Editorial

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Head and Neck Microsurgery in Taiwan: Possible even During the COVID-19 Pandemic

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The COVID-19 pandemic is a once-in-a-lifetime experience and has brought unexpected challenges to the medical community. One of the major challenges is cancer care, as cancer patients are at increased risk of developing respiratory infections. Besides, there is a strong association between anti-cancer therapy and risk of severe effects from COVID-19 infection because a delay in receiving adequate treatment may dramatically affect outcomes and survival. Microsurgery also poses a special challenge as it generally prolongs operative time and length of hospital stay that increase the exposure risk to COVID-19.[1] Nevertheless, microsurgery is often the only reconstructive option in many patients following extensive oncologic resections in the head and neck regions.

Post-disaster environments lead to a surge in the number of patients with advanced stage head and neck cancers due to a lack of timely access to cancer care. An investigation into the impact of Hurricane Katrina on health care in the United States has shown that patients with cancers would have sought treatment earlier if there had been a better access to medical care.[2] During the COVID-19 pandemic, some patients may fear the risk of contracting COVID-19 through visiting a healthcare facility. Others may be given later appointment times because of a lack of personal protective equipment (PPE), shortage of COVID-19 testing kits, or staffing concerns.[3] Other contributors to an increase in the number of patients with advanced cancers also include local policies, cancer stage, surgeon decision, and the number of available ventilators.[4]

A cross-sectional study from the US on head and neck surgeons found that 8% of the responders were asked to delay the management of patients with head and neck tumors during the COVID-19 pandemic. However, up to 23% were asked to postpone free flap reconstruction and only 55% percent agreed that reconstructive surgery should be conducted during the pandemic. Forty-five percent agreed that two weeks is a reasonable time to delay head and neck oncology treatment. One out of five head and neck surgeons suggested a delay in surgery from 4 weeks to 2 months. This seems unacceptable in terms of the impact on the patient's prognosis as a 2 to 4 weeks' and four weeks' delays would mean a staggering 68% and 70% increase in tumor volume, respectively.[5] Although a biopsy-proven diagnosis of head and neck cancers should be enough to initiate cancer treatment within a 30-day interval from their initial visit, two-week delays may seem reasonable.[4]

The American College of Surgeons (ACS) recommended risk stratification prior to surgery, which is currently adopted by many countries. Patients with active cancers in need of reconstruction are classified as high priority patients1 for whom the ACS recommends early operation with all the precautionary measures

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Table 1. Clinical services of E-Da Hospital before and during the COVID-19 pandemic.

Service type	Prepandemic	COVID-19 pandemic
Outpatient clinic	• Mean: 294 patients/week • Every day • Elective, urgent and emergency referrals	• Mean: 288 patients/week • Every day • Elective, urgent and emergency referrals
Operating service	• Operating theatres (overall): 86/week • Operating theatres only for microsurgery, excluding head & neck microsurgery: 4/week • Operating theatres only for head & neck microsurgery (combine OR, sharing with ENT): 4/week • Elective, urgent and emergent operations	• Operating theatres (overall): 62/week • Operating theatres only for microsurgery, excluding head & neck microsurgery: 4/week • Operating theatres only for head & neck microsurgery (combine OR, sharing with ENT): 4/week • Urgent and emergent operations, elective operations cancelled for 4 weeks
Emergency service	• Minor procedures: performed in ED • Complex cases: operated within 2 hours	• Minor procedures: performed in ED • Complex cases: operated within 2 hours
Internal audits, M&M conferences	1x month	Same, attendance with masks
Internal grand Rounds	1x week	Same, attendance with masks
External conference attendance	Attendance	Remote attendance (webinars)
Undergraduate teaching		
Grand round attendance	1x week	1x week, attendance with masks
Operating room	2x week	2x week
Manpower	1 director, 5 consultants, 5 residents, 1 fellow	1 director, 5 consultants, 6 residents, 1 fellow

being taken, including: (a) avoidance of osteocutaneous flaps in view of the high risk of aerosol formation and air contamination during electrocauterization, (b) avoidance of atypical flaps, and (c) choosing sutures and clips to electocautery for hemostasis. Special precautions for maxillofacial surgery include: (a) use of scalpel over cautery, (b) drilling to be done using the lowest power with limited irrigation, (c) the choice of intermaxillary fixation (IMF) for stable fractures without much displacement in mandible and midface, and (d) preference for osteotomes over power drills.[6]

Taiwan represents an impressive success story during this global pandemic. The island of 23.5 million people has reported contraction of COVID-19 in 600 individuals and 7 deaths in total with the last case of confirmed infection being reported 6 months ago (retrieved 15 November). Almost all cases were imported. The last locally transmitted case was reported in April 2020. The country adopted a strategy based on extensive contact tracing as well as testing and isolation of individuals at high risk of infection including quarantine of those with close contacts of confirmed cases. Taiwan closed its borders, but never formally declared a partial or total nationwide lockdown.

Access to cancer care was barely affected in Taiwan. Patients with head and neck cancers could still receive state-of-the-art surgical treatment, including oncologic ablation and reconstruction with microvascular tissue transfer. Indeed, the volume of flap surgeries actually increased during the pandemic at E-Da Hospital. In the 8-month period between Janu-

ary and August 2020, 132 patients underwent free tissue transfer compared with 130 in 2019 (i.e., 2% increase). Tables 1 and 2 summarize the clinical services and the number of cases treated at E-Da Hospital before and during the pandemic. Figure 1 demonstrated that, even during the peak of the pandemic in Taiwan (i.e., February and March 2020), the volume of free flap surgeries was not affected. While there were 3 – 4 microsurgeries every week at E-Da Hospital, the volume of flap surgeries decreased by half in other countries.[7]

Moreover, surgical training programs have been greatly affected by the pandemic. Although a complete microsurgical fellowship training program is vital to the reinforcement of surgical skills of trainees, there are a number factors limiting their training opportunities during the pandemic including a significant reduction in the number of elective surgeries, the preference of conservative approaches to surgical treatments in the emergency setting, staff reallocation, the centralization of surgical services, consultant-led surgeries, and restriction of the number of staff in operating theaters.[9] Before the COVID-19 era, plastic surgery education curriculum typically consisted of operating and didactic sessions as well as online learning modules and conferences.[9] During the pandemic, plastic surgeons in many countries began to manage critically ill patients in intensive care units.[9] In Saudi Arabia, 97% of surgical fellows reported a reduced surgical exposure to surgeries due to the pandemic.[10] In the UK, 71% reported reduced opportunity to operate as the primary surgeon due to the pandemic, whereas 75% did not attend any teaching or outpatient clinics. At the same time, 35% had to increase their out-of-hours commitments and 53% experienced an increase in their compulsory rest/off days. Up to 35% had their preplanned annual leave cancelled and 71% of surgical trainees reported a negative impact of the pandemic on their confidence when operating. Besides, 35% had been off sick and 7% felt definitely burned out.[8] At our institute, the practice of head and neck reconstruction following oncologic resections remains unaffected, thereby providing ample opportunities for international fellows to expose themselves to various microsurgical skills.

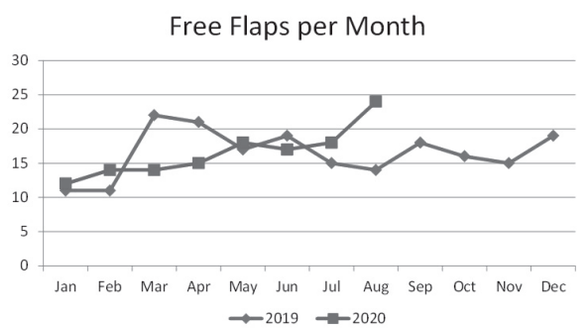

Fig. 1 Numbers of free flap surgeries in the Department of Plastic Surgery of E-Da Hospital in 2019 (prepandemic) and 2020 (COVID-19 pandemic).

Table 2. Number of cases in the Department of Plastic Surgery of E-Da Hospital before and during the COVID-19 pandemic.

Numbers of cases	Prepandemic (6-month period: June 2019 – December 2019)	COVID-19 Pandemic (6-month period: January 2020 – June 2020)
Bed capacity		
Wards	Ward:43	Ward:36
Microsurgical ICU	ICU: 10	ICU: 10
Outpatient clinic visits	1,177	1,152
Admissions	143	106
Operated cases	359	266
Emergency cases	145	133
Elective cases	218	207
Microsurgery cases	16.5	16.5
Combine cases (with ENT)	15	15

Furthermore, head and neck surgeons have to face the difficult ethical dilemma of whether to proceed with surgeries in cancer patients during the pandemic. Since a delay in oncologic ablation could impede the initiation of adjuvant therapy, microvascular tissue transfer is indispensable because it remains the gold standard for restoring both anatomical and

functional integrity of the affected region. Although regional flaps (e.g., pectoral myocutaneous flaps) can also be used without prolonging hospital stay compared with other procedures, such one-size-fits-all approaches are rarely indicated and no pandemic should serve as an excuse for the application of outdated concepts.[4] Careful case-by-case assessment is necessary because it is imperative for health systems to guarantee the patient's best treatment even in periods of constrained resources.[11]

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