SHORT COMMUNICATION

How do surgeons weather the storm of COVID-19 pandemic?

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SUMMARY

COVID-19 has infected more than 10 million people worldwide and it has become one of the biggest challenges in the modern medical history. Wearing of face masks, social distancing, effective hand hygiene and the use of appropriate personal protective equipment are important in flattening the curve of the pandemic. The role of the surgeons in this battle against COVID-19 include curbing the spread of the disease, to protect and preserve the surgical workforce and to ensure the continuance of essential surgical services. We report our experience in dealing with the COVID-19 outbreak in a tertiary surgical centre in the Penang General Hospital in Northern Malaysia.

INTRODUCTION

COVID-19 had taken the world off guard and was declared as a world pandemic by the WHO on 11th March 2020.[1-4] Malaysia was the country with the highest cumulative number of COVID-19 infections in South East Asia in early April.[4] With the swift actions by the various government agencies, tremendous effort by the frontlines and the cooperation of the general public, the pandemic curve was flattened.[5] We report here our experience in dealing with the COVID-19 outbreak during the peak period in March and April 2020.

Background of the Penang General Hospital

The Penang General Hospital (PGH) is a 1100-bedded tertiary hospital in Northern Malaysia. The Department of General Surgery consists of Upper GI, Colorectal, Hepatobiliary, Thoracic, Breast and Endocrine subspecialty cares in addition to the general surgery services. Being the designated hospital for COVID-19, the PGH had its first COVID-19 case on 5th March and there were 121 confirmed COVID-19 cases with one death in the hospital to date. Major steps were taken following the outbreak to curb the disease, to prevent cross infection among the staff and to preserve resources. Moreover, being the main tertiary centre with subspecialty care, preservation of the non-COVID-19 related essential care was of the utmost important (Table I).

General measures

Temperature screening counters were set up at the hospital main lobby. It was mandatory for all hospital attendees including health care workers (HCW) to undergo screening for fever. Risk assessment of all personnel was done based on their recent travel history, recent COVID-19 contact (if any) and symptoms of acute respiratory illness. Any person with fever or "Yes" to the screening questions would be directed to the fever counter at the emergency department (ED).[5]

Surgical Outpatient Department (SOPD)

Only urgent clinic appointments were attended to. Records of patients were reviewed by the clinicians via over-the-phone consultations given to nonurgent cases and patients with routine follow-ups. Wearing of face masks was mandatory for all clinic attendees. Spacing of one meter between people was implemented in the waiting areas. Only one patient was allowed into the consultation rooms at one time.

Endoscopy unit

All elective endoscopies were postponed in view of the risk of procedure related aerosol generation. Only emergency and selected urgent cases were done during March and April 2020. Patients were required to keep their face masks on during colonoscopy and removed just before OGDS. Enhanced personal protective equipment (PPE) including head cover, N95 mask, face shield, fluid repellent protective gowns, 2 layers of gloves and shoe cover were used during endoscopic procedures.[6] The control section of the endoscope was covered with plastic sheet to reduce the risk of splashing or spread of aerosol.

Operation Theatre (OT)

Since the beginning of March, only cancer surgeries were done in order to conserve resources. All elective surgeries were then halted as the COVID-19 situation got worse in late March. Pre-operative screening and risk stratification was done for all patients according to the OT guidelines. Enhanced PPE were used for patients with low to moderate risk for COVID-19.[7-9] Two designated operating room (OR) were allocated for COVID-19 or person under investigation (PUI) that required emergency surgery. These ORs had separate access from the main OT complex and they were equipped with positive pressure with 25 air change cycle per hour, two HEPA filters, individual scrub room and anteroom.[10] OR staff were minimised to reduce the risk of exposure and powered air purifying respirator (PAPR) was used by all personnel in the COVID-19 ORs. There was a case of emergency laparotomy for blunt intra-abdominal injury for a PUI which was carried out successfully in the COVID-19 OR. None of the COVID-19 patients required surgical intervention during the study period.

Surgical wards

Eight wards, including one male surgical ward in the PGH were converted to COVID-19 ward. The numbers of in-patient

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Table I: Summary of mitigations by surgical disciplines during the COVID-19 pandemic

Mitigations by Surgical Disciplines in Penang General Hospital, Malaysia.	
Aims	1. Flatten the curve of the COVID-19 pandemic. 2. Zero infection among staffs. 3. Preservation of surgical workforce and surgical services.
Actions	1. Wearing face masks and social distancing. 2. Minimize non-urgent or unnecessary hospital visit/ clinic visit/ hospital admission/ endoscopy/ operation. 3. Create awareness and preparedness among health care workers and the public in dealing with COVID-19. 4. Screening and risk stratification of COVID-19. 5. Practice of regular hand hygiene and precautions. 6. Ensure appropriate use and adequate supply of personal protective equipment (PPE). 7. Preservation of surgical workforce. 8. Continuance of essential and emergency surgical services. 9. Staff redeployment and adaptation to new assignments. 10. Upkeeping of team morale and providing phycological support.
Applications	1. Surgical outpatient department (SOPD) 2. Surgical ward 3. Operating theatre (OT) 4. Endoscopy unit 5. Departmental activities (both clinical and academical)

in surgical wards were reduced with the decrease in elective admissions and a reduction in emergency admissions especially those from motor vehicle accidents due to the nationwide movement control order. No visitors were allowed in order to reduce the risk of exposure. All patients had to wear face masks with spacing of bed. Surgical patients with respiratory symptoms, history of COVID-19 contact or suspicious radiological findings were reviewed by the Infectious Disease Team prior to admission.

Staff redeployment

A total of 20% of surgical staff were deployed into the COVID-19 team. The others were then regrouped into six teams that consisted of two surgeons and three medical officers, respectively. Each team was assigned a portfolio based on six main areas: ward, surgical on-call, endoscopy, SOPD, COVID-19 surgical referral, and standby. This arrangement was aimed to reduce the crossover among staff and to preserve the surgical work force if one of the teams needed to be quarantined due to COVID-19 infection. Moreover, the designated team for COVID-19 surgical referral would be better prepared and optimally trained in handling of PPE.

Departmental activities

Several measures were taken to avoid mass gathering of people. The daily pass-over was issued via a communication application through smartphones. Multidisciplinary team oncological meeting was modified to virtual meeting. Weekly departmental activities like the mortality review and journal club were put on hold.

Team morale and Psychological support

Besides learning to deal with a novel contagious virus, HCWs were also overwhelmed with unknown factors, anxieties and changes in their routine work. Updates on the management of COVID-19 and rescheduling of work were done from time to time to clear doubts among the staff and to ensure good team work towards the common goals. Encouragement and mentoring were thought to be important to boost the team morale with psychological referral when needed.

CONCLUSION

With the above mitigations, the essential surgical service in the PGH was preserved during the COVID-19 outbreak, to cater for emergency procedures and urgent cancer surgeries. The workforce was disciplined with strict adherence to protocols and adequate distribution of personal protective equipment to ensure the safety of all staff and patients. There was no COVID-19 infection reported among the staff. Furthermore, it contributed to the control of COVID-19 outbreak in the northern area of Malaysia during March and April 2020. The surgical department has now entered the recovery phase following COVID-19 and has gradually resumed all services and departmental activities in a controlled manner.

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