

Strategies in confronting the COVID-19 pandemic at a tertiary public hospital for Otorhinolaryngology services in Perak, Malaysia

Purushotman Ramasamy, MS ORL-HNS (UM)¹, Vigneswaran Kumarasamy, MMS ORL-HNS (UM)¹, Philip Rajan, MMed. ORL-HNS (USM)^{1,2}

¹Department of Otorhinolaryngology – Head & Neck Surgery, Hospital Raja Permaisuri Bainun, Ipoh, Perak, Ministry of Health, Malaysia, ²Clinical Research Centre, Hospital Raja Permaisuri Bainun, Ipoh, Perak, Ministry of Health, Malaysia

ABSTRACT

The COVID-19 pandemic has led to a significant shift in the practice of almost all medical fields. Surgical specialities were particularly hard hit as these services had to give way to the more urgent management of COVID-19 patients both in-ward and in intensive care units. In otorhinolaryngology (ORL) practice, an additional issue to be dealt with was a relatively higher risk of being exposed to viral droplets from aerosol-generating procedures and examination of oral and nasal cavities of patients. This article describes our experience in managing ORL services at a government tertiary referral hospital, Hospital Raja Permaisuri Bainun, Ipoh, during the current COVID-19 outbreak since the year 2020. Two novel strategies were introduced namely the outsourcing of radiotherapy services for cancer patients and an innovative design in endoscopic examination of patients.

KEYWORDS:

Otorhinolaryngology, COVID-19, radiotherapy, endoscopy, innovation

INTRODUCTION

Otolaryngologists are at a higher risk of COVID-19 droplets exposure from infected patients. The first casualty reported from among physicians worldwide was an Otolaryngologist.¹ The COVID-19 symptoms consisting of sore throat, runny nose and anosmia and the routine examination of the oronasal cavities with or without endoscopes have greatly increased the infection risks amongst otolaryngologist significantly.²⁻⁴

The term aerosol-generating procedure (AGP) was coined to appreciate the dangers and the necessity to modify airway related practices, not only among the otolaryngologists but also among the other practitioners such as anaesthetists and oral-maxillofacial-dental surgeons. Health Protection of Scotland clarified AGP as medical and patient care procedures that result in the airborne particles that can transmit infection that otherwise can only be transmitted by the droplet route.⁵ Coughing and sneezing were excluded from the AGP list as the droplets emitted are larger and spread to a shorter distance. The Ministry of Health Malaysia, ORL services issued guidelines in March 2020 on outpatient and inpatient services and AGP.⁶

In Perak, Malaysia, surgical ORL services are available in the following places: at Ipoh; Hospital Raja Permaisuri Bainun (HRPB), Taiping; Hospital Taiping and Teluk Intan; Hospital Teluk Intan. The Movement Control Order (MCO) was first declared in Malaysia on 1st March 2020 to halt the spread of the COVID-19 pandemic. Travel restrictions, curfews, closure of public areas, social distancing and other preventive measures were introduced. HRPB was declared a Hybrid Covid Hospital that mandates the hospital to manage COVID-19 patients and other emergencies/semi-emergencies.⁷

One of the strategies proposed to maintain the continuity of ORL surgical services was to decant surgical services to Hospital Teluk Intan (HTI) and Hospital Taiping. HTI however, was one of the first hospitals in Malaysia to be affected by the COVID-19 pandemic. On the 8th March 2020, two hospital personnel were confirmed to be positive for COVID-19, subsequently spreading to another 47 of hospital staff. The first case in Hospital Teluk Intan was traced to have originated from a medical officer who attended the 'tabligh'-religious meeting that was one of the initial source of cases in Malaysia.⁸ The rising number of COVID-19 cases thence eventually led to Hospital Taiping and Hospital Teluk Intan managing Covid patients. Therefore, decanting of our surgical services was not a feasible option.

Overview of ORL Services at HRPB, Ipoh

ORL services at HRPB, Ipoh consists of the core ORL services besides audiology and speech therapy services. The core ORL services include outpatient clinics, in-ward patient management and surgical services, including daycare surgical services. A comparison of workload between 2019 and 2020 is provided below (Table I).

The total number of outpatients seen in 2019 was 33,093. The number dropped to 16.1% to 24,892 in 2020. Similarly, the audiological and speech outpatients' visits were cut down tremendously, which recorded a marked drop to 43.4% and 43.1%, respectively. The routine outpatient procedures such as incision and drainage of superficial abscess under local anaesthesia, nasal and nasopharyngeal biopsies, aspiration of lump and bumps, fine needle aspirations for cytology were reduced to 7% compared to the previous year.

Corresponding Author: Philip Rajan
Email: prajan333@yahoo.com

Table I: Decrease in the number of patients in outpatient services

Year	Outpatient ENT	Outpatient Audiology	Outpatient Speech	Outpatient Procedures
2019	22528	7538	3027	17695
2020	18907	4263	1722	16458
Percentage of decrease (%)	16.1	43.4	43.1	7.0

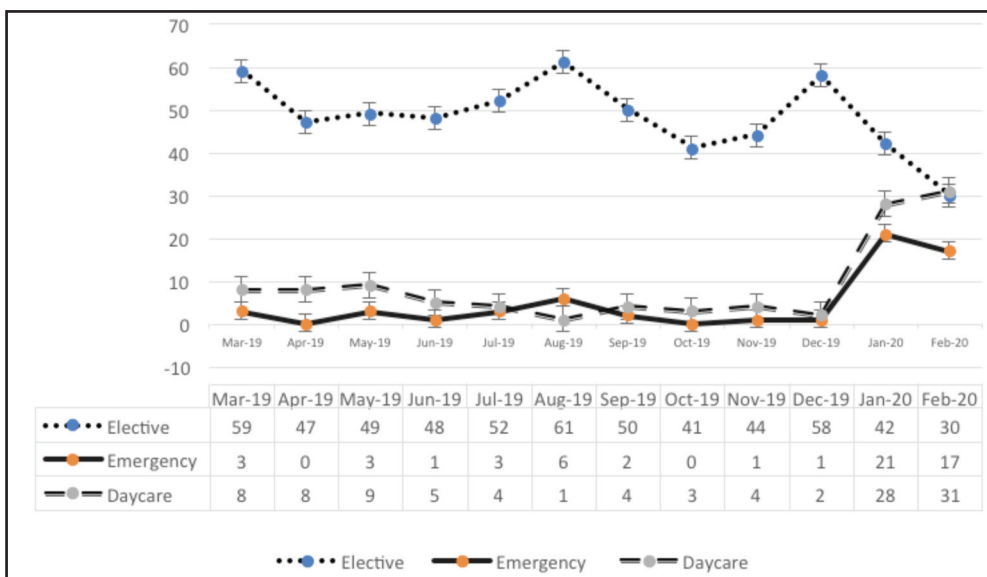


Fig. 1: Number of operations done within 12 months before the pandemic.

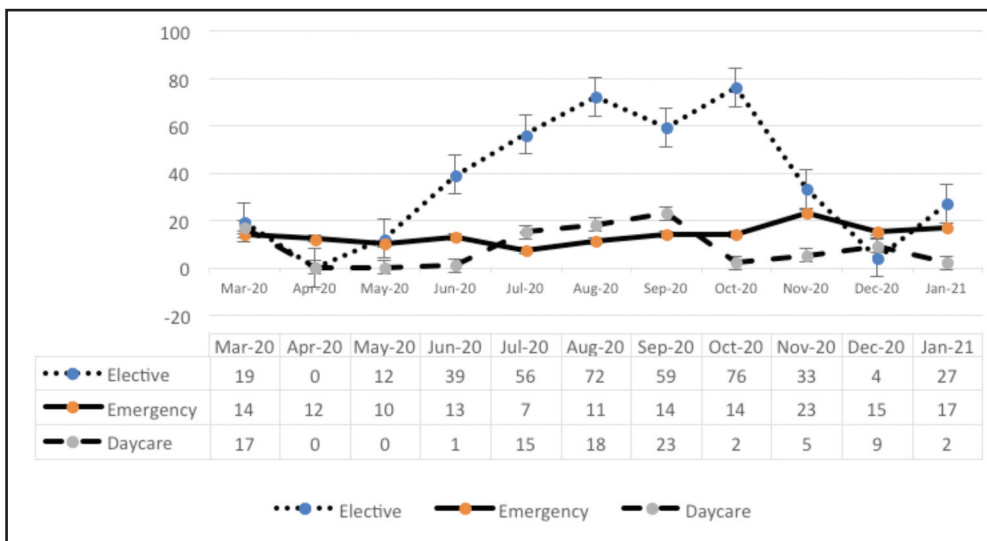


Fig. 2: Number of operations done within 12 months during the pandemic.

Other than the clinics, there was a marked shift in the trend of surgical procedures performed. Figure 1 and 2 which compares the number of procedures performed in the 12 months duration, before and after the pandemic. The total number of cases performed in our department in HRPB was reduced to 8.58% compared to the year before. This reduction by 28.4% were mainly in the elective procedures. Meanwhile, a 64.4% rise in the number of emergency cases was observed.

Since most cases were posted as semi-emergency rather than under elective operating list. Day-care procedures were wholly stopped in April and May 2020 and only one case was done in June 2020. However, 54.4% of the day-care cases performed during the pandemic were done between July until September 2019 to clear the pending cases and when the outbreak was better controlled.

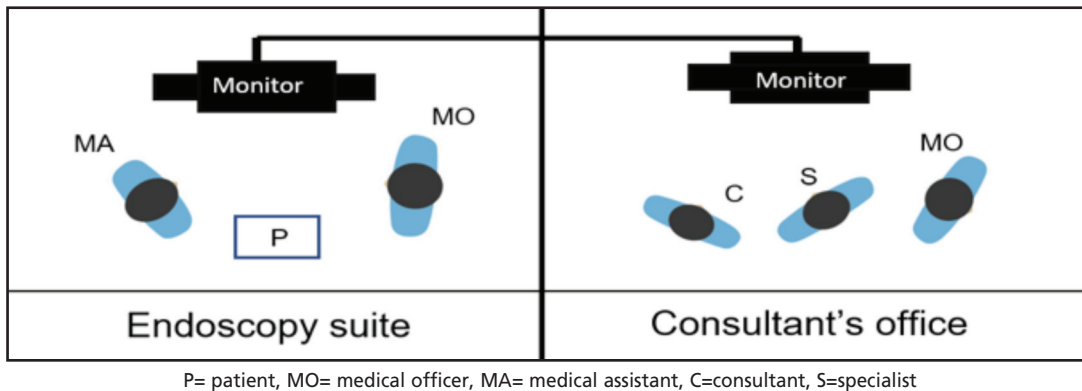


Fig. 3: Schematic depiction of the wire connected monitors in the endoscopy suite and consultant's room.

Strategies adopted in the Outpatient and Endoscopic Services

Part of the new norms in preventing the spread of COVID-19 was social distancing and the need to reduce over-crowding. Thus, the number of patients who could be seen in the clinic at any given time had to be reduced. The clinic appointments were rescheduled based on the priority of the cases, and some patients were interviewed via telephone calls. There was a 16.1% drop for ORL patients while the figure was higher for audiology and speech therapy clinics being 43.4 and 43.1%, respectively.

Triaging and screening counters were set within the first week of the outbreak to minimise the number of patients in the clinic. Standard screening questionnaires by the Ministry of Health, Malaysia were used. A medical officer was permanently scheduled to be at the screening counter. In the waiting area, social distancing was implemented in the seating arrangement. Hand sanitising were emphasised and monitored among the staff and patients. All healthcare personnel in the clinic were required to at least wear a 3-ply surgical mask, apron, and face shield according to the Ministry of Health guidelines. Training for donning and doffing of personal protective equipment (PPE) was given.

Endoscopies were only performed for the essential cases. The number of the personnel within the endoscopy suite were limited to only two at a time, one medical officer and a medical assistant donning a complete set of disposable PPE with N95 mask. Epistaxis, sinusitis patient's refractory to treatment or possible complications, malignancies were the absolute indications for nasal endoscopy. Endoscopes and instruments were sterilised with MedistelTM, which has virucidal activity by 10 minutes. Patients were scoped while their mouth was covered with a mask. Cotton pledgets were used to decongest and anaesthetise the nasal cavity instead of the regular nozzle sprays. When nasal toileting were required, we used a non-fenestrated suctioning tip to reduce aerosolisation.

An innovation in the clinic was that the monitor in the endoscopy suite (Karl Storz system) was wire connected to another monitor in the room of consultants to project the images in real-time (Figure 3). This was the most significant step forward to contain the spread of infection. Thus,

consultants were able see the endoscopy findings without the need to break the barrier created in the endoscopy suite. This also helped to optimise the use of PPE, which was in shortage during the beginning of the pandemic.

Routine otoscopies in patients with otorrhea were suspended to avoid proximity with face of patients. Instead, we shifted to endoscopic examination of the ears of patients as the standard examination. In fact, the middle ear mucosa is in continuum with the upper airway mucosa and theoretically has the risk of harbouring viral particles. However, evidence on the positive COVID-19 swabs from middle ear samples are relatively weak.^{9,10}

The staff in the ORL clinic were organised into teams with a designated schedule for providing services. This was to ensure continuity of service should any team member or team contract or come in contact with a COVID-19 patient; the members of the remaining team can be functional. Pharmacy services were also changed to reduce congestion in the hospital. Drive-through services and home delivery services were among the services introduced or strengthened.¹¹ Whilst speech therapy sessions were carried out as virtual sessions.

A new norm of the operating room

As soon as the outbreak of COVID-19 was announced, we postponed all elective cases. The available resources were conserved for operating only on the emergency cases. All patients were required to undergo a COVID-19 PCR test 48 hours before the surgery unless in the emergency cases where a rapid antigen test was acceptable.¹² The most senior surgeon was listed to perform the surgery to ensure rapid turnover time in the theatre. The personnel within the OT were kept limited. During the operation, powered instruments and electric scalpels were avoided to reduce generating aerosol. We realised that prior briefing and planning made ensured the procedure went smoothly as communication was at times difficult when personnel donned the complete PPE.

At the beginning of the pandemic, we did not have any positive airway pressure respirator (PAPR) at our disposal in HRPB. Thus, performing tracheostomy became a daunting

task. We again had to resort to our creativity to minimise aerosolization during tracheostomy. The protocol we followed was that the surgeon announces to the anaesthetist before making the tracheal incision. The anaesthetist will then switch off the circuit to create an apnoea for a brief moment to ensure to aerosols or secretions are not expelled while the incision is being made. After the tracheostomy tube is inserted and the cuff is inflated, the circuit is reconnected.

Semi-emergencies; The Challenges in Managing Head and Neck Malignancies

Managing of head and neck malignancies posed a unique challenge at this time. Many of these patients required chemoradiation in addition to surgery. Hence, the challenge was two-fold, to prioritise the surgeries. Secondly, to ensure early access to oncologic care, as HRPB was not equipped with radiotherapy facilities. Patients who required radiotherapy had to be referred to Hospital Kuala Lumpur (HKL). The travel restrictions and disruption of visiting oncology services from HKL could delay management and subsequently the outcomes.

Many cases of malignancy were initially transferred to Hospital Taiping for surgical management as Hospital Taiping was a designated Head and Neck surgical oncologic centre. As surgical services gradually resumed in HRPB after the initial disruption following the announcement of the MCO, priority was given to the patients with malignancy or suspected with malignancy. Figure 2 shows a sudden increase in elective cases from June, of which priority was for malignancies or suspected malignancies.

The Ministry of Health set up a special COVID-19 fund, Malaysia to outsource services to Private Hospitals (as all COVID-19 patients were admitted to government hospitals only at that time). On the 3rd of November, 2020, the Department of ORL became the first speciality in Perak, Malaysia to utilise this fund to outsource radiotherapy services to a private hospital in Ipoh. Out of 36 patients who required radiotherapy, 25 patients (69.4%) received it in nearby private centres after consultation with oncologists from HKL.

CONCLUSION

The COVID-19 pandemic resulted in many new problems. New and innovative solutions had to be sought in order to deliver our services to patients not just in clinical practice but also in service delivery. The changes instituted by the Department of ORL HRPB Ipoh managed continuity of care, specialist level care in a timely manner, especially for the priority groups of patients. Some of these changes have improved our service provision and will now continue to be part of routine ORL practice in the future.

ACKNOWLEDGEMENT

We would like to thank the Director General of Health, Malaysia, for permission to publish this paper.

REFERENCES

1. Chan JYK, Wong EWY, Lam W. Practical aspects of otolaryngologic clinical services during the 2019 novel coronavirus epidemic: An experience in Hong Kong. *JAMA Otolaryngol - Head & Neck Surg* 2020; 146(6): 519-20.
2. Huang C, Wang Y, Li X, Ren L, Zhao J, Hu Y, et al. Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China [published correction appears in *Lancet*. 2020 Jan 30]. *Lancet* 2020; 395(10223): 497-506.
3. Liu K, Fang YY, Deng Y, Liu W, Wang MF, Ma JP, et al. Clinical characteristics of novel coronavirus cases in tertiary hospitals in Hubei province. *Chin Med J (Engl)* 2020; 133(9): 1025-31.
4. Xu XW, Wu XX, Jiang XG, Xu KJ, Ying LJ, Ma CL, et al. Clinical findings in a group of patients infected with the 2019 novel coronavirus (SARS-Cov-2) outside of Wuhan, China: Retrospective case series [published correction appears in *BMJ* 2020 27;368:m792]. *BMJ* 2020; 368:m606.
5. Health Protection Scotland. Aerosol generating procedures: version 1.0. Published November 2019. [cited Apr 2021]. Available from https://hpspubsrepo.blob.core.windows.net/hps-website/nss/2893/documents/1_tbp-lr-agp-v1.pdf
6. COVID-19 Management NO. 5/2020. Ministry of Health Malaysia [cited April 2020] Available from: Portal Rasmi Kementerian Kesihatan Malaysia. <http://covid-19.moh.gov.my/garis-panduan/garis-panduan-kkm>
7. Garis-panduan-pelaksanaan-latihamal-bagi-pelajar-IPT-difasiliti-KKM-semasa-wabak-Covid. 13th April 2020. KKM 600-25/12/jld 8(17) Lampiran 1. [cited May 2021]. Available from: Portal Rasmi Jabatan Kesihatan Wilayah Persekutuan Labuan. <http://jknlabuan.moh.gov.my/v4>
8. Tan-Loh J, Cheong BMK. A descriptive analysis of clinical characteristics of COVID-19 among healthcare workers in a district specialist hospital. *Med J Malaysia* 2021; 76(1): 24-8.
9. Pitkäranta A, Virolainen A, Jero J, Arruda E, Hayden FG. Detection of rhinovirus, respiratory syncytial virus, and coronavirus infections in acute otitis media by reverse transcriptase polymerase chain reaction. *Pediatrics* 1998; 102(2 Pt 1): 291-5.
10. Wanna GB, Schwam ZG, Kaul VF, Cosetti MK, Perez E, Filip P, et al. COVID-19 sampling from the middle ear and mastoid: A case report. *Am J Otolaryngol* 2020; 41(5): 102577.
11. Chew L-S, Yeo Y-L, Chang C-T, Chew C-C, George D, Rajan P. Satisfaction among patients and caregivers receiving value-added services during the Covid-19 pandemic outbreak in a tertiary hospital in the Perak state of Malaysia. *Research Square*; 2021 Mar [cited Apr 2021]. Available from: <https://www.researchsquare.com/article/rs-301207/v1>
12. Saadi RA, Bann DV, Patel VA, Goldenberg D, May J, Isildak H. A commentary on safety precautions for otologic surgery during the COVID-19 pandemic. *Otolaryngol-Head Neck Surg* 2020; 162(6): 797-9.