

Meeting the Challenge of COVID-19 in DHQ Orthopaedic Department

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Author's Contribution

^{1,2} Conception of study

^{1,4,5} Experimentation/Study conduction

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Abstract

Introduction: The World Health Organization (WHO) declared Covid-19 as a pandemic on March 11, 2020. Not only that the COVID-19 pandemic has brought the world to a complete lockdown but also burdened healthcare systems across the world immensely.

Objective: In this paper, we discuss the different strategies we adopted in the Orthopaedics Department of District Head Quarter [DHQ] hospital Rawalpindi, during this ongoing pandemic and share our experience of successfully but cautiously providing orthopedic services to patients in a public hospital. We compare our workload and output of May 2020 [pandemic phase] to May 2019 [standard/normal phase].

Methodology: The Hospital policy was changed after the COVID-19 pandemic. We increased public awareness and reduced load in the OPD using different strategies. We postponed all elective cases; focusing our logistics and resources only on the patients in urgent need of surgical management. A minimum number of doctors and OTAs were allocated on each list. Inwards, the patient stay was reduced. As a standard PCR test for COVID-19 was expensive, we devised our screening through history, examination, and routine investigations.

Results: The average stay inwards was reduced from 6.4±4.6 days in May 2019 to 2.7±3.6 days in May 2020. The decrease in the stay was statistically significant ($p=.0206$) and was associated with a 24.4% increase in the number of total patient admissions in May 2020 ($n=56$) as compared to May 2019 ($n=45$). The number of surgeries performed month to month was very similar in normal and pandemic periods.

Our OPD patient attendance dropped from 200-250 patients per day in 2019 to 60-70 during the ongoing pandemic phase.

Conclusion: We believe that sharing experiences between health care actors allows us to develop an effective strategy to provide the very best care to our patients during the COVID-19 pandemic.

Keywords: COVID-19, Pandemic, Orthopaedics.

Introduction

The COVID-19 pandemic has become the largest global healthcare crisis in nearly a century. Initial cases of coronavirus disease were reported in Wuhan, China in November 2019 and then there was a rapid worldwide spread.¹ The World Health Organization (WHO) declared Covid-19 as a pandemic on March 11, 2020.² The first confirmed case of COVID-19 in Pakistan was reported on February 28, 2020. As of June 15, 2020, reported confirmed cases in Pakistan now exceed 140,000 and deaths 2,700.

Not only that the COVID-19 pandemic has brought the world to a complete lockdown but also burdened healthcare systems across the world immensely. While hospitals have been converted into corona treatment centers; hotels, schools, sports complexes, and buildings have become quarantine centers.

All disciplines of medicine and surgery have been grossly affected. Each discipline has tailored its resources and manpower to cater to the need of patients, maintaining the continuity of health care and at the same time ensuring the protection of medical personnel. Orthopedic surgery globally has limited its activities to trauma and selective cases of tumors. In some private clinics, daycare surgery [arthroscopy] with < 23 hours of stay has been allowed.³

Although orthopaedic surgeons are not the frontline workers in controlling the pandemic, they have their role, in the greater healthcare system, to check the spread of the disease.^{1,4}

In this paper, we discuss the different strategies we adopted in the DHQ orthopedics department during this ongoing pandemic and share our experience of successfully but cautiously providing orthopedic services to patients in a public hospital. This is one of the pioneer papers from the public sector of Pakistan.

BRIEF OVERVIEW OF DHQ, ORTHOPEDIC DEPARTMENT

DHQ Hospital, Rawalpindi is located at the hub of the city. It is the sole public hospital providing services to its downtown area. As a part of Rawalpindi Medical University, it also gives tertiary care services to the city as well as neighboring districts of Chakwal, Jhelum, Murree, and Kashmir. The academic staff of the orthopaedic department of comprises of a Professor, an Assistant Professor, 3 Senior Registrars and trainee residents. (Table 1) It has a 32 bedded orthopaedic ward, a fully equipped major, and a minor operation theater.

Table 1: Teaching Staff, DHQ Ortopaedic Department

POST	QUALIFICATION	YEAR	SUPERVISOR
PROFESSOR	FCPS	1996	YES
ASST. PROFESSOR	FCPS	2006	YES
SR. REGISTRAR	FCPS	2011	IN-PROCESS
SR. REGISTRAR	FCPS	2016	NO
SR. REGISTRAR	FCPS	2017	NO
DIST. SURGEON	FCPS	2015	NO
MEDICAL OFFICER	FCPS - Training Completed	2015	NO

BEFORE THE PANDEMIC

Our department's routine before the pandemic included conducting outpatient clinics twice a week. On each outpatient day, five to six consultants examined 200 to 250 patients in a single large room. A large crowd would be assembled in the waiting area and the corridors, with patients and attendants waiting for their turns on stretchers and wheelchairs. The waiting area would be so jam-packed that even the doctors, when finding their way to the outpatient room, found it difficult to squeeze through the crowd in the waiting area.

The orthopaedic department of DHQ hospital was performing a variety of elective surgical procedures such as joint replacement surgery, congenital anomalies, non-unions, hand surgery, sports injuries, tuberculosis, infections, tumors, polio, cerebral palsy, etc. However, like most orthopedic departments across the globe, the main bulk of our workload was musculoskeletal trauma.

Our operation lists were conducted four times a week and an average of 110 cases per month was performed in these elective lists. In addition to the elective surgeries, 10 to 15 emergency surgeries were performed in the evening by senior registrars and residents such as applying external fixators, K wire fixations, and reducing dislocations.

AFTER THE OUTBREAK CHANGE IN HOSPITAL POLICY

In a series of meetings between the administration and heads of departments it was unanimously decided to postpone all elective, non-urgent surgical procedures.⁴ This allowed focusing our logistics and resources only on the patients in urgent need of surgical management. It also freed up beds and increased the hospital's capacity to treat suspected or COVID-19 positive patients requiring hospitalization.⁴ It allowed the reduction of health workers while maintaining urgent surgery capabilities.⁵

Postponing elective surgeries helped to minimize the spread of infection between symptomatic and asymptomatic patients and health care staff.⁶ Only trauma and urgent tumor surgery patients were admitted. One attendant per patient was allowed and ward stay was kept at the minimal.

Most of the patients were discharged on the next day of surgery. Patients were guided about Rehabilitation and wound care at home.⁵

COVID STATUS OF PATIENTS

Being a public sector hospital neither the hospital nor the patient could afford the cost of PCR Tests for each of our patients being operated. In Pakistan, the cost of the PCR Test for Coronavirus is about Rs 7500. Hence exercising a cautious approach every patient admitted to the orthopedic department and the operating room is considered to be COVID-19 positive even if they are otherwise healthy adults with no comorbidities. Utmost care should be provided to patients in the preoperative, intraoperative, and postoperative settings to minimize risks of infection.^{4,7,8}

MODIFICATION OF TRAUMA MANAGEMENT

Fractures which could be managed by manipulation and cast were dealt conservatively, keeping the old legacy alive. Surgical intervention was reserved for those cases where there was a definitive indication; moreover, consideration was given to surgical approaches that could decrease operating staff exposure and shorten case duration.⁶

OPERATING THEATER DISCIPLINE

After a departmental meeting, it was decided to decrease Operation room personnel.^{3,4} Duty rosters were revised both for the doctors and the nursing staff /OTAs working in the theaters. A minimum number of doctors and OTAs were allocated on each list. Each SR and registrar was required to do 1 or 2 lists per week. Each list was supervised by a professor or assistant professor on alternate days.

As the majority of the cases were trauma-related they were healthy otherwise. In old age patients, there were comorbid. Each patient was screened in the ward

through history, vital signs [esp. temperature and respiratory rate], the examination of the chest, blood tests, chest X-rays by the ward team as well as by the anesthetists in their preoperative assessment. If there was suspicion of COVID-19 disease they were referred to the hospitals especially allocated for corona patients.

All traffic in and out of the operating theater was minimized.⁶ Intraoperatively full personal protection equipment including N95 FFP2 masks, protective glasses, and face shields are recommended.¹⁰ However, in practice, we were for the most part restricted by scant availability to using surgical masks, gloves, and normal OT clothes. Face shields and N 95 masks were used by our anaesthetist colleagues. N 95 masks were used by some surgeons but most of the staff was wearing surgical masks made available by the hospital. We know that surgical face masks are not designed for personnel protection and do not closely fit around the face and mouth. Their design is intended for preventing contamination of the surgical wound from the aerosols generating by the surgical team.³

OUTPATIENT CLINIC MANAGEMENT

To increase public awareness and reduce crowding in the OPD different strategies were used.^{3,4}

Placards and posters were placed in OPD with slogans like "Keep yourself and your children safe: keep away from hospital". Personnel at the reception counter also discouraged patients from unnecessary visits. OPD slips were not issued for minor ailments. Only postoperative cases and fresh injuries were entertained. Thus actions were taken to decrease the workload, minimize staff and patient contacts^{5,11} and social distancing was practiced at all times.¹¹

NOVEL TECHNOLOGIES

The emergence of such a crisis provided an opportunity for us to use novel technologies in the workplace. This includes the adoption of telemedicine initiatives, allowing patients to be consulted and followed-up in the comfort of their own homes.^{4,10,12,13} A Telemedicine Center was developed by Rawalpindi Medical University providing 24/7 services in our sister hospital. Many countries over the world have started on line outpatient clinics in the wake of COVID-19.³

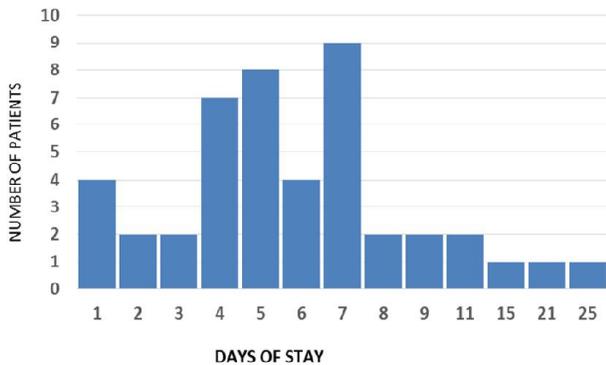
Results

CHANGE IN OUR PATIENT DYNAMICS

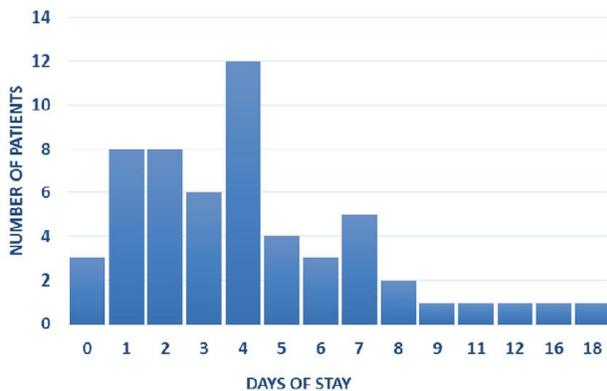
As a result of the measures taken we successfully reduced hospital stay duration for admitted patients

thus reducing potential exposure for them. The average stay duration was reduced from 6.4±4.6 days in May 2019 (range 1-25 days) to 2.7±3.6 days in May 2020 (range 0-18 days). The decrease in the stay was statistically significant (p=0.0206).

The mode for a duration of stay, i.e. most frequent stay period, showed a decrease from 7 days to just 4 days while comparing data for these two months, May 2020 and May 2019 (Figures 1 & 2).



Figures 1: Patient Stay Time in MAY-19



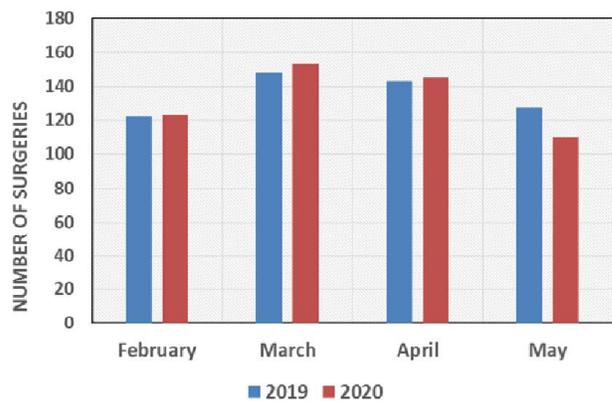
Figures 2: Patient Stay Time in MAY-20

Although we postponed all elective surgeries we kept our doors open during the pandemic for trauma and emergency patients and recorded a 24.4% increase in the number of total patient admissions in May 2020 (n=56) as compared to May 2019 (n=45).

The surgical workload was sustained at the same level as the previous year. The number of surgeries and distribution of major, minor, and local procedures performed month to month was very similar in pre-endemic and pandemic periods. (Table 2, Figure 3). Although the plan was to reduce workload and number of patient interactions for health givers, the influx of trauma and emergency patients could not be denied treatment.

Table 2: Comparison of Orthopaedic Surgery Output Early 2019 & Early 2020

MONTH/ YEAR	MAJOR CASES [under General Anaesth esia]	MAJOR CASES [under Spinal Anaesth esia]	LOCAL Anaesth esia	TOTA L
FEBRUARY 2019	22	32	68	122
FEBRUARY 2020	21	28	74	123
MARCH 2019	26	34	88	148
MARCH 2020	28	26	99	153
APRIL 2019	20	31	85	143
APRIL 2020	17	28	100	145
MAY 2019	20	37	70	127
MAY 2020	21	22	67	110



Figures 3: Total Surgeries Compared Early 2019, 2020

Our vigilant attitude combined with increased patient caution allowed us to effectively reduce OPD congestion and unnecessary visits. Thus OPD patient attendance dropped from 200-250 patients per day in 2019 to 60-70 during the ongoing pandemic phase. This contributed to the curtailment of exposure possibilities amongst our orthopedic patients as well as health giver staff.

Future Directions

Covid-19 testing of all potential surgical and admission cases must be added to a panel of pre-operative tests such as hepatitis B & C etc. All cases which turn up COVID-19 positive should be dealt in separate wards and operation theaters. Failing this ward and operation theater equipment especially the anaesthesia machines will be infected by coronavirus. Subsequent surgeries [patients and staff] may become infected.

It will be advisable to review and revise short term and long term indications of many of the elective surgical procedures

We will need to restart the surgery of those elective procedures in which time delay is not advisable.

A COVID-19 unit should be developed in the orthopedic surgery department in our sister hospital Benazir Bhutto Hospital working under Rawalpindi Medical University. BBH has already been declared as a COVID-19 hospital. Separate Operation theatre and wards have been allocated for COVID-19 positive orthopedic patients.

Good Hygiene Practices and Good Surgical Practices being introduced implemented and enforced per necessity in our population and hospitals must not be let up. Rather they should be reinforced so that we mature and develop as a health conscience nation.

Conclusion

We believe that sharing experiences between health care actors allows us to develop an effective strategy to provide the very best care to our patients during the COVID-19 pandemic. We hope, once getting out of this crisis, we will continue to work together as valued team members.

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