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Short Communication

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The Impact of the Pandemic in the Different Ophthalmological Sub-Specialties: Clinical and Surgical Potential Consequences

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In March of 2020, the history of medicine starts to live a new chapter. At the beginning of the Pandemic reality imposed by the battle developed against the coronavirus disease 19 (COVID-19) most of the medical programmed consults and non urgent ophthalmic surgeries were suspended or delayed. A total or partial lock-down happened in many countries and virtual communication between people became a new "normality" for most of the daily things, including medical consultation, which has been changed to telemedicine modality. However, implementing virtual consultation for some medical specialties is more difficult than others. Also, delaying therapeutics and surgical procedures can have an unknown effect in a close future. In the next lines, will be discussed the impact of the pandemic in the different ophthalmological sub-specialties, and their clinical and surgical potential consequences.

Ophthalmology is a clinical and surgical specialty and many eye problems are related with different general diseases [1-5]. Performing an ophthalmological consult requires to develop a careful and oriented anamnesis as well a standard and complete ocular exam with the aid of specific medical instruments. Is a highly technology dependent specialty, where diagnosis and follow-up is sustained by eye-imaging devices that allows exploration from the ocular surface to the inner part of the retina [6,7]. Telemedicine in the COVID-19 era is here, as described by Saleen S., *et al* [8]. However, all the ophthalmological community is prepared for that? Indeed are patients prepared for that? Moreover, is not the same performing a "virtual follow-up" of patients with dry eye syndrome than age-related macular degeneration.

Maybe, "ocular surface" is the ophthalmic sub-specialty that can be better managed by virtual consultation [9], where patients talk about symptoms and the physician can modify their topical treatment. In Spain, results published by Arntz A., *et al*. [10] shows that most of the consultations taken by their telemedicine service during the COVID-19 pandemic, were related to ocular surface problems and patients were highly satisfied with their attention. In part, patients with diagnosed uveitis can be efficiently managed for specific concerns [11] as happens in neuro-ophthalmology [12], where treatment monitoring and remote data interpretation can decrease face-to-face consults, performing synchronous and asynchronous telemedicine modalities. Also, telemedicine has proved to be helpful reducing the real necessity of performing an in-person consultation, as was described in a study developed in Paris, where only 27% of 500 ophthalmic emergencies received by teleconsultations were moved to physical appointments [13].

For exploring the fundus eye non-mydriatic retinal cameras has proved their efficacy in diabetic retinopathy and age-related macular degeneration telemedicine programs [14]. Their role was really useful and important during the 2020 pandemic [15]. However, telemedicine in ophthalmology has limitations and also there are relevant legal concerns that must be taken into consideration, as

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examples related with the need of obtaining a specific informed consent, the use of smartphones as "medical device" and how personal data of patients must be stored and protected [16].

Regarding surgical procedures, the urgent surgeries, as those related with accidents and ocular-trauma, glaucoma, retinal detachment, severe ocular surface infections and corneal transplantation, were not postponed. However, a prolonged stop or slowdown of elective refractive and cataract surgery has worldwide occurred, especially in the elderly population, in whom the risk of COVID-19 mortality was high [17]. A similar situation happened with oculo-plastic surgical procedures [18]. Nowadays, that is changing in countries where the COVID-vaccine is available. Throughout 2020 many ophthalmic surgeries have been delayed, by the ophthalmologist, who follows their gubernamental guidelines reserving their medical resources, or by the patients, who have maintained physical isolation decreasing the possibility of getting infected by SARS-CoV2. Undoubtedly, we must expect that situation will have some kind of consequences. Maybe it will be temporal and can be completely restored with the appropriate treatment. Although, some situations can be irreversible, as scientific evidence shows, when postponement treatments in patients with neovascular age-related macular degeneration proved to be significantly associated with worse short-term visual outcomes [19]. Since December 2019, the world has started to live a crisis affecting many aspects of social behavior, education, economics and principally related with the global health, directly associated with the COVID-19 effect and indirectly associated with their impact of delaying the rest of medical consultations, where's ophthalmology was not the exception.

The SARS-CoV2 challenges our society in many aspects, one of those is in the eye care system. Virtual medicine is a very good option, not only for the pandemic present, where it is necessary to preserve social distancing. Also, it gives the opportunity to valorize and learn about the importance of being more efficient to deliver eye care for older people and/or for those who live far away from medical centers. Possibly and positively, beyond COVID-19, in a "post-pandemic era", telemedicine will have a specific and defined role, obtaining their maximal benefit, leaving in-person medical activities for those which are strictly necessary, and medical care becoming more efficient.

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