

CORNEAL SURGERY BEYOND COVID-19



A look back on our experiences during the pandemic and a look ahead to the challenges of this year and beyond.

BY ANGELI CHRISTY YU, MD, AND MASSIMO BUSIN, MD

The COVID-19 pandemic defined 2020. In March of that year, a rapid surge in cases forced Italy into a stringent lockdown and led us to drastically limit our ophthalmic practice to urgent care.¹ As restrictions were lifted in late spring, we resumed routine clinical and surgical services by implementing a broad range of risk mitigation strategies.

PROTECTING ALL STAKEHOLDERS

In the early days of the pandemic, we adopted several precautionary measures, including external triage and screening; routine temperature checks; physical distancing; and enhanced protocols for cleaning, disinfection, and personal protective equipment use.^{1,2} A COVID-19 monitoring system was developed to help prevent and anticipate potential outbreaks within the hospital. In recognition of the risk of asymptomatic viral carriage, all staff members underwent SARS-CoV-2 real-time reverse transcription polymerase chain reaction testing every 2 weeks.

In our unit, two cases of COVID-19 were identified during the routine screening of asymptomatic staff. Both staff members were immediately advised to isolate themselves. Return-to-work criteria included at least two negative tests taken 7 days apart or a span of at least 21 days since the first appearance of symptoms. Through case investigations and contact tracing, health care workers with probable exposure were identified, closely monitored, and screened. Further transmission of COVID-19 was prevented, and these incidents did not

result in a major disruption of our daily operations.

Early in January, the entire health care staff was vaccinated against COVID-19. Biweekly serial testing for SARS-CoV-2 is still currently employed. As we navigate through and beyond the COVID-19 crisis, we will continue to rely on enhanced infection control and prevention strategies to ensure the safety and health of all relevant stakeholders.

ADAPTING SURGICAL CARE DELIVERY

The deferral of nonemergency procedures during the first 2 months of the pandemic created an extensive surgical backlog. To address it, we developed a prioritization method for scheduling surgeries based on patients' underlying conditions and risks for disease progression. Our standard perioperative protocols were updated to include COVID-19 screening and nasopharyngeal real-time reverse transcription polymerase chain reaction testing, which was conducted 48 hours before surgery and again before discharge.

If a patient with a nonurgent surgical indication tested positive for COVID-19, the intervention was postponed. For urgent indications, such as severe infection and traumatic corneal perforation in patients whose COVID-19 status was unknown or positive, surgery was scheduled as the last case of the day, and a terminal cleaning procedure was performed immediately thereafter. All involved health care staff were closely monitored for the development of symptoms, and they underwent at least two additional COVID-19

screening tests. In our center, no transmission due to a surgical procedure was identified.

A total of 450 keratoplasties were performed at our facility during the past year. By constantly updating our standard procedures, we expect to improve OR throughput and return to normal surgical volume in the coming year.

DEVELOPING ALTERNATE SOLUTIONS FOR CORNEAL TRANSPLANTATION

The pandemic brought the vulnerabilities of the donor cornea supply chain into sharp focus.³ A steady stream of voluntary donors and a dramatic decline in requests for corneas during the initial suspension of elective procedures have resulted in a surplus of unused corneas. In order to address the issues in supply and demand, we have collaborated with the Veneto Eye Bank to develop an alternate strategy for preserving donor corneal tissue through dehydration. Based on initial research, dehydrated corneas can last for up to 6 months, and we are currently evaluating the use of this tissue for deep anterior lamellar keratoplasty.

Our experience underscores the need to develop innovative strategies to respond effectively to dynamic fluctuations in donor supply and to increase our resilience in the face of future threats.

CONCLUSION

Our COVID-19 preparedness plan has proven instrumental in ensuring the safety and well-being of our

patients, doctors, and staff. More importantly, the lessons from our early experience have helped us chart a path toward the next normal. ■

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