

Case Series

A surgeon's perspective on resuming elective surgeries during COVID-19 pandemic: the new normal

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ABSTRACT

Novel corona virus disease 2019 (COVID-19) outbreak was declared a pandemic on 10th March by World Health Organization (WHO) putting the entire health care system including medical and surgical care in deep crisis. All the resources and manpower are being diverted to tackle this rampant spread of COVID-19. The result of which, all elective surgical procedures are rescheduled to an extent of cancellation. This case series presents 3 cases operated during the pandemic in a mannered clinical algorithm. In the light of underlying uncertainty, it is essential to resume elective surgeries with caution to prevent backlog and worsening of the disease.

Keywords: Corona virus, COVID-19, Elective surgeries, The new normal

INTRODUCTION

The COVID-19 is an ongoing pandemic caused by severe acute respiratory syndrome corona virus-2 (SARS-CoV 2), first identified in Wuhan, China in December 2019.¹ Within nine months, more than 31 million cases have been reported worldwide causing havoc to the health care.

One such pandemic was the Spanish flu which hit the world in 1918 with multiple waves lasting till 1920. Unlike Spanish flu, the number of COVID-19 cases are increasing exponentially due to increase in globalization and no effective drug treatment or vaccines. Different measures are being taken up to control the number of new cases and reduce the spread of disease like lockdown and quarantine.

In hospitals, there is an increase in the capacity of beds to accommodate the increasing numbers of COVID-19 cases along with postponing elective surgeries so as to protect non COVID-19 patients and health care workers from infections and to divert resources to COVID-19 patients.

COVID-19 has held up to 5.8 lakh elective surgeries in India and around 28.4 million worldwide.² Over a period of time, elective surgeries will become emergency procedures with complications and morbidity.³ Similarly the backlog of cases can bring workload on the surgeons. Therefore it is essential to adapt to the situation and resume elective surgeries by weighing the patient's need, hospital's logistics and the risk of delaying the surgeries.

In this context, we present a case series of operating elective cases during the pandemic with necessary 'new normal' protocol.

CASE SERIES

Case I

Case of calculous cholecystitis underwent elective open cholecystectomy

A 61 year old male, hailing from a non-containment zone, with no known co-morbidities came to the surgical

outpatient department after clearing the checklist for COVID-19. Patient was examined for complaints of dyspepsia and upper abdominal pain for duration of 20 days. Adequate precautions were taken during examination by use of gloves, mask and face shield. Ultrasound abdomen was done which revealed 3 cm calculi in the gall bladder with features of resolved cholecystitis. Patient was advised elective open cholecystectomy after weighing the advantages of open surgery over laparoscopic surgery in generating aerosolized particles. All routine investigations were carried out on outpatient basis. Screening high resolution computed tomography (HRCT) thorax was done which showed COVID-19 reporting and data system (CORADS-1). He was advised self-quarantine at home for 5 days and review for admission with a negative reverse transcriptase-polymerase chain reaction (RT-PCR) report for COVID-19. He was admitted on the same day the report came so as to prevent further exposure. Number of attendant, free of flu symptoms, was restricted to one. Pre-anaesthetic workup was carried out and under general anesthesia, open cholecystectomy was done on day two of admission. Number of operating surgeons were two and adequate precautions were carried out. Intra-operatively, use of diathermy was minimized to prevent smoke.

Post operatively, adequate analgesia was provided via epidural catheter. Patient was started on oral liquid diet on post-operative day 0 (POD#0) and advised early mobilization. Intra-abdominal drain was removed on POD#2 and patient was discharged on POD#3.

Case 2

Case of carcinoma caecum underwent radical right hemicolectomy with bilateral salpingo-oophorectomy

A 55 year old female, came to the outpatient department, after flu clinic screening, with complaints of pain in the lower abdomen since 5 months. On examination, a firm intra-abdominal mass of 6×6 cm was palpated in the right iliac fossa (RIF) with nodular surface and restricted mobility. Contrast enhanced computed tomography (CECT) abdomen was done which revealed heterogeneously enhancing necrotic mass in RIF extending to the right adnexa with right ovary, caecum and terminal ileum adherent to the mass. Blood workup were done on out-patient department (OPD) basis which showed an elevated carcinoembryonic antigen (CEA) level. Under adequate precaution and limited number of radiologists, ultrasound guided biopsy was performed revealing pools of extracellular mucin with inflammatory response and granuloma at the ileocaecal region.

Patient was counselled for exploratory laparotomy. She was advised to review after RT-PCR report. HRCT thorax was done which showed CORADS-1. On her next visit with a negative RT-PCR report, pre-anesthetic work up was done and she was admitted after obtaining fitness for surgery. Adequate bowel preparation were done and

patient was taken up for exploratory laparotomy under general anesthesia. Intra-operatively, patient was diagnosed with T4 carcinoma caecum and proceeded with a radical right hemicolectomy with trans-abdominal hysterectomy with bilateral salpingo-oophorectomy. Post-operatively, nasogastric tube and urinary catheter were removed on POD#1 and patient was started on liquid diet on POD#2. Early mobilisation was carried out and on POD#5 and she was discharged with further follow up for chemotherapy.

Case 3

Case of complete inguinal hernia underwent right side Lichtenstein tension free mesh repair

A 60 year old male patient with no known co-morbidities approached the surgical team through tele-consultation. History revealed an uncomplicated complete inguinal hernia. Patient was advised RT-PCR and to review with reports. Patient was admitted following a negative RT-PCR report and fitness for surgery was obtained. Patient underwent right inguinal hernioplasty under regional anaesthesia. Post-operatively patient was mobilized and discharged on post-operative day POD#1.

DISCUSSION

COVID-19 pandemic has prioritized the surgical procedures to the extent that the number of un-indicated surgeries have dropped considerably. Also the complications of some surgical diseases have risen. To address these problems, the elective surgeries can be resumed in the following manner.

Prioritize the surgical case

It is important to prioritize a case and stratify an elective procedure based on which elective surgeries can be performed.⁴

Table 1: Classification of elective surgeries.

Claasification	Duration	Surgery performed
Urgent elective	<2 weeks	Wound closure, skin grafts
Essential electives	1-3 months	Hernia repair, cancer surgeries, gastro biliary surgeries
Discretionary electives	>3 months	Cosmetic surgery, joint replacement

While prioritizing the case, the capability of the health care facility and the prevalence of positive cases in that particular area must be kept in mind. It is important to keep in mind the co-morbidities of the patient, which gives an idea about the length of stay, before advising the need for elective surgeries.

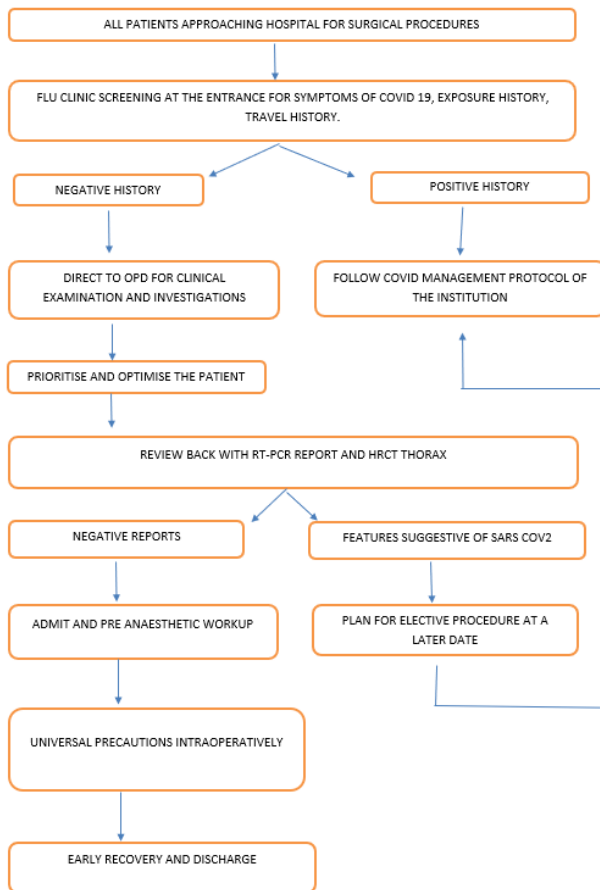


Figure 1: Comprehensive algorithm for elective surgeries during COVID-19 pandemic.

Screening of surgical patients

Due to likelihood of false positives and negatives of corona virus, all the patients should be considered infected. Numbers of patients approaching the outpatient department must be minimized by tele-consultations. Those visiting the OPD must undergo a screening at the flu clinic before entering the OPD. This can be ensured by maintaining a single entry and exit point. The screening checklist must include the checklist mention in Table 2.

Table 2: Screening checklist for COVID-19.

Checklist	Yes	No	Duration
Fever >38 F			
Cough			
Breathlessness			
Sore throat			
Loss of smell/taste			
Myalgia			
Exposure to proven contact patients			
History of travel (domestic/international)			
History of sick contact at work/home			

A patient approaching the surgeon for an elective procedure must be counselled about the logistic feasibility of the facility’s resources and the need for undergoing RT-PCR test and screening HRCT thorax prior to surgery.

Patient must be preferably worked up as outpatient with adequate distancing and safety measures for health care workers including use of N95 mask and face shield. Once final decision is made to carry out the surgery, patient must be advised pre-operative quarantine for 5-7 days depending on the prevalence of disease in the community, followed by RT-PCR on the 5th day which gives a sensitivity of 70%.⁵

Patient must also undergo a screening HRCT thorax which is more sensitive, reliable, practical and rapid. A negative RT-PCR with positive HRCT is possible in 75% of cases. Once surgeon obtain the receipt of negative report, patient can be admitted for pre-anesthetic workup and surgery.

Pre-operative assessment

Once admitted, adequate spacing must be maintained. The patient is then assessed by the anesthesiologist pre-operatively.

It is important to counsel the patient’s attendant to restrict their movement and discourage visitors. Patient must be taken up for surgery preferably on day two of admission.

The type of surgery – open/laparoscopy – must be thought upon by the surgeon. Advantages of open surgery and laparoscopy must be weighed before taking up for surgery, former reduces the aerosolisation – ‘the chimney effect’, and the latter decreasing the length of hospital stay.⁶

Intra-operative measures

Surgeons must adopt universal precaution in the operating room. Regional anaesthesia is preferred to avoid aerosol production and prevent viral transmission during general anaesthesia. During intubation/extubation, the surgeons must stay outside the operating room. Non-essential personals including students must be avoided in the operation theatre (OT) in order to reduce the HCW exposure.

In case of open surgery, the operating field must be maintained bloodless to maximum extent possible. The electrocautery/diathermy must have a smoke evacuator. In laparoscopic approach, the size of port must be kept minimal and safe evacuation of pneumoperitoneum must be followed.

Use of drains shall be avoided if possible. Preferably an absorbable suture can be used for wound closure as to prevent a post-operative hospital visit.

Resuming electives successfully requires a multimodality approach including proper high-efficiency particulate air

(HEPA) filter/ventilation systems and regular disinfection routine in all OT with adequate spacing between procedures.⁷

All OT must be well equipped at the start of surgery as to prevent circulatory movement of OT personnels during procedure.

A strict designated donning and doffing area has to be earmarked for OT entrants. All the Biomedical wastes has to be discarded in the WHO recommended fashion.

Post-operative management and follow up

The aim of a surgeon should be early recovery of the patient and minimize the length of hospital stay with less number of reviews.

Enhanced recovery after surgery (ERAS) protocol can be followed. It is a multimodal care pathway that can reduce the length of hospital stay, which includes: early post procedure mobilization, early removal of tubes and drain, early transition to oral pain medications (judicious use of analgesics) and early allowance of food intake.⁸

Post discharge, follow up can be done via tele-consultation as to prevent further visit to hospital.

CONCLUSION

With increasing number of COVID-19 patients, surgeons cannot wait for an apt moment to resume elective surgeries. By following a strict clinical algorithm, elective surgeries can be resumed so as to prevent further burden on the healthcare system. We were able to successfully operate three elective cases by adhering to the above said 'new normal' measures.

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