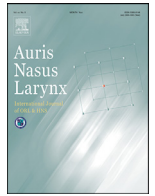
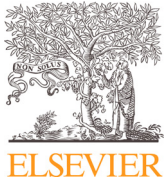




Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

Elsevier hereby grants permission to make all its COVID-19-related research that is available on the COVID-19 resource centre - including this research content - immediately available in PubMed Central and other publicly funded repositories, such as the WHO COVID database with rights for unrestricted research re-use and analyses in any form or by any means with acknowledgement of the original source. These permissions are granted for free by Elsevier for as long as the COVID-19 resource centre remains active.



Experience with online lectures about endoscopic sinus surgery using a video conferencing app



To the editor,

It is difficult to hold face-to-face conferences during the COVID-19 pandemic. Education is just as important in endoscopic sinus surgery (ESS) as in any other surgery. Surgical education for endoscopic surgeries like ESS is relatively easy to provide compared with open surgery, because everyone seeing the procedures shares the same views. Although there is a report of electronic learning for ESS [1], we decided to report this experience because there were no reports of lectures using an interactive conferencing app.

For the surgical education of residents and specialists, we had been holding face-to-face study sessions for a long time with our Resident Program participants, mainly at our facility. The COVID-19 epidemic has made it difficult to hold regular face-to-face study sessions, so we decided to hold one online.

We used Zoom[®], an app for web conferences, and experienced ESS instructors provided lectures using PowerPoint presentations and videos. In brief, we gave a lecture on the concept of surgery, anatomy of the operating site, and surgical procedures in a PowerPoint presentation, and then presented a video of the surgery. Comments were accepted both during and after the lecture by chat or voice as appropriate. We also recommended to use the hand-raising system.

We decided to survey the participants: 35 people attended the meeting and 32 people responded to the questionnaire (Tables 1 and 2). The results of the survey showed that 50% of people watched the lecture from home.

We were most concerned about the smoothness of the video, with approximately 25% of participants noting they experienced “many problems” or “very many problems.” This seems to be due to both the speed of each participant’s line and performance of their hardware, such as their computer. Since this video streaming problem was acknowledged at the preliminary meeting, we made the video available for download in advance to participants with slower connections, and also showed which part of the video was being explained during the lecture. In addition, we stopped the video at key points to explain the anatomical site and the intentions of the surgeon.

Table 1. The questionnaire.

1. How many years of experience do you have as an otolaryngologist?
 - <6 years
 - 6–10 years
 - >10 years
2. Are you a board-certified doctor in otolaryngology?
 - Yes
 - No
3. How often do you use an online conference tool?
 - Often
 - Sometimes
 - First ever
4. Where did you participate in the online lecture?
 - Home
 - Office
 - Other
5. In terms of using the app, what hardware did you use?
 - PC
 - Tablet
 - Smartphone
6. How was the smoothness of the surgery video?
 1. No problems
 2. Few problems
 3. Intermittent problems
 4. Many problems
 5. Very many problems
7. How was the bi-directionality?
 1. Very interactive
 2. Interactive
 3. Intermittent
 4. Little interactive
 5. One sided
8. We will continue to offer this type of lecture in the future: would you prefer online or face-to-face?
 1. Online only
 2. Mainly online
 3. Both online and face-to-face equally
 4. Mainly face-to-face
 5. Face-to-face only

The interactivity was not a problem at all for the app’s capabilities. On the other hand, perhaps because of the participants’ acclimatization issues, many participants did not actively engage in the discussion. By the author’s count, five people, excluding the lecturer and the chairperson, asked questions and made recommendations. In addition, no one used the hand-raising system. However, 44% of participants responded that the lecture was “very interactive” or “interactive,” so we believe that there were no major problems with interactivity for this first lecture. To communicate smoothly,

Table 2. Answers to the questionnaire.

Years of experience, n (%)	
<6 years	13 (41%)
6–10 years	5 (16%)
>10 years	14 (44%)
Board certified, n (%)	
Yes	19 (59%)
No	13 (41%)
Use of online conferencing tools, n (%)	
Often	6 (19%)
Sometimes	15 (47%)
First ever	11 (34%)
Location of lecture participation, n (%)	
Home	16 (50%)
Office	15 (47%)
Other	1 (3%)
Hardware used by participants, n (%)	
PC	26 (81%)
Tablet	4 (13%)
Smartphone	2 (6%)
Smoothness of video, n (%)	
1. (No problems)	2 (6%)
2. (Few problems)	10 (31%)
3. (Intermittent problems)	12 (38%)
4. (Many problems)	6 (19%)
5. (Very many problems)	2 (6%)
Bi-directionality, n (%)	
1. (Very interactive)	2 (6%)
2. (Interactive)	12 (38%)
3. (Intermittent)	11 (34%)
4. (Little interactive)	7 (22%)
5. (One sided)	0 (0%)
Preference for future lectures, n (%)	
1. (Online only)	6 (19%)
2. (Mainly online)	10 (31%)
3. (Both online and face-to-face equally)	10 (31%)
4. (Mainly face-to-face)	5 (16%)
5. (Face-to-face only)	1 (3%)

we recommend using a chat board, and the hand-raising system. In addition, we strongly recommend that the camera be on. Although it is necessary to consider the participants' privacy, which can be accomplished by using virtual backgrounds, it is preferable that their camera is turned on, and we believe that communication will be smoother when participants' faces are visible.

It has been shown previously that teleconferencing is useful for general medical education [2]. Another study found that education in an online course for undergraduate medical students on experimental surgery was useful [3]. Here, we report on our experience using an online conferencing app for surgical education.

It was suggested that the application for online conferencing could be used not only in situations where it is difficult to give lectures in a group due to special circumstances such as COVID-19, but also for surgical education at a distance, inexpensively, and without wasting travel time.

Declaration of Competing Interest

There are no conflicts of interest to declare.

Acknowledgments

We are greatly indebted to all the participants of the Osaka Rhinology Joint Meeting. We also thank ZENIS Co., Ltd.

(<https://www.zenis.co.jp/editing/index.html>) for English language editing.

Financial support

We received financial support from HISAMITSU PHARMACEUTICAL CO., INC. for a paid Zoom® account.

Author contributions

HI supervised the project. YM wrote the manuscript. KT, MH, TT, TS, SN, and KK organized online lectures and edited the manuscript. All authors participated in discussions of the results and approved the final draft.

References

- [1] Koch GK, Sethi RKV, Kozin ED, Bergmark RW, Gray ST, Metson R. Online teaching tool for sinus surgery: trends toward mobile and global education. *OTO Open* 2017;1(3) 2473974x17729812.
- [2] Lamba P. Teleconferencing in medical education: a useful tool. *Australas Med J* 2011;4(8):442–7.
- [3] Bernardo V, Ramos MP, Plapler H, De Figueiredo LF, Nader HB, Anção MS, et al. Web-based learning in undergraduate medical education: development and assessment of an online course on experimental surgery. *Int J Med Inform* 2004;73(9–10):731–42.

Yohei Maeda*

Department of Otorhinolaryngology–Head and Neck Surgery, Osaka University Graduate School of Medicine, 2-2 Yamada-oka, Suita City, Osaka 565-0871, Japan

Kazuya Takeda

Department of Otorhinolaryngology–Head and Neck Surgery, Osaka University Graduate School of Medicine, 2-2 Yamada-oka, Suita City, Osaka 565-0871, Japan
Department of Otolaryngology, Kindai University Faculty of Medicine, Osakasayama City, Osaka, Japan

Masaki Hayama

Department of Otorhinolaryngology–Head and Neck Surgery, Osaka University Graduate School of Medicine, 2-2 Yamada-oka, Suita City, Osaka 565-0871, Japan

Takeshi Tsuda

Department of Otorhinolaryngology–Head and Neck Surgery, Osaka University Graduate School of Medicine, 2-2 Yamada-oka, Suita City, Osaka 565-0871, Japan
Department of Otolaryngology-Head and Neck Surgery, National Hospital Organization Osaka National Hospital, Osaka City, Osaka, Japan

Takashi Shikina

Senri Nose Clinic, Toyonaka City, Osaka, Japan

Suetaka Nishiike

Department of Otorhinolaryngology-Head and Neck Surgery, Osaka Rosai Hospital, Sakai City, Osaka, Japan

Kayoko Kawashima

Department of Otorhinolaryngology, Osaka Habikino Medical Center, Osaka Prefectural Hospital Organization, Habikino City, Osaka, Japan

Hidenori Inohara

*Department of Otorhinolaryngology–Head and Neck
Surgery, Osaka University Graduate School of Medicine, 2-2
Yamada-oka, Suita City, Osaka 565-0871, Japan*

*Corresponding author.

E-mail address: ymaeda@ent.med.osaka-u.ac.jp (Y. Maeda)