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INTRODUCING A NEW ENTITY OF ARTIFACTS IN VISUAL FIELD AFTER COVID 19

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Abstract

The corona virus disease 2019 (COVID-19) spread rapidly worldwide, causing a severe outbreak. As this disease is easily transmitted, face masks are a vital tool to slow the spread. In India, current COVID-19 clinical polices directs all the health workers and patients to wear masks throughout the hospital stay and not to remove it during this pandemic mandatory. Use of face mask during perimetry sometimes mimicking field defect due to poor fitting masks. This case highlights the need to be aware of improperly fitted face mask as a cause of artifact on standard Automated Perimetry.

Clinical Presentation: - A 23-year-old male underwent SAP with the 24-2 SITA Standard & SITA Fast test of the Humphrey Field Analyzer wearing an ear loop facemask. SAP demonstrated good reliability indices but, in both eyes, there was a marked inferior hemifield defect. It was noted that the mask had ridden up the patient's face. The test was repeated without mask and was found no field defect.

Poorly fitting face masks represent a new cause of visual field artifact which may mimic pathologic field defects with normal reliability indices. Adjustment of face masks position and careful attention during procedure may help prevent fogging which causes such apparent artifacts.

INTRODUCTION

In India current COVID 19 clinical polices direct all health workers and patients need to wear masks throughout the hospital stay & all clinical examinations & diagnostic test are to be done wearing mask only. Govt health policy do not recommend removal of masks for perimetry also. I would like to draw your attention to the type of visual field defect which may mimic visual field defect & to repeat this test after applying tape to securely seal the upper portion of mask. Researchers reported that a medical tape worn on the bridge of the nose could reduce the mask related defects and also can improve the accuracy of the test during this pandemic. [1]

CASE PRESENTATION

A 23 years old Male patient presented at Dr Shroff's Charity Eye Hospital on July 2018 with complaints of dryness and irritation in both eyes. He was using glasses since 9 years. He was highly myopic in both eyes. His family history was unremarkable.

On examination his best corrected visual acuity with Snellen Chart in Right eye was 6/6 (-8.00/-1.25x170) and Left eye was 6/6 (-8.00/-1.50x25). Near vision was N6 in both eyes. The intraocular pressure recorded was 16 mm hg in Right eye and 15 mm Hg in left eye respectively.

The Slit lamp examination was Within normal Limit. The cup disc ratio was 0.7:1 with large size disc in both eyes along with inferior rim sloping in Right eyes and superior rim sloping in Left eye. But there was no obvious retinal nerve fiber defect found. On undilated gonioscopy all the angles were open. There were no other abnormalities noted.

IOL master recorded axial length of 26.94mm in the right eye and 27.10mm in left eye. Anterior chamber depth in right eye was 3.67mm and 3.70mm in left eye. Central corneal thickness was 508um in right eye and 511um in left eye. Therefore, these findings of large optic disc size associated with large cupping shows possible diagnosis of glaucoma suspect in both eyes. Due to this large cupping of optic disc, he was advised for Visual field test (24-2, SITA standard).

24-2 SITA standard test was performed under stimulus size III with trial lens of (-5.75/-1.50x170 in right eye and (-5.25/-1.25x20) in left eye. In the test report all the parameters were within normal limit. On 24-2 SITA Standard test on Humphrey Field Analyzer (HFA) he had inferior field defect (Figure 1) in both eyes which were suggestive of glaucomatous changes, which was not correlating with the clinical findings.

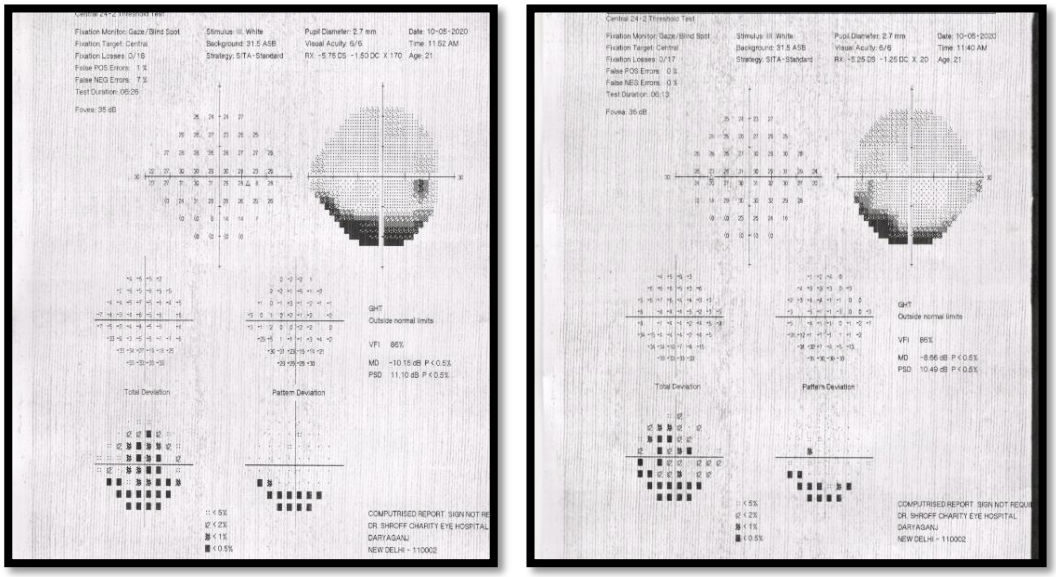


Figure 1: With mask Visual field Defect in Both eyes (A. Right eye, B Left eye)

And lens condensation was also visible on perimeter trial lens. So the test was repeated after properly counselling the patient, sealing the mask with tape and cleaning the perimeter lens condensate. This time his field report came out as normal and consistent of previous reports (Figure 2 & 3) which was also performed at Dr shroff's charity eye hospital.

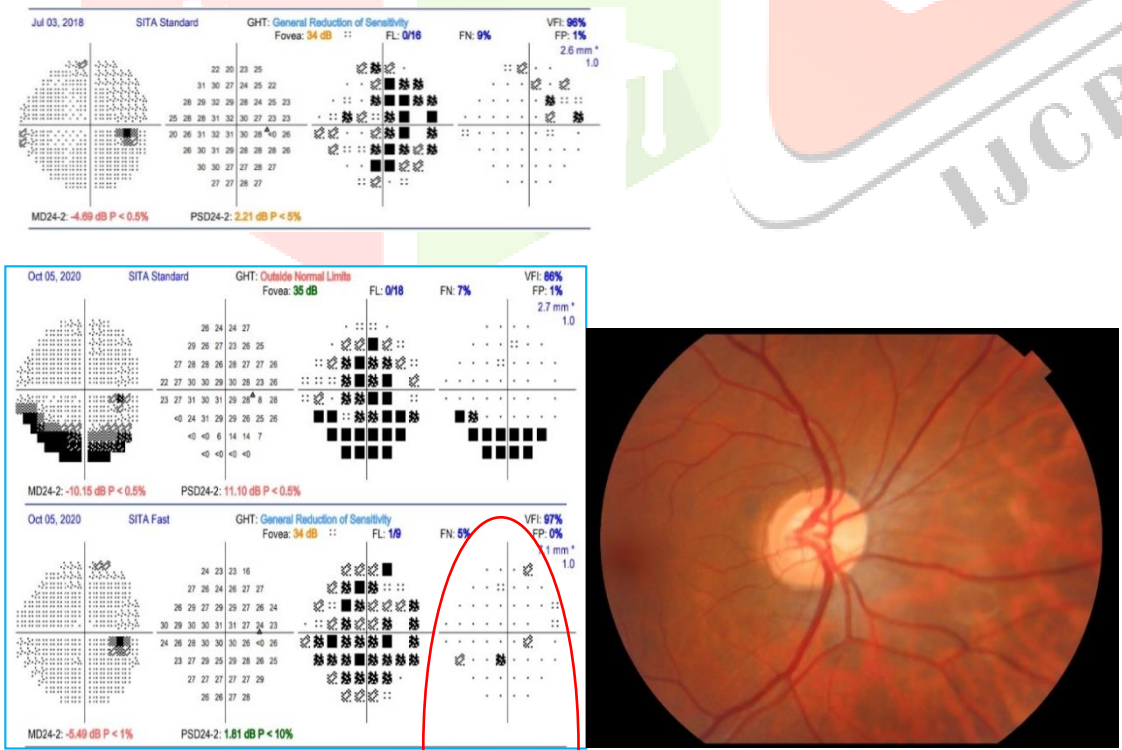
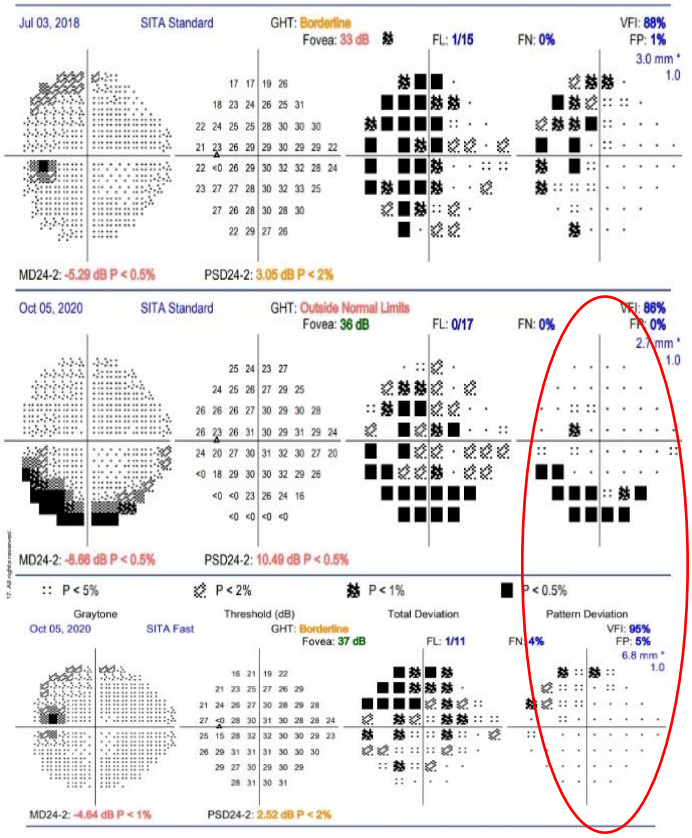


Figure 2: Right eye visual filed analysis after mask adjustment



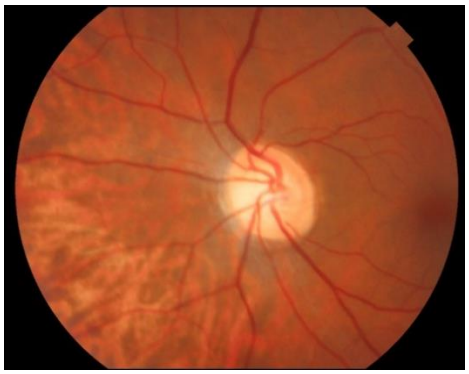


Fig: 3 Left eye visual field analysis after mask adjustment

Discussion:-

COVID-19 pandemic required wearing mouth-nose masks in order to prevent an infection with SARS-CoV-2. As in figure 1 Standard automated perimetry 24-2 SITA Standard has been done. In above test all the parameters were WNL but infero-nasal defect was showing and the report was not corelating with clinical findings. Later we found the test was done under loose fitted mask which was causing fogging to the lens. Therefore, again the test was repeated with properly fitted mask and test was WNL and was corelating with clinical findings and other diagnostic test i.e. OCT. Properly fitting of the mask to the nose bridge may reduce unnecessary artifacts and defects.[2]

Conclusion:-

Poorly fitting face masks represent a new cause of visual field artifact which may mimic pathologic field defects.[3] Without careful attention during testing, the cause of such artifacts may not be apparent, especially as reliability indices may be normal. Adjustments to the fit of face masks may help prevent fogging or mask slippage and increase test reliability. [4]

Fogging can result in unreliable VF testing with Glaucoma like artifacts. Secure tapping of the face mask to the nose bridge may minimize this problem and reduce unnecessary additional testing and follow up visits. [5]

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