

The curious cases of incorrect face mask positions in bowl-type perimetry versus enclosed chamber perimetry during the COVID-19 pandemic

Dear Editor,

Face masks have become mandatory in everyone's life.^[1] Despite being designed to completely cover the patient's nose and mouth [Fig. 1], there seems to be an innate urge among most of the Indian patients to pull down their masks before

ophthalmic chin rest examination and investigations, as a sign of respect to the doctor or due to a feeling of not being heard when spoken.^[2] This behavior poses risk of aerosol-mediated infection to transmit, especially while using bowl-type perimeters (Humphrey and Octopus), where inadvertent aerosols from nostrils enter into the bowl of perimeter [Fig. 2] contaminating it. The aerosolized SARS-CoV-2 particles can remain active in the air within the bowl-type perimeter up to 3 h or even more. To add on, things can get complicated from disinfection point of view, especially when an inadvertent sneeze or cough is done by these patients, while performing visual fields in a bowl-type perimeter because of the amount of area to cover for disinfecting it, making our job quite tenuous



Figure 1: (a-c) Image showing common incorrect ways of wearing face masks like the neck-beard configuration, the tickler configuration, and the overshooting masker (i.e., wearing mask with the upper end of it, covering up to the inferior aspect of the eye), respectively. (d) The image shows correct face mask configuration, but with a gap near the nasal bridge (yellow asterisk), which would be a source of aerosol spread during visual field testing. (e) A proper method of wearing face mask with the superior strip of mask pinched down on the nose (red arrow) and adhesive tape covering the entire length of the superior border to prevent aerosol contamination

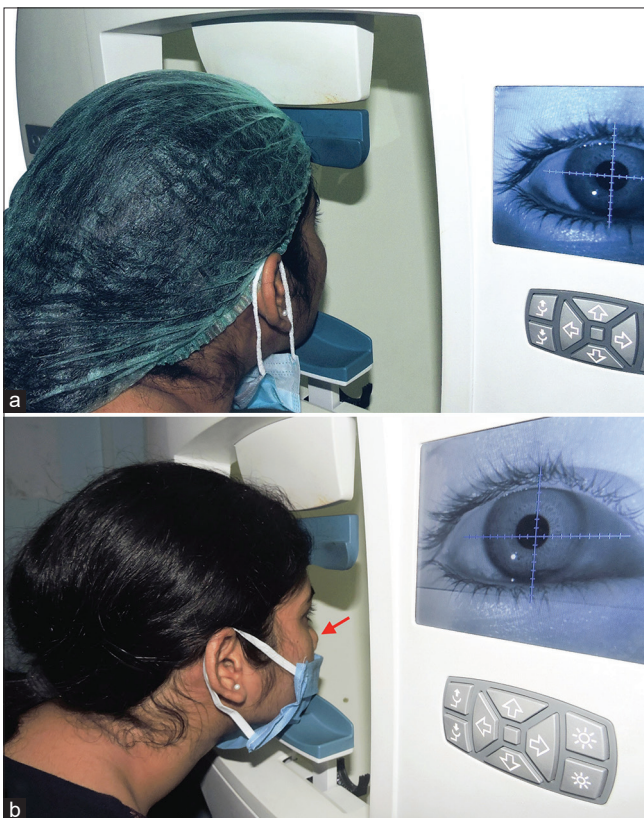


Figure 2: (a and b) Image showing visual field perimetry bowl getting exposed to aerosols, emitted from the subject being tested, due to improper mask wearing (red arrow)

and time consuming. Hence, it is advisable to use a bowl-type perimeter only where it is absolutely necessary, considering what added value using that equipment would provide for that particular patient.

On the contrary, with an enclosed chamber virtual reality perimeter [Fig. 3] (Advanced Vision Analyzer, Elisar), the nostrils are always present outside the testing chamber [Fig. 4], making the chances of contamination of the insides of it almost impossible. Also they are much easier to disinfect than a bowl-type perimeter. Though one can argue that a proper wearing technique [Fig. 1e] could theoretically prevent displacement of the mask during examination, in reality this practice is difficult for the patient, from comfort and fatigue point of view, while performing the test.^[3-5] With the visual field



Figure 3: Image of advanced vision analyzer (AVA, Elisar) showing compact rimming and a snug fit enclosed chamber over the periorbital region, to provide dark room effect and also providing a barrier to aerosol internalization

examination results of virtual reality perimetry, showing good promise and high correlation with Humphrey perimeter; this newer method can be a possible substitute for clinical use, at least till the pandemic gets over, for incorrect mask wearers or patients, who have mask intolerance while performing visual fields.^[6]

Despite maximum efforts being emphasized for correct technique of mask wearing while performing visual fields, there are still many who do not. On the flip side, there are also many over shooters [Fig. 1c]. They possess another major disadvantage [Fig. 5] in the form of mask-induced artifacts mimicking inferior arcuate glaucomatous defects.^[7-9] This erroneous way of mask wearing is also autocorrected, when the enclosed chamber perimeter is snug fitted over the periorbital region to provide dark room effect, exteriorizing the mask outside the chamber preventing mask-induced artifacts.

Though fighting against wrong mask wearing can feel like a never-ending battle, it is one worth fighting for. Periodical awareness and constant reinforcements can prevent both aerosol-mediated infections and mask-induced artifacts from bowl-type perimetry.^[10] However, for the time being, it seems appropriate to use an enclosed chamber perimeter for assessing glaucoma patients, at least until the pandemic gets over,



Figure 4: Image shows the complete externalization of the nose outside the perimetry chamber, hence preventing contamination of the enclosed space

for erroneous mask wearers or for patients who have mask intolerance while performing visual fields.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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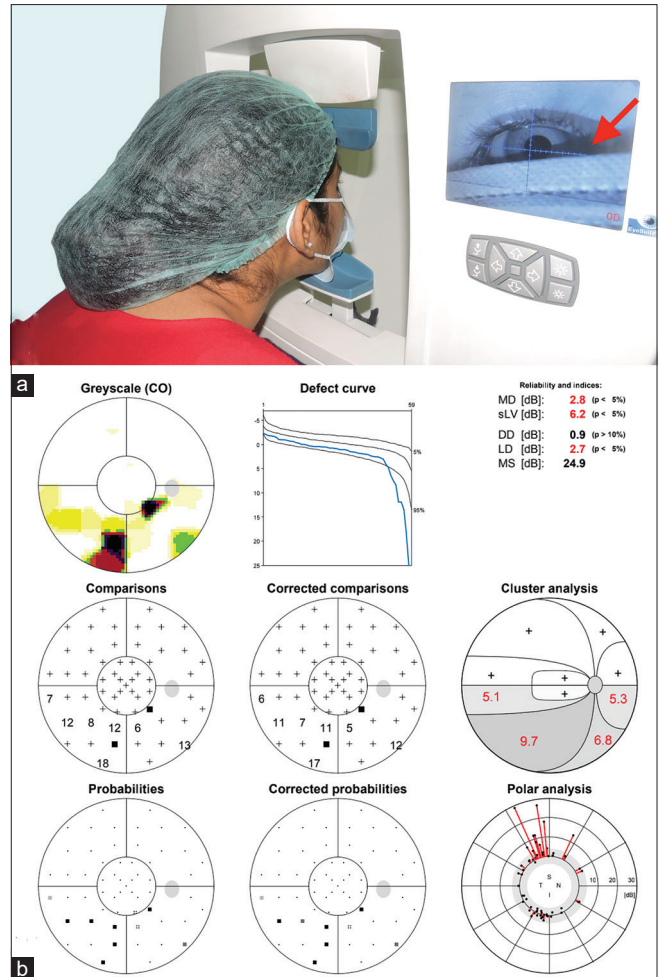


Figure 5: (a) Image showing the overshooting face mask covering the inferior aspect of the pupil (red arrow) in the video gaze monitor of Octopus (bowl-type perimetry). (b) Visual field mimicking the inferior arcuate glaucomatous field defect due to the overshooting face mask of the same patient

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