Plastic Surgery During the COVID-19 Pandemic: The Space, Equipment, Expertise Approach

Aesthetic Surgery Journal
2020, 1–4

DOI: 10.1093/asj/sjaa136
www.aestheticsurgeryjournal.com
OXFORD UNIVERSITY PRESS

Mengfan Wu, MD, PhD; Jing Wang, MD, PhD; and Adriana C. Panayi, MD

Editorial Decision date: May 20, 2020; online publish-ahead-of-print June 12, 2020.

In accordance with the Centers for Medicare and Medicaid Services' recommendation to postpone all elective surgeries and any nonessential medical, surgical, and dental procedures during the COVID-19 outbreak, The Aesthetic Society recommended that all plastic surgeons cease any elective or nonessential services.[1] During the initial outbreak of the pandemic, as healthcare systems were placing all their efforts on trying to address this pandemic, frontline healthcare workers were facing an unprecedented lack of space and resources while they fought to preserve lives, including their own. Here we describe the Space, Equipment, Expertise approach that plastic surgeons have utilized in their battle against COVID-19 during the past few months as well as recommend guidelines for the potential second wave of the pandemic in the future.

SPACE

Due to a surge in COVID-19 cases requiring hospitalization, hospitals redistributed space to make available beds for a large number of patients. Plastic surgery departments in hospitals worldwide majorly assisted in increasing room and hospital bed availability by donating their operating rooms as well as recovery beds on the ward and in the intensive care unit. Beyond this, if the volume of patients overwhelms hospitals in the second wave, self-ambulatory centers, which include many private plastic surgery centers, can donate their space. At the early stage of the outbreak, the Centers for Medicare and Medicaid Services had waived the regulation that prevented such centers from treating patients beyond 24 hours. Therefore, such space can be used for surgical procedures and for recovery of patients with critical needs unrelated to COVID-19, including trauma or cancer. This would not only allow hospitals to conserve their resources but also reduce the risk of infection to other patients.

EQUIPMENT

Equipment from simple personal protective equipment (PPE) to ventilators and extracorporeal membrane oxygenation machines is severely limited in many parts of the United States as well as globally. The Aesthetic Society has urged plastic surgeons to donate medical supplies and helped to redistribute them to the frontline where they are most needed. Furthermore, many ventilators were sitting idle in private practice due to cancelation of elective surgeries, so plastic surgeons have donated their machines

Dr Wu is a Research Fellow and Dr Panayi is an Instructor, Department of Surgery, Division of Plastic Surgery, Brigham and Women's Hospital, Harvard Medical School, Boston, MA. Dr Wang is a Plastic Surgeon, Department of Plastic and Cosmetic Surgery, Nanfang Hospital, Southern Medical University, Guangzhou, Guangdong, P.R. China.

Corresponding Author:
Dr Adriana C. Panayi, Division of Plastic Surgery, Department of Surgery, Brigham and Women's Hospital, Harvard Medical School Boston, MA 02115, USA.
E-mail: apanayi@bwh.harvard.edu; Instagram: @adrianapanayi

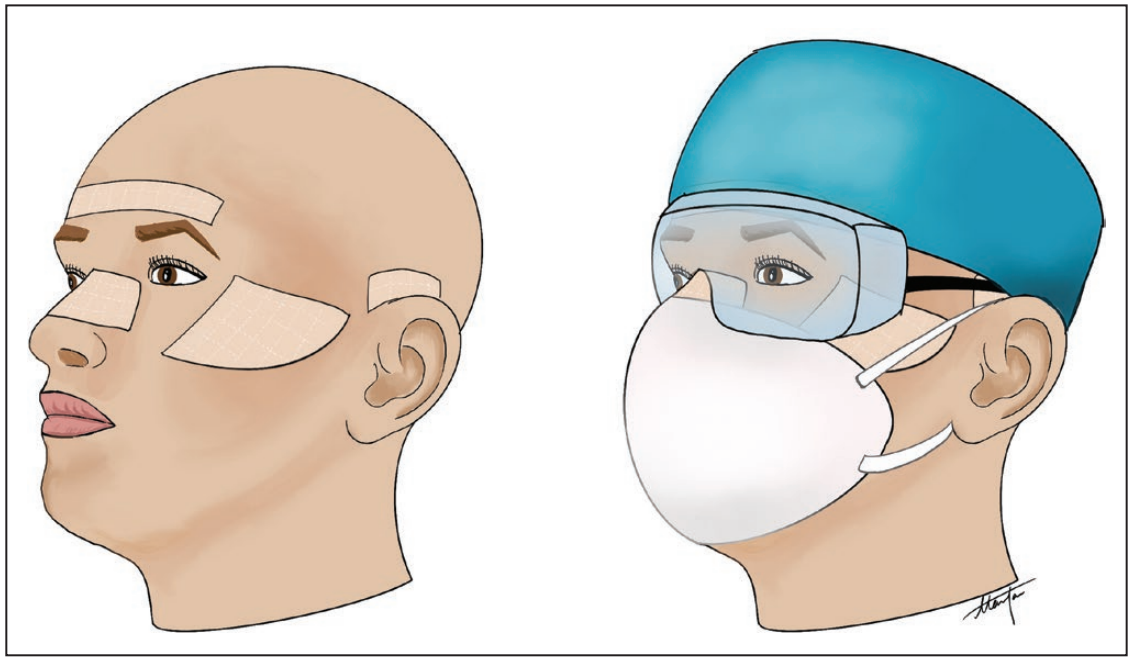

Figure 1. Hydrocolloid or foam dressing application in the treatment of device-related pressure ulcers. Model of dressing application. Application is particularly important in zones susceptible to compression such as the nose, cheeks, forehead, and auricle. Application of the dressings (left) prior to wearing personal protective equipment and (right) with personal protective equipment.

to help meet the need. One such individual is Dr Andrew S. Frankel, a plastic surgeon based in Beverly Hills, who set up the nationwide Ventilator Loan Match Program in collaboration with The American Academy of Facial Plastic and Reconstructive Surgery to place ventilators where they are most needed.

EXPERTISE

Plastic surgeons also utilized their experience to fulfil alternate surgical and nonsurgical roles as well as assist in the treatment of frontline workers. For example, when facial PPE—including masks, goggles, and visors—is worn for many hours at a time, the constant pressure in combination with the humidity on the face can result in severe indentations, pain, local inflammation, and even skin fissures and ulcers on the compressed areas. Given that COVID-19 is highly contagious with one proposed transmission route being contact transmission, device-related pressure ulcers can raise the risk of viral infection.[2] We share our experience as plastic surgeons in treating the facial wounds of 2 frontline nurses of the Guangdong Medical Assistance team in Wuhan, China. Application of foam and hydrocolloid dressings prior to donning facial PPE helped prevent wound formation and facilitated wound healing (Figures 1 and 2). Such materials have strong plasticity and suppleness and enable a good fit with irregular parts, allowing for proper adherence and limiting displacement.[3,4] They can be applied to areas prone to compression such as the nose, cheeks, forehead, and above the auricle without affecting the tight fit of PPE in order to reduce local pressure and friction.

In research, Dr Brian Wong, a plastic surgeon and biomedical engineer at University of California Irvine, set up the Bridge Ventilator Consortium to create a lower cost ventilator for COVID-19 patients not requiring the most intensive care.

CONCLUSIONS

Overall, effort from plastic surgeons and plastic surgery researchers showed an immense positive impact. We should continue to evaluate the effectiveness of the above methods and provide more adjunct therapies to accelerate wound healing while working to improve the quality of care

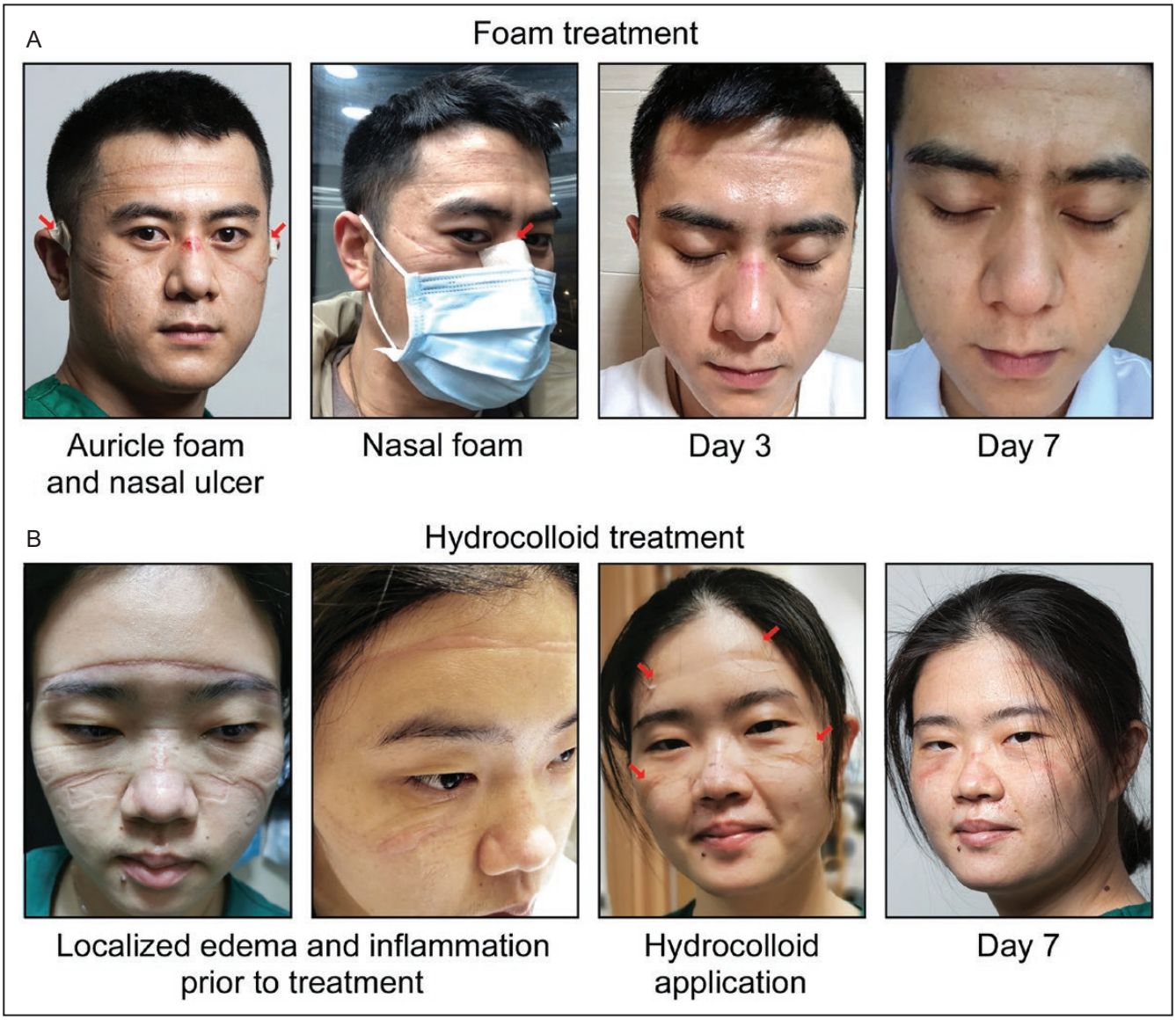

Figure 2. (A) Foam application. A nurse experienced ulcer formation on his nose and excruciating pain above the auricle caused by the compression pressure of wearing a mask and goggles 6 hours per day for 3 days. There were also visible red indentations on his forehead and cheeks. Application of a foam dressing on the nose and above the auricle relieved his pain and promoted wound healing by day 3 and resolution by day 7. (B) Hydrocolloid application. A nurse exhibited severe compression edema on her forehead, nose, and cheeks after wearing facial personal protective equipment for 6 hours. A hydrocolloid dressing was applied to her forehead, nose, and cheeks and was shown to effectively minimize edema, preventing ulcer formation, after 7 days.

of patients and healthcare professionals in the battle against this epidemic and be fully prepared for a potential second wave in the future.

Disclosures

The authors declared no potential conflicts of interest with respect to the research, authorship, and publication of this article.

Funding

The authors received no financial support for the research, authorship, and publication of this article.

REFERENCES

1. The Aesthetic Society. COVID-19 Updates from the President. https://www.surgery.org/private/COVID-19. Accessed May 20, 2020.

2. Pittman J, Beeson T, Kitterman J, Lancaster S, Shelly A. Medical device-related hospital-acquired pressure ulcers: development of an evidence-based position statement. *J Wound Ostomy Continence Nurs*. 2015;42(2):151-154; quiz E151-152.
3. Qaseem A, Humphrey LL, Forciea MA, Starkey M, Denberg TD; Clinical Guidelines Committee of the American College of Physicians. Treatment of pressure ulcers: a clinical practice guideline from the American College of Physicians. *Ann Intern Med*. 2015;162(5):370-379.
4. Walker RM, Gillespie BM, Thalib L, Higgins NS, Whitty JA. Foam dressings for treating pressure ulcers. *Cochrane Database Syst Rev*. 2017;10:CD011332.