

BRIEF COMMUNICATION



Endophthalmitis related to face masks, what have we learnt?

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The COVID-19 pandemic has triggered the development of multiple strategies in order to reduce and minimize the transmission and mortality related with the virus. In that sense, the widespread use of face masks has been one of the pillars. Despite the numerous benefits of patients wearing face masks to control the pandemic, there have been reports which highlights some important findings to be considered by the ophthalmology community. These are related with dry eye, infectious keratitis, and most serious events such as endophthalmitis after intravitreal injections as well as post-vitreotomy [1–3]. In regards to that topic, in a recent publication Sakamoto et al. [3], conducted a retrospective, comparative, multicentric study in patients who underwent vitrectomy alone, concluding a higher incidence of postvitrectomy endophthalmitis during the COVID-mask period in Japan. They analysed and compared 16,568 surgeries in the pre-COVID-19 period versus 14,929 operations in the COVID-mask period, founding 18 endophthalmitis cases (0.11%) versus 31 endophthalmitis cases respectively (0.21%; $p = 0.031$, OR = 1.913, 95% CI 1.078 to 3.394). Additionally, they reported an increased incidence of endophthalmitis caused by oral bacteria (4 cases were related to oral commensals including *Streptococcus* spp), which is usually rare in postvitrectomy endophthalmitis. They hypothesised that the inappropriate mask wearing should be responsible for bacterial contamination of the periocular area in conjunction with the exposure of an eye to oral bacteria before and after vitrectomy in the COVID-mask period. Those are important findings and confirm the results of previous studies [4–6]. However, it is not specified in this series if patients were using mask during surgery or just in the post-operative period. This is an important topic to take into account because the practice of advising patients to wear a surgical mask at the time of ophthalmic interventions potentially contaminants the ocular field, as it was demonstrated in different simulated clinical scenarios and analysed with, high-speed Schlieren imaging [4].

Certainly, the series of Sakamoto et al. [3] has inherent limitations; retrospective design, lack of uniformity in the diagnosis of endophthalmitis, low culture positive rate on endophthalmitis, lacking of a multivariate analysis, however we cannot forget that despite randomised clinical trials remaining the gold standard for evaluating treatments and providing the highest level evidence-based medicine, they are uncommon in vitreoretinal surgery and observational and retrospective studies play an important role especially when we have to face infrequent sceneries [7]. In that sense, the ophthalmology community should be aware about the results of previous observational and experimental studies [4–6] as well as results from Sakamoto et al. and the eventual increase of incidence of endophthalmitis after vitrectomy due to face-mask in order to take measurements to mitigate this devastating consequence.

REFERENCES

1. Chadwick O, Lockington D. Addressing post-operative Mask-Associated Dry Eye (MADE). *Eye*. 2020;35:1543–4. <https://doi.org/10.1038/s41433-020-01280-5>
2. Blom K, Bragadóttir R, Sivertsen MS, Moe MC, Jørstad ØK. Mask use by patients in the context of COVID-19 can increase the risk of postinjection endophthalmitis. *Acta Ophthalmol*. 2022;100:e859–e860. <https://doi.org/10.1111/aos.14945>
3. Sakamoto T, Terasaki H, Yamashita T, Shihara H, Funatsu R, Uemura A, & Japanese Retina and Vitreous Society (2022). Increased incidence of endophthalmitis after vitrectomy relative to face mask wearing during COVID-19 pandemic. *Br J Ophthalmol*. *bjophthalmol-2022-321357*. Advance online publication. <https://doi.org/10.1136/bjophthalmol-2022-321357>
4. Anguita R, Wickham L, et al. Patient generated aerosol in the context of ophthalmic surgery. *Eur J Ophthalmol*. 2022;32:2445–51. <https://doi.org/10.1177/11206721211037823>
5. Raevik JJ, Gjyzeli G, Mititelu M, Rogers J, Lasarev M, Chang JS. Face masks and bacterial dispersion toward the periocular area. *Ophthalmology*. 2021;128:1236–8. <https://doi.org/10.1016/j.ophtha.2021.01.007>
6. Hadayer A, Zahavi A, Livny E, Gal-Or O, Gershoni A, Mimouni K, et al. Patients wearing face masks during intravitreal injections may be at a higher risk of endophthalmitis. *Retina*. 2020;40:1651–6. <https://doi.org/10.1097/iae.0000000000002919>
7. Anguita R, Charteris D. Could real-world data replace evidence from clinical trials in surgical retinal conditions? *Br J Ophthalmol*. 2022;106:1037–8. <https://doi.org/10.1136/bjophthalmol-2022-321759>

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COMPETING INTERESTS

The authors declare no competing interests.

ADDITIONAL INFORMATION

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