

Innovations during the Covid-19 pandemic to maintain delivery of care for vocal cord dysfunction (VCD) in a multidisciplinary team (MDT) clinic

To the Editors:

We write to communicate recent modifications made to a novel vocal cord dysfunction (VCD) multidisciplinary team (MDT) clinic strategy first published in *Respirology*.¹ Changes were prompted by the COVID-19 pandemic, an event that has necessitated many changes but also useful and permanent innovations in health and patient care.²

The VCD MDT clinic model as described¹ faced several obstacles during the pandemic. Flexible nasal endoscopy (FNE) to assess vocal cord movements is essential for VCD diagnosis. However, being an aerosol-generating procedure, FNE could no longer be performed during consultation. Prior practice involved using an image processing tower (Olympus mobile workstation) which was not feasible as sterilization of the workstation between cases was not possible. In addition, physical distancing of 1.5 m in an enclosed space was mandated.³ The largest consulting room available could accommodate a maximum of four people and not the full MDT team.

Modifications to the VCD MDT clinic were made as follows: (i) Pre-clinic Covid-19 screening was conducted by phone. Patients with risk factors for Covid-19⁴ were offered either a telehealth appointment, or had the appointment postponed. Patients without risk factors were offered face-to-face appointments but had a Covid-19 PCR test and isolated prior to clinic attendance. (ii) Endoscopy utilized mobile phone endoscopy achieved by using an Apple iPhone-7 with mobile phone adapter (developed by Endoscope-I LTD©).⁵ The adapter connected the mobile phone camera to the endoscope, allowing video recordings during laryngoscopy (Figure 1). The iPhone and adapter were easy to sterilize with an ammonium-based hospital-grade disinfectant following infection control guidelines.³ Laryngoscopy was conducted utilizing tier-3 personal protective equipment. Video recordings were of high quality (Figure 1) and reviewed at the subsequent VCD MDT. (iii) Physical distancing was achieved using telehealth video conferencing. The face-to-face clinic consisted of the patient, respiratory physician and ENT surgeon and other team members, as per the established MDT model,² participated by way of telehealth video conferencing. If appropriate, patients were offered follow-up telehealth appointments and were then again reviewed via video conference by the MDT team.

We then compared clinic activities before and after the implementation of these modifications. In the 12 months prior to the pandemic, 21 MDT clinics were conducted.² New patients were reviewed ($n = 32$) and there were 68 follow-up appointments, all were face-to-face. Eight patients failed to attend. The number of healthcare contacts was therefore 100 ($32 + 68$). After implementing modifications, 24 clinics were conducted over 12 months including 30 face-to-face appointments for new patients and 78 follow-up reviews. Follow-up reviews included 35 face-to-face appointments and 43 telehealth appointments. Seven patients failed to attend. Total healthcare contacts were thus 108 ($30 + 78$) and almost identical to activity prior to the pandemic. No Covid-19 infections were recorded after endoscopy or clinic activities.

In summary, VCD is common and causes debilitating symptoms but is often not diagnosed.⁶ Utilizing an MDT methodology facilitates diagnosis and triage for appropriate treatments.² The Covid-19 pandemic presented complex challenges, and an approach recommending presumptive diagnosis without laryngoscopy to facilitate empirical treatment has been suggested.⁷ We continued provision of service using modern mobile phone technologies to simplify endoscopy and leveraged virtual conferencing platforms. The new clinic format has considerable advantages that will endure and make it possible to scale and establish VCD MDT clinics in other hospitals and clinics to improve the care of this neglected condition.

KEYWORDS

Asthma, clinical respiratory medicine, COVID-19 pandemic, multidisciplinary team clinic, vocal cord dysfunction

CONFLICT OF INTEREST

None declared.

AUTHOR CONTRIBUTION

Joo Koh: Conceptualization (lead); writing – original draft (lead). **Malcolm Baxter:** Conceptualization (equal); supervision (equal); validation (equal); writing – review and editing (supporting). **Debra Phyland:** Formal analysis (supporting); supervision (supporting); validation (supporting); writing – review and editing (supporting). **Laurence Ruane:** Data

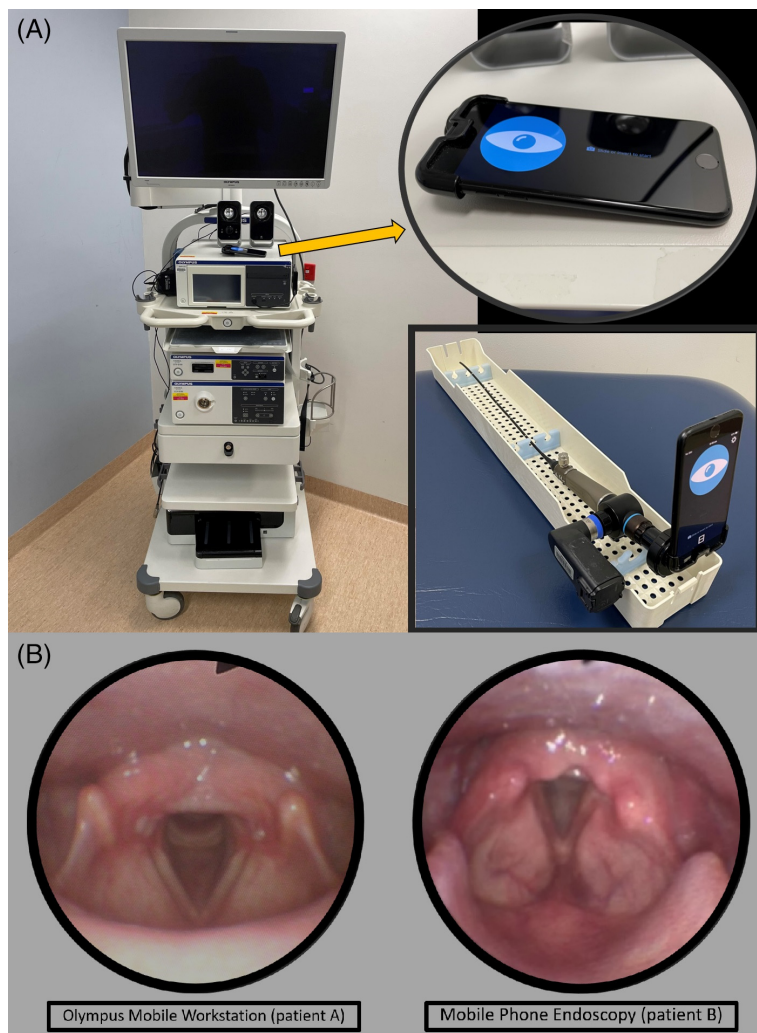


FIGURE 1 (A) Side-by-side comparison of Olympus mobile workstation and mobile endoscopy. (B) Side-by-side comparison of laryngoscopy image quality of Olympus mobile workstation and mobile endoscopy






curation (supporting); formal analysis (supporting); methodology (supporting); validation (supporting); writing – review and editing (supporting). **Adriana Avram:** Data curation (supporting); writing – review and editing (supporting). **Elizabeth Leahy:** Formal analysis (supporting); methodology (supporting); resources (supporting); validation (supporting); writing – review and editing (supporting). **Kenneth Lau:** Conceptualization (supporting); formal analysis (supporting); methodology (supporting); validation (supporting); writing – review and editing (supporting). **Martin MacDonald:** Formal analysis (supporting); validation (supporting); writing – review and editing (supporting). **Paul Leong:** Formal analysis (supporting); supervision (supporting); writing – review and editing (supporting). **Philip Bardin:** Conceptualization (supporting); formal analysis (supporting); project administration (equal); supervision (lead); writing – review and editing (supporting).

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

HUMAN ETHICS APPROVAL DECLARATION

Studies were approved by Monash Health Human Research Ethics Committee (HREC) (Monash Health Ref: RES-18-0000-084L). Informed consent was not required by the HREC.

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