



## A paradigm shift in the case profile of patients presenting to ophthalmic care facility in a tertiary health care centre in the phase of covid19 pandemic.

Date of Submission: 10-11-2020

Date of Acceptance: 25-11-2020

**ABSTRACT:** Introduction: COVID-19 i.e SARS CoV 2 outbreak that began in 2019 has been declared as a pandemic by WHO. Owing to its high transmissibility and the mode of transmission, a nation-wide lockdown was imposed. During this phase as a result of travel restriction and redistribution of health care services there has been a substantial shift that has occurred in the case profile of patients availing eye care services.

Methods: The records of patients availing eye care facility in a tertiary centre in the month of April were analysed for age, sex and diagnosis. The patients were grouped into 3 groups. Group 1 comprised of patients who presented to trauma and emergency. Group 2 comprised of referral cases and Group 3, those registered to ROP clinic.

Results: A total of 70 patients were examined 23 of these presented to trauma and emergency, 33 were referred from other specialities and remaining were those enrolled to ROP clinic. Major etiology of presentation to trauma and emergency was open globe injury in the form of corneal perforation as a result of vegetative trauma and viral conjunctivitis. Main etiology for referral cases were to look for the presence of hypertensive retinopathy. The number of children registered to ROP clinic reduced.

Conclusion: During the period of lockdown, there has been a major change in the clinical profile of patients seeking eye care facility, leaving behind a lot of those who as a result of chronic illnesses require eye care facility but are unable to avail so.

### I. INTRODUCTION

COVID- 19 as it has been named is a novel coronavirus, belonging to the order of Nidovirales. Discovered first in 1930s, coronaviruses were elementary in causing respiratory infections in chicken.<sup>1</sup> Human coronaviruses have been first discovered in 1960s.<sup>2</sup> Since then the world witnessed epidemics of SARS and MERS. In late 2019, there occurred cluster of cases of pneumonia of unknown cause was seen in Wuhan, of Heubie province in China.<sup>3</sup> Subsequently, in early 2020, through genomic sequencing, it was found that these cases were

caused by a novel virus, which was called Severe Acute Respiratory Syndrome Coronavirus 2 (SARS- CoV- 2).<sup>4</sup> India reported the first case of this Coronavirus disease (COVID- 19) on January 30, 2020, in the state of Kerala.<sup>5</sup> The World Health Organization since then has declared the outbreak to be a global pandemic.<sup>6</sup> However, COVID-19 made one of the largest impact on humankind. The emergence of COVID 19 pandemic, one of the greatest pandemics in the history of mankind lead to reprioritization of healthcare services, travel restrictions and economic hardship. With the budding knowledge about transmission, it lead to one of the largest lockdowns the world witnessed. Through this lockdown phase, the ophthalmic clinics in all the parts of the country are observing a great shift in the clinical profile of patients availing the eye care facility. With the reports of COVID 19 being causative for viral conjunctivitis and transmission of virus through tears,<sup>7,8</sup> it has become important for all the practicing ophthalmologists and staff in eye care facility to be extremely vigilant for prevention of catastrophic outbreak. We conducted a retrospective analysis of all the patients who availed eye care facility over a period of 1 month i.e April 2020 in terms of age, sex and diagnosis.

### II. MATERIAL AND METHODS

A retrospective analysis was conducted by reviewing the case records of patients who availed eye care facility either directly or as a mode of specialist opinion. Data was entered through SPSS version 25 and the clinical profile was analysed in terms of age, sex and diagnosis. All the patients availing to the eye care facility were grouped into three groups. Group 1 comprised of patients who presented to the emergency care facility of the hospital. Group 2 comprised of patients who were referred from other specialities and Group 3 comprised of patients registered to retinopathy of prematurity clinic. This subgroup was analysed in terms of age, zone and respective stage of ROP. Subgroup analysis was done and results were analysed.



### III. RESULTS

Results are categorised for group 1, 2 and 3 respectively. A total of 70 patients were evaluated, 23 of which presented to the emergency, 33 were referred for specialist opinion and remaining were registered for ROP clinic.

Group 1 results are as follows: A total of 23 cases presented to the emergency out of which 5 were females and 18 were males. The most common diagnosis at presentation were corneal perforation with wooden stick injury and viral conjunctivitis. All the patients were screened for the high risk criteria for covid 19 before evaluation. Figure 1 and 2 describe the sex ratio and ratio of various etiologies of presentation.

Group 2 results are as follows: A total of 33 patients were referred from various specialities. Most frequently the patients admitted in view of hypertensive urgency were referred to look for the signs of hypertensive retinopathy. This is followed by referral to look for papilloedema as a sign of raised intracranial tension due to varied etiologies. Table 1-4 describe the sex ratio, anterior segment findings, posterior segment findings and reasons for referral respectively. Figure 3-6 graphically represent the same.

Group 3 results were as follows: A total of 14 children were registered to the clinic out of which 6 were old cases and 9 registered to ROP clinic during the lockdown phase. 7 of these required follow up visits and 3 multiple follow ups. All children had a complete vascularization in zone 1. 2 children required intervention, one at the first visit and another at follow up. Details regarding the clinical findings at first visit are depicted in figures 7-12.

### IV. DISCUSSION:

As there occurred a major outbreak of COVID-19, it led to disruption of many services throughout the world including the healthcare services. The research in the modes of transmission and the setting of physical examination required for the management of ophthalmic cases contributes to increased risk of transmission in ophthalmic practice.<sup>9</sup> Though the SARS-CoV2 virus causes conjunctivitis, it has been found that the virus may not be isolated from the swabs of these patients. On the other hand, the virus may be isolated from the tear fluid swabs of those who are asymptomatic.<sup>10</sup> It has also been postulated that the virus may enter the ocular surface via aerosols and may be transmitted to the respiratory tract with nasolacrimal duct.<sup>10</sup>

There was a major lockdown imposed and with a number of travel restrictions, a decision to run only emergency health care services, the footfall of patients to any health care facility witnessed a major decline. Only those with urgent need of healthcare services and the ones who could access those availed those services. Ophthalmic practice also suffered a major impact, where at one point the patients with refractive errors, cataract, glaucoma, uveitis, diabetic retinopathy, age related macular degeneration which are the major causes of blindness and visual impairment in India formed the major footfall of the out-patient department of any Ophthalmic care facility, none availed the facility during this phase.

The data from analysing the clinical profile of trauma and emergency patients revealed that while there was a significant decline in the footfall of trauma and emergency as well, there were certain remarkable changes in the profile of the patients who availed these services.

Where on one hand the patients with viral conjunctivitis and stye presented to the emergency, there was only a single case of road traffic accident which used to be a major cause of presentation. Open globe injuries as a result of wooden stick injury however formed around 17 % of the total cases as opposed to the findings of the study conducted in north India on epidemiology of ocular trauma which described road traffic accident as the most important cause followed by trauma by vegetative matter.<sup>11</sup> However, study conducted by Syal et al described workplace trauma as the most frequent cause followed.<sup>12</sup> The results from the survey conducted by Nair et al in March 2020 revealed that while majority of the ophthalmologists were dealing with the any of the emergency cases trauma and red eye were the major contributors to the presentation followed by infectious diseases.<sup>9</sup> This could be attributed to the ease of restrictions for agriculture activities. From those cases that were normally encountered in emergency viz lid lacerations, orbital blow out fractures, chemical injuries, acute angle closure glaucoma none except 1 case of chemical injury were encountered during this phase. This can be attributed to prohibited transport facilities and work in industrial areas using chemicals.

Out of the patients who were referred from other speciality, the majority were cases admitted in view of hypertensive urgency and referred to look for the presence of hypertensive retinopathy. The second most common cause of referral was to look for papilloedema as a sign of raised intracranial tension due to varied etiology. There were other miscellaneous referrals as well. There



was a significant decline in the patients registering to ROP clinic with overall 8 new registrations in 1 month and 6 follow ups. 2 of these cases required treatment for ROP. This may be attributed to decreased availability of transport facility.

V. CONCLUSION

COVID-19 epidemic has created a major impact on ophthalmic practice with a great shift the patient profile. This shift points to the fact that at present many patients requiring ophthalmic consultation are devoid of the same. With restrictions on travel, advisories regarding the type of surgeries<sup>13</sup> to be performed to ensure the safety of the patients as well as the health care professionals from contraction of virus, a major challenge awaits in combating the avoidable blindness although telemedicine facilities are aiding to curb the problem to certain extent.<sup>14</sup> We have started a Telemedicine clinic at our institute as well to ease the problems of those in need.

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Tables:

1) Table 1

Table with 2 columns: Sex, Ratio. Rows: Female (10), Male (23), Total (33).



2) Table 2

Anterior Segment findings	
Anisocoria	1
Cataract	1
NORMAL	31
Total	33

3) Table 3

Diagnosis Posterior Segment	
Disc oedema	1
DR	3
HTN RETINOPATHY	3
NA	1
NORMAL	25
Total	33

4) Table 4

REFERRED FOR	Frequency	Percent
Cataract	2	6.1
Cellulitis	1	3.0
Chorioretinitis	1	3.0
CMV RETINITIS	1	3.0
DR	4	12.1
Endophthalmitis	1	3.0
HTN RETINOPATHY	10	30.3
Ocular TB	1	3.0
Ophthalmic association	1	3.0
Papilloedema	9	27.3
Uveitis	1	3.0
Watering	1	3.0
Total	33	100.0