

Modifications to Hepatopancreatobiliary surgical services during COVID-19 partial lockdown in a hospital in northern Malaysia

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SUMMARY

Maintaining hepatopancreatobiliary (HPB) services during the initial phase of a pandemic in a state referral hospital for COVID-19 presents a few challenges, especially when a nationwide, government-issued partial lockdown is in enforcement. We describe the adaptations to our practice to maintain the services whilst ensuring safety of patients and staff, by postponing non-urgent clinic cases, grouping our staff to two mutually exclusive teams that work on alternate shifts and selecting HPB operative cases according to the modified Risk Urgency Decision Matrix.

KEYWORDS:

Hepatopancreatobiliary, COVID-19, movement control order, lockdown, social distancing

INTRODUCTION

To curb the spread of COVID-19 outbreak, the Malaysian government implemented the Movement Control Order (MCO) on 18th March 2020 – a nationwide *cordon sanitaire*, extended in two-weekly phases to temporarily restrict mass gathering, interstate travel, as well as non-essential public and private services.¹

This article discusses the modifications that were made during the COVID-19 lockdown period in Hospital Sultanah Bahiyah (HSB), Kedah, Malaysia. HSB is a 923-bedded state hospital with three surgical wards, receiving all COVID-19 referrals in Kedah and hepatopancreatobiliary (HPB) referrals from the northern region of Malaysia with a combined population of 6.7 million. Most of the essential resources such as personal protective equipment (PPE), intensive care unit (ICU) beds, ventilators and haemodialysis machines were reserved for the care of COVID-19 patients, leaving limited resources for elective HPB surgeries. Patients must make interstate travels against the MCO to attend their appointments, which risks crowding and contracting COVID-19. Therefore, the management of HPB surgical and endoscopic services were innovated according to international advisory guidelines to deliver safe and timely treatment to patients.^{2,3}

METHODS

Staff Management

During the partial lockdown, one HPB consultant was assigned as the resident consultant to manage cases. Another consultant worked from the Advanced Medical and Dental Institute (AMDI), Penang by conducting emergency surgeries and endoscopic retrograde cholangiopancreatography (ERCP) at referral hospitals with the available resources, to reduce movement of patients to HSB. A third consultant oversees the services, scrubs in for elective surgeries and replaces any consultant who gets infected with COVID-19.

The remaining HPB and endoscopy staff were divided into 2 teams that work on alternate 48-hour shifts without contact with each other. All clinic, ward and endoscopy personnel were required to wear face masks and maintain social distance of 1 metre apart. If any staff becomes infected with COVID-19, the entire team is quarantined while the other team takes over the HPB services, hence avoiding total shutdown. At the end of the MCO period stated above, none of the staff involved was infected with COVID-19.

Outpatient Clinic Management

We ran a twice-a-week clinic with 83 to 114 patients a week from August-December 2019. Clinic load was reduced to 22-38 patients a week via phone calls made to the patients to reschedule their appointments, during the initial stages of MCO. This reduction of appointments avoided crowding at the hospital and minimised movement across cities. Patients with postponed appointments had their prescriptions extended and dispensed at the hospital drive-through pharmacy.

All outpatient referrals were triaged according to urgency; HPB cancer cases were seen within two weeks while benign, non-urgent diseases (gallstones, liver cysts, chronic pancreatitis) were seen after a month.

Surgical Services Management

HPB elective cases were conducted in one operation theatre (OT) twice a week while emergency cases were called to a common OT shared with other specialties. All COVID-19 positive cases were conducted in an OT with stand-alone air-conditioning system and distinct air-handling unit located at

This article was accepted: 30 June 2021

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Table I: List of HPB surgeries and ERCPs done at HSB during the MCO period

Surgery		ERCP	
Elective (n=14)	Emergency (n=14)	Elective (n=9)	Emergency (n=36)
Non-anatomical liver resections (NAR) (2)	Open cholecystectomy (8)	Stent removal (3)	Stent insertion (19)
NAR and cholecystectomy (1)	Open cholecystectomy with right psoas abscess drainage (1)	Stent exchange (2)	Stone clearance (4)
Whipple's procedure (2)	Whipple's procedure with extended right hemicolectomy (1)	Stent exchange (2)	Stone clearance (4)
Right hemihepatectomy (3)	Whipple's procedure with take-down anastomosis post-right hemicolectomy (1)	Cholangiography (1)	Ampullary biopsy (1)
Left lateral sectionectomy (2)	Distal gastrectomy (1)	Self-expanding metallic stent (SEMS) insertion (1)	Cholangiography (3)
Open cholecystectomy (2)	Left lateral sectionectomy (1)		Abandoned procedure – failed ampullary cannulation, food in stomach (5)
Staging laparotomy (2)	Laparotomy and peritoneal washout (1)		

the ground floor by a separate team within the surgical department.

All elective surgeries were withheld at the start of the MCO period. Despite the recommendations of Society of American Gastrointestinal and Endoscopic Surgeons and European Association for Endoscopic Surgery to postpone all elective surgeries and endoscopies⁴ we resumed elective surgery in the second week of MCO by selecting cases guided by the modified Risk Urgency Decision Matrix (RUDM) (Fig. 1) of the Philippines Association of HPB Surgeons (PAHPBS) Recommendations in Time of COVID-19 Pandemic.⁵

RESULTS

We performed 14 emergency and 14 elective HPB surgeries between 23/3/2020-5/5/2020 (Table I). Urgent and life-threatening cases were performed as emergency surgeries. Urgent and non-life-threatening cases were performed electively if deemed to be at low risk for post-operative ICU admission or ventilator requirement. Non-urgent and ambulatory care cases (including elective cholecystectomy) were listed in a ledger and rescheduled later.

Initially, only one elective liver carcinoma case requiring minor resection with anticipated low blood product requirement was scheduled a day. As the MCO period progressed and COVID-19 incidence reduced, the number and complexity of elective cases were increased; left lateral sectionectomy (week 2 of MCO), Whipple's procedure (week 4) and right hemihepatectomy in a lady with massive saddle pulmonary embolus (week 6).

Patients were screened for COVID-19 as per MOH Guidelines of Management of COVID-19 Disease in Surgery.⁶ Elective patients were required to sign the COVID-19 health declaration form and partake single SARS-CoV-2 nasopharyngeal and oropharyngeal rapid-test kit antigen (RTK-Ag) swab on admission the day before surgery.

Only open surgical procedures were performed during the early stage of pandemic to reduce operating time and to

mitigate the risk of SARS-CoV-2 aerosolisation, in the absence of clear evidence regarding the risk at that moment.

Endoscopic Services Management

Initially, all elective scopes and endoscopic ultrasound (EUS) were withheld. All 45 ERCPs were performed on patients with obstructive jaundice or bile leakage, between 23/3/2020-5/5/2020 (9 elective and 36 emergency cases) (Table I).

Endoscopy assistants donned full PPE (Fig. 2) to reduce risk of aerosol-generating positive insufflation during endoscopy.⁹ Suspected or confirmed COVID-19 patients were scoped in a negative pressure room. Standard endoscope disinfectant (Anioxyde 1000™ (5% hydrogen peroxide)) was used for all scopes as per the Asian Pacific Society for Digestive Endoscopy guidelines.⁷ The fluoroscopy room was disinfected at the end of each ERCP session.

DISCUSSION

The staff should ideally be grouped into two teams that work in separate shifts to prevent contact between both teams. The limitation in our number of consultants prevented exclusive supervision by one consultant for each team, which may potentially allow cross-contamination through the consultant who works with both teams.

At the start of the pandemic, our personnel donned full PPE for all cases, despite the negative RTK-Ag swab results, due to the low sensitivity (84.4%) of the RTK-Ag kits.⁸ We revised our practice in July 2020 to wearing face masks, goggles and disposable gowns in RTK-Ag negative cases, upon report of improved sensitivity (84.4 to 90%) and specificity (100%) of the RTK-Ag kits by the Institute of Medical Research (IMR). We currently test all elective patients with reverse transcriptase polymerase chain reaction (RT-PCR) and emergency patients with RTK-Ag swabs.

An online survey involving 145 European and African HPB Association (E-AHPBA) members reported postponements of non-essential surgeries by 83% of members,⁹ which concurs with our practice during the partial lockdown. Most

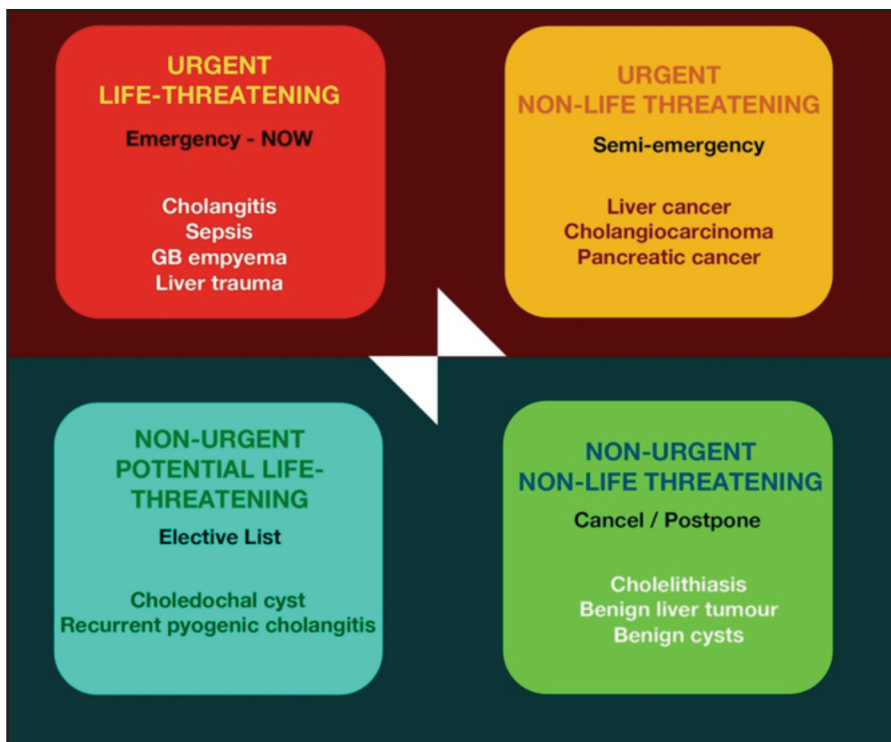


Fig. 1: Modified Risk Urgency Decision Matrix.

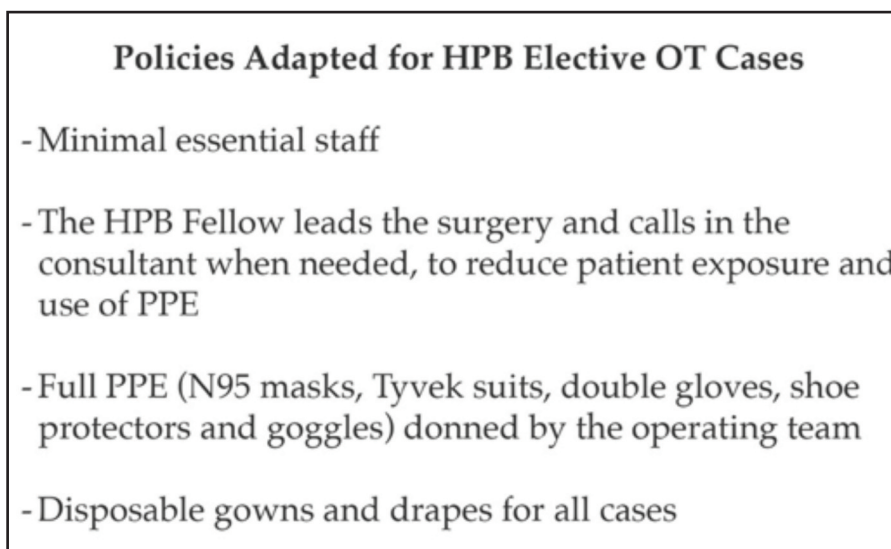


Fig. 2: Policy for all HPB elective surgeries based on the MOH Guidelines⁶

respondents however, reported a reduction in resectable HPB cancer surgeries due to limited life support resources and institutional policies. Hence, they subjected these patients to chemotherapy instead, followed by ablation in colorectal liver metastases cases. In contrast, we strictly maintained our standards of practice. In particular, we avoided neo-adjuvant chemotherapy for resectable HPB cancer cases due to the lack of evidence regarding the impact of delay in surgery on the morbidity and long-term survival of patients.

A systematic review reported a reduction in interdisciplinary surgical clinic volume by 50-75% with the use of virtual clinics in centres during lockdown.¹⁰ Although we reduced the clinic load, we opted for patients to be physically present in our clinic for important pre-operative clinical assessment and counselling for major elective cancer surgeries as most of our patients were elderly with digital illiteracy.

CONCLUSION

HPB practitioners must contemporaneously innovate their practice according to the latest COVID-19 trend and local guidelines. Clinic volume should be reduced during lockdown to avoid interstate travel of patients with non-urgent diagnoses. HPB staff may be grouped into two mutually exclusive teams to reduce risk of total shutdown of services, in the event of COVID-19 infection among any staff member. Elective HPB surgeries may resume during the pandemic and cases selected according to the RUDM by PAHPBS, information based on the latest COVID-19 trend and the availability of life support resources.

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