



CHANGING UROLOGICAL PRACTICE IN AN INDIAN TERTIARY CARE CENTER AMID A PANDEMIC AND ITS AFTERMATH

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ABSTRACT Little is known about COVID-19 dangers and its tremendous impact on healthcare systems worldwide. India witnessed two complete lockdowns, which forced our hospital to be converted into a dedicated COVID Care Centre. Surgical intervention should not be neglected during urological emergencies. Adaptation to available resources, implementing small changes to the existing setup, adequate protection measures, and efficient decision-making in terms of surgical intervention help reduce the transmission of the virus as well as the morbidity and mortality of the patients. Therefore, if managed with precautions, urological emergencies can function uninterrupted without compromising patient care. A pandemic like COVID forced us to change our approach to patients, which improved our level and horizon of education/learning and changed the system of OPD, OTs, and emergencies. If we learn a better way of managing and organizing patients and their procedures we will be able to find an improved system of learning, patient care and clinical practices. And in preparation for future pandemics we will be able to manage things and the health system especially in urology in a more efficient manner.

KEYWORDS : Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), Outpatient department (OPD), Operation theatre (OT), Double J stent (DJS), Intensive Care Unit (ICU).

INTRODUCTION

COVID-19, caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), was first identified in Wuhan, China in December 2019 [1]. Little is known about its dangers and tremendous impact on healthcare systems worldwide [2]. As the world went into lockdown, hospitals in India continued routine work, in addition to starting fever clinics. Around the time the WHO declared it a pandemic, India recorded its first case [3]. The number of cases increased exponentially only in the latter half of March 2020. India witnessed two complete lockdowns, which forced our hospital to be converted into a dedicated COVID Care Centre [4]. We share our experience of transitioning from a tertiary care center department with a heavy load of patients to treat COVID-19-positive urological patients after the complete shutdown of elective OPD and OT services and their after-effects.

CHANGING PRACTICE

The surge in the number of cases has saturated the healthcare systems worldwide. Preparing to cater to the increasing number of cases forced changes in the hospital setup [5]. In an attempt to optimize resources, hospital spaces were restructured. Triage areas were set up, wards were filled with COVID-19 patients, operating rooms of hospitals were transformed into intensive care spaces, and intensive care units were reserved for critical patients requiring ventilatory support [6]. In our hospital, a Special Screening Smart OPD was set up in an open area within the campus. This OPD was used for swab collection and to triage patients, admitting only COVID suspects and swab-positive COVID patients to isolation wards or ICUs. Elective OPD and OT services were stopped on March 23, 2020, and a lockdown enforced in the country from 25th March meant that patients could hardly reach our hospital for elective consultation and intervention. Our hospital was converted into a dedicated COVID care center on April 18, 2020, and our transition from a tertiary center with multiple specialties to a hospital dedicated only to COVID-positive patients. By the end of April, that is, the peak of COVID cases, all the healthcare workers of

the hospital were managing 1045 beds, 32 wards, 12 intensive care units, and 40 dialysis beds that were filled with COVID patients. In 2021, the second COVID wave forced the lockdown and implemented a more organized system of routine OPD/OTs plus the COVID-19 special protocol learned from the previous lockdown.

CHANGES IN THE DEPARTMENT

The large influx of patients in many places has forced urologists to actively participate in emergency services to support the care of COVID-19 patients. This resulted in postponement of all elective interventions [7]. The Department of Urology at our institute is among the busiest urology units in the city. Before the pandemic, we conducted OPD consultations and referrals. We dedicated an OT complex to performing elective and emergency urological surgeries as well as office-based procedures along with regular teaching sessions for undergraduate and postgraduate students. During the pandemic, significant changes were made to the working arrangements in our department. As our institute was the maiden tertiary center dedicated to COVID patients in the city, all resident doctors and consultants took on the new role of COVID warriors. Residents were assigned to manage the patients in triage, wards, and the ICU, which were monitored by faculty members. Nursing staff from OPD and OT services were appointed to different COVID wards. Regular OPD services in our hospital for all departments, including urology were suspended. A special OPD screening method was developed. The urology wards were planned to be converted to wards for COVID-19 patients and suspects. Hence, in the wards, the patients were discharged as soon as they were fit. Preoperative patients, including those with malignancy who were scheduled for surgery, were planned properly depending on the gravity of the malignancy. The same was done for patients who were on regular follow-up or required additional procedures, such as check cystoscopy, BCG installation, and stent removal. Worldwide elective surgeries must be postponed to divert resources to manage the pandemic [8]. With OT nursing and support staff shifted to manage

wards and the anesthesia department managing critical care units, we also suspended our OT services for elective surgeries. In our OT complex, we started managing urological emergencies requiring surgical intervention in COVID-positive patients after making the necessary changes in its setup. OT needed to have a separate entry and exit for patients and staff, with a dedicated donning and doffing area. Ideally, an OT should have negative-pressure ventilation with more than 12 air changes per hour [10]. Our urology OT complex has a set of two modular OTs used for all major urological procedures and one non-modular OT used for minor procedures. We identified an area for the entry and exit of surgeons and OT staff, which was different from the COVID-positive patient. Separate donning and doffing areas were demarcated in the OT complex. As the Modular OTs could not be converted into negative-pressure OTs, we used a Non-modular OT with air coolers and exhaust fans for emergency urological procedures. This description is presented in Figure 1.

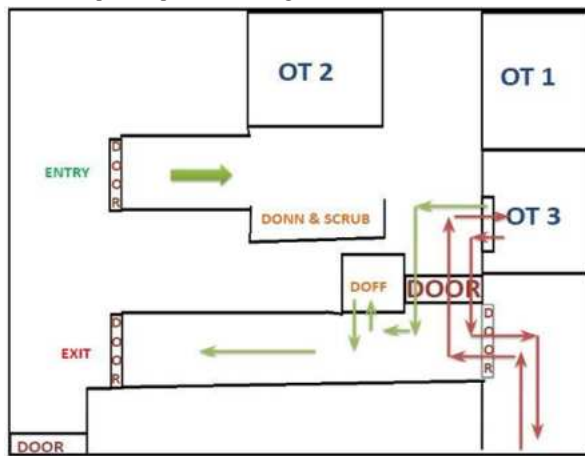


Figure 1 – Schematic Representation Of Modifications Done In Our OT Complex

APPROACH TO A PATIENT

Being a dedicated COVID Care Center meant that COVID-19-positive patients with urological complaints could only be treated at our hospital. Our resident doctors and faculty members were divided into two groups, and these two groups were working in rotation. One group worked in triage OPD, wards, and ICU, whereas another group was used to manage emergency urological surgeries of COVID-positive patients in operation theaters. Therefore any COVID-positive patient admitted to a ward or ICU with a urological issue or a newly diagnosed urological ailment was first assessed by a urological resident on COVID duty. Relevant investigations were performed and advised. If the patient needed surgical intervention, the risks and benefits of the procedure were weighed, and a decision was made after consultation with the patient's relatives. The SAGES and EAES recommendations regarding the surgical response to COVID-19 state that services should be rationed [11]. Studies have shown increased mortality and morbidity in patients undergoing surgeries while being infected with coronavirus during the incubation period and even post-infection [12-13]. Informed consent was obtained regarding the urgency of the procedure, and post-procedure increased the risk of morbidity and mortality. After obtaining consent, the patient was transferred to the OT through dedicated corridors and lifts. A non modular OT was used. The machines, tables, and trolleys in the operating room were covered with plastic sheets. Anesthesia and surgical trolleys were kept ready before the patient entered OT. This helped in maintaining the minimum movement of personnel in and out of the OT once the patient entered [14-15]. Once inside the OT, the patient was given a disposable gown, face shield, and N-95 mask. At the time of anesthesia induction, only two experienced anesthetists with helpers were present. We tried to minimize the use of general anesthesia and performed most of our cases under regional or local anesthesia to reduce droplet spread. Only once the induction was complete would surgeons with nurses wearing PPE would enter. Once the surgery began, the doors were closed, and movement in and out of the OT was minimized. Coronavirus has even been detected in urine samples, and urine can be a mode of spread in moderate-to-severe COVID cases [16-17]. Inside the OT urine spill was minimized by using a closed drainage system for endourological procedures. The patient was transferred to the recovery room after the procedure. One surgeon, along with the nurse, went for an instrument wash, and the others doffed and moved out. The instruments were first

washed with soap water and then dipped in 0.5% hypochlorite solution for 10 min. WHO recommends using either 70-90 % alcohol, 0.1% hydrogen peroxide, or 0.5% hydrogen peroxide for surface disinfection [18]. For OT disinfection after cleaning the floor, a 0.5% solution of hypochlorite was used to scrub the OT floors, walls, windows, and other exposed surfaces.

OUR DATA

Even though there have been guidelines and expert opinions on the risk stratification of urological surgeries during the COVID pandemic there is a lack of data on urological surgeries performed on COVID-positive patients. In our center, we had to manage only COVID-positive patients requiring urgent urological intervention. We present the data of 67 COVID-positive patients who underwent emergency urological intervention. We performed three open nephrectomies under general anesthesia in patients with emphysematous pyelonephritis/trauma who failed conservative management. For the other patients with emphysematous pyelonephritis, we performed pigtailing of the collection and double-J stenting. Eight bladder clot evacuations were performed under spinal anesthesia, three of which also required bladder mass biopsy. Four Percutaneous Nephrostomy insertions and 19 DJ stent insertions were performed under local anesthesia in patients with obstructive uropathy. Only one 8-year-old child underwent bilateral DJ stenting under general anesthesia. DJ stent removal was done in ten patients who were referred to us for stent dysuria and hematuria. Suprapubic Cystostomy was done in six patients who could not be catheterized per urethrally while eight patients underwent urethral dilation with catheterization. We lost one elderly male patient on postoperative day three of bladder clot evacuation due to COVID complications. Another patient with bilateral emphysematous pyelonephritis died one month after pigtailing and stenting. The patients are being followed up, and a few are awaiting definitive management.

DISCUSSION

As a dedicated COVID Care Center, elective urology OPD was replaced by general screening OPD, urology wards were given up to accommodate the ever-increasing number of COVID patients, necessary changes were made to OT as per the guidelines, and only after evaluation of the risk and benefit ratio were the patients taken up for emergency urological intervention [6-11]. We believed that emergency urological intervention was safe, and more so when performed under regional or local anaesthesia, it helped in the early recovery of patients. COVID mainly involves the respiratory system, which can be managed with proper care and precautions without compromising urological procedures because the morbidity and mortality in the perioperative period were low and none of the faculty staff or residents of the department were infected in the past four months. There was an increase in teleconsultation, which made it better for patients who were afraid to visit hospitals and clinics.

We have also laid the foundation for future pandemic response by managing the last and learning from mistakes and are still improving on it. In the post-pandemic period, we developed a well-ventilated online appointment-based OPD system that allows less paper contact and transmission of the virus. This reduces the spacing of patient appointments and crowding in the waiting area. Today, when a patient arrives at our OPD or emergency with upper respiratory tract infection-like symptoms, we always take these patients with a pinch of salt and protect themselves from potential exposure by taking precautions without compromising the patient's care [19].

Changes In Learning And Skill Development

Before the pandemic era, teaching and learning were mainly through classroom programs; however, during the pandemic, we shifted towards online classes and webinars, which are still being continued to date, and we are not only restricted to classroom teaching. Because of online interactive classes and sessions, our horizon is now not limited to one particular time zone. Simulation programs on operative procedures and techniques have increased residents' daily practice, making them better before actual cases. Research in the field of academics has improved since COVID-19 as an adaptation to the free time a resident got during their quarantine period.

CONCLUSION

The pandemic has led to most elective surgeries being deferred because of limited availability of resources. However, surgical intervention cannot be neglected in urological emergencies. Adaptation to available resources, implementing small changes to the

existing setup, adequate protection measures, and efficient decision-making in terms of surgical intervention. help reduce the transmission of the virus as well as the morbidity and mortality of the patients. Therefore, if managed with precautions, urological emergencies can function uninterruptedly without compromising patient care. We have prepared ourselves for future pandemics in the process of handling the previous pandemic.

Acknowledgments: None

Funding Statement: No funding taken.

Conflict Of Interest Declaration: The authors declare that they have NO affiliations with or involvement in any organisation or entity with any financial interest in the subject matter or materials discussed in this manuscript.

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