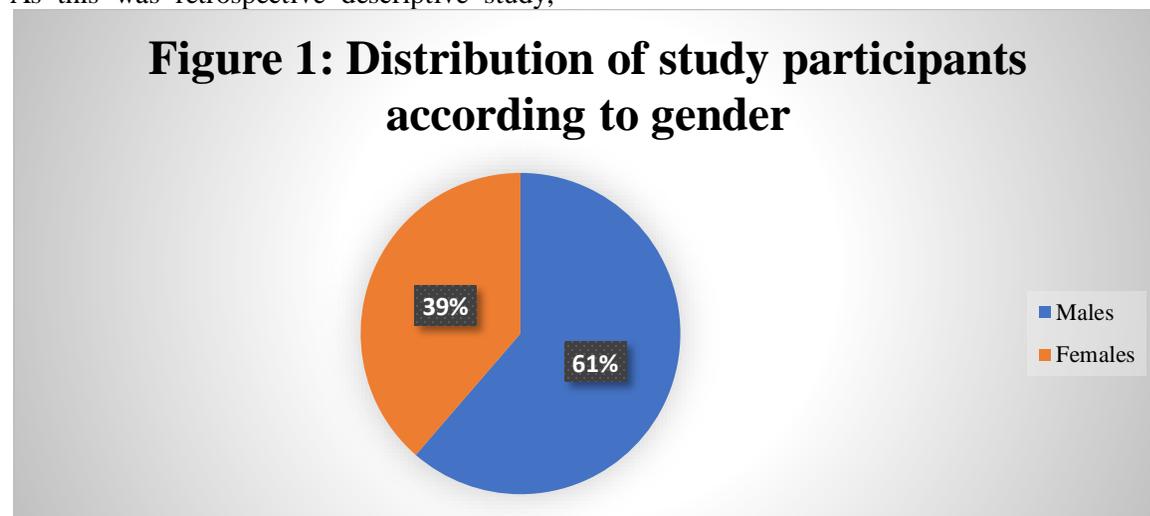
**METHODS:**

**Study design:** Our study is a descriptive type. This is the most appropriate design since the aim of the study was to explore the situation of orthopedic department during COVID-19 crisis. We presented the data of patients during study period. **Study settings:** This study was conducted from March 2<sup>nd</sup> to 2<sup>nd</sup> Nov, 2020 at Mohammad Medical College and Hospital, Mirpurkhas Pakistan. And this was during the rapid spread of COVID-19 pandemic. **Participants:** In this study, we included all patients admitted to orthopedic department during the study period. All patients from all age groups and both genders were included in this study. **Data collection:** As this was retrospective descriptive study,

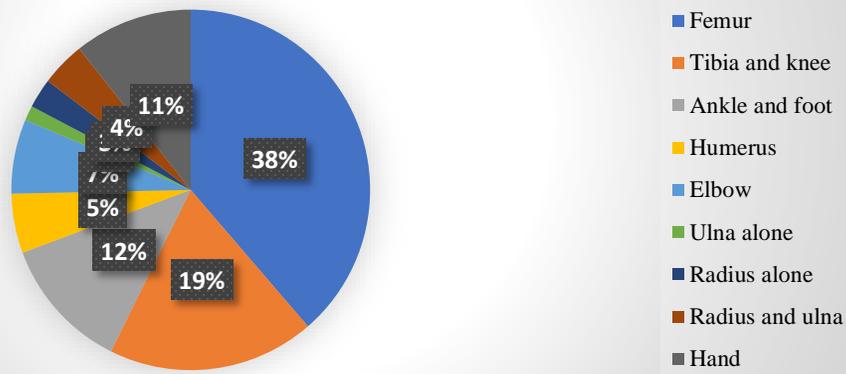
hospital records were in order to retrieve data from the record section. This was the period in which COVID-19 started to peak and governments announced some lockdown in specific areas in our country. All patients admitted during this period were critically analyzed with their detailed profile like detailed history, age, sex, reason for admission, mode of treatment, number of days delayed surgical intervention if any and total days stayed in hospital were noted in structured proforma. **Instruments:** Authors of this study designed a self-prepared data collection sheet for data gathering. The data sheet included demographic data about the patient, cause of admission and the surgical intervention done to the patient. **Data analysis:** SPSS version 25 was used for data entry and analysis. **Ethical consideration:** The data was collected after approval of Hospital Ethical committee

**RESULT:**

During this COVID period of almost 9 months, 88 patients were admitted to Orthopedic Department. Out of this, 54 (61.6%) were males and 34 (38.6%) were females (Figure 1). There were 76 (86.3%) patients admitted due to trauma and having fractures in the lower limb which was more common than upper limb fractures (Figure 2), 12 (13.6%) patients were admitted because of infection and the commonest infection was septic arthritis followed by cellulitis and osteomyelitis (Figure 3). On the other hand, 75 (85.5%) patients were treated surgically and the remaining 13 (14.7%) were treated conservatively. The average days of hospital stay were 6.7 days ranging from 3-15 days. The most common age group admitted during this time was between 30 and 45 years. Different types of surgeries were performed for fracture fixation. Majority of patients were admitted with infection and few with fractures were treated conservatively. Table 1 presents the data regarding fracture of different parts of femur. In table 2, it shows the types of surgeries done for tibia and knee fractures while table 3 demonstrates the fractures of ankle and foot. Finally, upper limb fractures are illustrated in table 4.



**Figure 2: Distribution of patients according to site of injury**



**Figure 3: Distribution of patients according to cause of admission**



**Table 1: Types of surgeries of femur fractures which was performed during the study period**

No.	Fracture	Type of Fixation	No of cases
1.	Femur fracture	Intramedullary nail fixation	9
2.	Neck of femur fracture	Hemiarthoplasty	5
3.	Distal femur fracture	Open reduction and plating	5
4.	Trochanter fracture	DHS fixation	8
5.	Neck of femur fracture	Cannulated screw fixation	2

**Table 2: Types of surgeries of tibia and knee which was performed during the study period**

No.	Fracture	Type of Fixation	No of cases
1.	Tibia fracture	Intramedullary nail fixation	7
2.	Tibia plateau fracture	Open reduction and plating	4
3.	Patella fracture	Tension band wiring	3

**Table 3: Types of surgeries of ankle and foot which was performed during the study period**

No.	Fracture	Type of Fixation	No of cases
1.	Crush foot	Debridement and k-wire fixation	6
2.	Ankle fracture	fibula plating, med malleolus screw	3

**Table 4: Types of surgeries of upper limb which was performed during the study period**

No.	Fracture	Type of Fixation	No of cases
1.	Radius / ulna fracture	Open reduction and plating	3
2.	Distal radius fracture	Open reduction and plating	2
3.	Isolated ulna fracture	Open reduction and plating	1
4.	Crush hands	Debridement and k wire fixation	5
5.	Metacarpal fracture	K wire fixation	3
6.	Elbow fractures	Open reduction and plating	2
7.	Humerus fractures	Open reduction and plating	4
8.	Olecranon fractures	Tension band wiring	3

## DISCUSSION:

This study is unique as it looked at the health situation during the spread of COVID-19 pandemic. To the best of our knowledge, this is the first study to present the situation of orthopedic department during COVID-19 crisis in the country. Results of this study will benefit the literature in many aspects. Study had provided cutting-edge practice in orthopedic department under urgent situation.

In orthopedic department during this period of COVID-19 pandemic, 88 patients were admitted which is half of the number of patients which we normally admit in same period prior to COVID-19. The reason may be because patients were afraid to go out, lockdown, majority offices were closed and even most of the shopping centers are closed<sup>5,6</sup>.

Almost in all countries, numbers of orthopedic admissions were decreased and elective surgeries were postponed for unknown time, due to safety measures for patients and for healthcare workers<sup>7,8</sup>.

The majority of hospitals were dedicated to manage COVID-19 pandemic which has exhausted the health care system of almost every hospital. During this period main aim of all hospital is to give space to manage for COVID-19 outbreak which has exhausted healthcare systems around the world<sup>7</sup>.

Data collected from USA, India, Russia, Italy shows increased no of health care workers affected with this disease specially when performing elective orthopedic surgeries, main reason was concluded that because of increased aerosol generation for infection in reaming, drilling and hammering<sup>8,9</sup>. Same type of study in Italy also showed increased rate of infection in orthopedic healthcare workers<sup>10</sup>. In our study average waiting time for surgery after admission was 3.12 days, this delay was because we had a policy in our hospital that we were doing COVID-19 PCR test at the time of admission and then only we were deciding for surgery. Test result was coming in 2-3 days. This practice we started to save health care workers from this deadly organism and to save from complications of surgery for patients as well. Some cases waiting time was more than 5 days this was because of swelling or wound was not good or patients were delayed for surgery due to some underlying medical issues. Some patients stayed in hospital more than 5 days this was because they were from very far remote area, almost came from border of india/pakistan and there was no hospital near by them to take care for wound management and for suture removal<sup>11,12</sup>.

This is also a time to learn from some more countries who were hardly hit with this pandemic and they have changed their orthopedic management system.

In this pandemic disease we should have complete knowledge of COVID infection, its mode of transmission and how to make safe hospital staff and peoples outside hospital. If more and more healthcare workers are involved in this deadly disease there will be further

depletion of medical staff which will create big disastrous for healthcare system.

For COVID-19, 25-50% patients are asymptomatic carrier, it is very easy to identify symptomatic patients but asymptomatic patients can not be identified and this is main cause of disease transmission<sup>13</sup>. WHO recommends to prevent COVID 19 infection by frequent hand washing, hand sanitization, social distancing, use of face mask, isolating, frequent screening and early identifying patient, isolation and early management<sup>14</sup>. We are using Personal protective (PPE) equipment during surgery as guidelines from affected countries like USA<sup>15</sup>.

In our country where the number of positive patients has reached up to alarming situation but it is not possible to do COVID test for all patients coming to hospital which is same in studies done in India and Nepal. So, it is recommended guidelines in both countries to limit number of surgical cases to only emergency cases and postpone all elective surgeries<sup>16</sup>.

The most recent guidelines from all current papers especially those from USA, india, china and other badly affected countries with this infection is that for orthopedic cases only trauma, fractures, infection, dislocations and tumors case can be operated with all necessary preparation to save healthcare workers and patients in this deadly pandemic<sup>17</sup>, this corresponds to the recommendations made by other affected countries<sup>18</sup>.

## CONCLUSION:

Trauma-related fractures were the most frequent cause that patients were admitted to our hospital, followed by bone infections which need urgent orthopedic care.

We recommend that orthopedic departments of all hospitals should be prepared in advance to respond to any disastrous situation or in any pandemic disease. The hospitals should assure to protect their healthcare workers and provide urgent and timely orthopedic management. As without bone management patients can be disabled for whole life and will be extra burden for society.

**ETHICS APPROVAL:** The ERC gave ethical review approval

**CONSENT TO PARTICIPATE:** written and verbal consent was taken from subjects and next of kin

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