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COVID-19: ramifications in surgical practice

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Abstract

Nepal lies between two large countries (India and China) who have reported high incidence of COVID-19. It is only logical that we prepare the best with the limited medical facilities that we have. There are numerous challenges that impact the surgical department and the hospital administration in general. New guidelines are being formulated and updated frequently. The challenge to provide sufficient personal protective equipment, limited finances and need to train staffs are pertinent challenges. A change in the method of treatment and execution has exerted pressure on the surgeons with a need to keep abreast of new developments.

We describe the numerous impacts of the COVID-19 on surgical practice, the impact on surgeons, patients, surgical residents and even the hospitals which have led to all “new normal” in surgery.

Keyword: COVID-19, coronavirus, surgery, impacts on surgery

Coronavirus Disease 2019 (COVID-19) in Nepal- As of 29 April 2020, Nepal has reported 54 COVID-19 patients with no mortality. Numerous patients have been tested; 44019 with RDT and 10753 with RT-Polymerase Chain Reaction (PCR).¹ With two large neighbors (India and China) tackling high volumes of COVID patients and mortalities², the possibility of increase in the case is high and it is only obvious that we are preparing Nepal at institutional, local, national and international levels.¹

New Normal in Surgery- Decreasing the transmission and flattening the curve of SARS-COV-2 which causes COVID-19, is based on the influenza mitigation strategy first described in 2007.³ In order to do so, all non-urgent and non-emergency cases have been postponed (as directed by Nepal Medical Council and other surgical societies) and OPD services have been altered.⁴ This step has also allowed preparation for a rapidly evolving situation, where uncertainty seems usual and preparation our only best tool.⁴ This also benefits us with appropriate redistribution of scarce and precious personal protective equipment (PPE) and medical personnel, allows re-allocation of finances, re-focusing our attention to the departments that are likely to be overwhelmed such as the emergency and critical care services.⁴ It also allows the possibility of repurposing operation theatres to critical care units when needed.⁴

Impact on Patients- The need to restrict surgeries to urgent and emergency cases have also risen due to multiple publications reporting higher postoperative morbidity and mortality in COVID-19 patients, whether confirmed or incubating.⁵ A study from Wuhan, reported accelerated and exaggerated disease progression in COVID positive patients (asymptomatic at the time of surgery) who had undergone surgery compared to those who had not undergone any surgery; 44.1% vs 26.1% ICU care need and 20.6% vs 2.6% mortality.⁵ The surgery varied from laparoscopic appendectomies, cesarean sections to neurosurgical cases.⁵

Apart from the inherent risk of surgery, patients have to be counseled regarding asymptomatic carrier state and risk of nosocomial infection with corona virus (in countries with community spread).⁶ This is not the risk; the surgeon would be comfortable bearing or explaining to any patient (undergoing elective surgery) who would otherwise not have these risks. International surgical guidelines recommend preoperative RT-PCR (when feasible) and also to treat all patients undergoing surgery as COVID positive.⁷ This is could also probably be due to the false negative results with RT-PCR.^{5,7,8} Feasibility of testing and providing PPE for all is a big challenge, and selective priority surgery is our only winning bet.

A new need to stratify the patient in terms of how much we can delay a surgery and what risk it holds for our patient compared to the afore mentioned benefits have arisen in this pandemic. Patients are now stratified as emergency, urgent and elective cases.⁹ Emergency surgeries involve limb and life - saving surgeries which need to be done within 24 hours irrespective of the COVID-19 status of the patient and seldom causes confusion in decision. It includes surgeries such as perforation peritonitis. The biggest concern is the insufficient time to perform adequate screening. However, in urgent cases, the surgery needs to be done within 72 hours, for example, a small bowel obstruction not responding to conservative treatment. But in other cases, such as cholelithiasis (not acute) or cancer, a lot of confusion exists about how much we can postpone. Numerous guidelines have hence arisen to help us decide how long they can be deferred.⁹

Impact on Surgeons- Aerodigestive tract surgery, endoscopic services, surgery in presence of gross contamination and use of electrocautery have all been thought to be high risk aerosolization procedures.¹⁰ Unfortunately, these are the cases mostly encountered by general or GI surgeons in emergency setting, posing risk to the surgeons. Highly complex surgery increases the risk further.⁹ Numerous surgeons have got

infected and some have succumbed to it. This risk of acquiring the disease, becoming a vector of transmission to other patients and family members and succumbing to the disease, have certainly encouraged healthcare workers to limit all elective procedures.⁴

This pandemic has also posed a difficult and different dilemma to the surgeons. Established treatment methods have been modified for now.⁹ New guidelines are formulated and updated too frequently.⁹ Minimally invasive surgery (MIS) is favored by all surgeons. However, the theoretical risk of aerosolization of blood borne viruses cannot be ruled out.⁶ Although, very little evidence exists to favor or disfavor MIS versus the conventional open approach, specific to COVID-19, it requires ample precaution including a filter and a negative pressure rooms.⁶ This has decreased the favorability in setting such as ours.

The demand on surgeons to expand their role as general medical personnel and manager has come up in the COVID-19 pandemic. The role of surgeons not only lies in preparing to operate on a COVID-19 (suspected, confirmed or incubating) patient requiring surgery⁴ or gearing up to treat a patient who can manifest with digestive symptoms alone (18.6%; who also have a protracted course compared to those presenting with pulmonary symptom);¹¹ restructuring or dedicating an entire operation theatre that is safe for COVID pandemic, but also in gearing up to manage as critical care team.⁴

Impact on Surgical Residents- Surgical residents are a big workforce for surgical departments and the current situation demands them to also adapt. Various methods have been utilized to restructure and maintain continuous learning. Remote learning (tele-education, e-learning, educational conferences, didactic sessions, task training with video feedback) are important alternative learning methods.¹² However, their efficacy may not be equivalent to real life scenario exposures.

The residents can definitely use this redundant period to harness administrative/ leadership skills, train one with critical care management skills, complete case logs, prepare for board examination, and complete thesis work and credentialing/licensing paperwork and so on.¹²

Impact on the Hospitals- Hospital administration undoubtedly has to face surmounting challenges. The necessity to prepare the hospital for uncertainty, re-define roles and responsibilities, re-allocate finances, monitor resource utilization, facilitate resupply, update all employees with plans and protocols, protect its medical and non-medical staff, readjust continuously to new legal and scientific directions/ recommendations, balance practicality with expectation from the society and non-medical institutions have over-burdened hospital systems that have always had to perform under strict protocols.⁴

Conclusion

This pandemic has challenged medical institutions, surgical services requiring changes in regular activities to accommodate the spread of COVID-19. Changes in the method of treatment, new safety recommendations, need for new algorithm and execution has exerted pressure on the surgeons. It is important that we keep abreast of new developments, modify our practices accordingly, strengthen our ability and resilience in managing this COVID-19 outbreak.

Conflict of Interest

None

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Author Contribution

All authors read and approved final draft; HCN: concept, design, revise for intellectual content; TYT: Research article designing, analysis, write up; SA: design, analyse content, manuscript preparation; NS: design, manuscript preparation, GD: design, manuscript preparation, editing.

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