

## Original Article

# Analysing the Ocular Emergencies Presenting at a Tertiary Eye Hospital in Western India During the Second Wave of COVID Pandemic

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**Aims and Objectives :** To understand the frequency and types of ocular emergencies presenting to a Tertiary Eye Hospital in Western India, during the 2nd wave of the COVID Pandemic.

**Materials and Methods :** Study Design – Longitudinal cross sectional study. Sample Size – 1087.

Duration – 5 months. Site – Tertiary Eye Institute at Ahmedabad (Gujarat)

Inclusion Criteria – All patients who presented to our institute during emergency hours.

All the data was collected on demography, clinical examination and diagnosis and immediate treatment that was given.

**Results :** Out of 1087 patients, 848 (78%) had Traumatic and 239(22%) had Non-traumatic emergency. Among the trauma cases, 73% had closed globe injury, with majority being due to corneal foreign bodies. Majority presented within 24 hours of the trauma. Among the Non-traumatic emergencies, Conjunctivitis was commonest (136 cases). But the sudden avalanche of Orbital Mucormycosis (28 cases) was the biggest challenge of the 2nd wave of the COVID Pandemic.

Other causes of painful red eye, such as corneal ulcer, subconjunctival haemorrhage, iridocyclitis, acute attack of angle-closure glaucoma also presented earlier within 24 hours of onset of symptoms.

**Conclusion :** Due to the unlock during the 2nd wave of the COVID pandemic in India we saw an increase number of closed globe injuries at our Tertiary Eye hospital in Western India.

Among the Non-traumatic emergencies, patients with red eye presented in large numbers due to the fear of Mucormycosis and 28 of them actually turned out to be positive.

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**Key words :** Ophthalmic Emergency, COVID Pandemic, Closed Globe Injury, Open Globe Injury, Red Eye, Mucormycosis.

The COVID-19 pandemic, which started at Wuhan in China, in November, 2019 and had spread globally very rapidly, has had a drastic effect on the health and lives of the human population. Each wave of the pandemic had a different feature and its impact varied even in different parts of a large country like India.

Ophthalmic emergencies present to Tertiary Hospital more in numbers as patients come directly and are also mostly referred from primary centres.

During the unprecedented times of COVID pandemic, eye hospitals across India have seen a paradigm shift in the class of patients presenting to them and the various manifestations related to COVID.

### AIMS AND OBJECTIVES

To understand the frequency and type of ocular

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### Editor's Comment :

- During the COVID-19 pandemic and the lockdown rules, many patients choose to stay indoor inspite of having ocular pathologies which resulted in delay in treatment. Also avoid overdosage of steroids during COVID-19 which may increase mucormycosis cases.

emergencies presenting to our Tertiary Eye Hospital at Ahmedabad (Gujarat) in Western India during the 2nd wave of the COVID pandemic.

### MATERIAL AND METHOD

The C H Nagri Eye Institute is a Tertiary Multi Speciality Eye Institute, managed by the Ahmedabad Municipal Corporation and is attached to the NHL Medical College, Ahmedabad. The hospital, in addition to serving the population of Ahmedabad city, also functions as one of the two tertiary eye care centres for the whole of Gujarat and for neighbouring states of Rajasthan and Western part of Madhya Pradesh. We conducted a Longitudinal Cross Sectional study at our Tertiary Eye Institute, during a period of 5 months from 1<sup>st</sup> March, 2021 to 30<sup>th</sup> July, 2021 covering the major period of the 2nd wave of the COVID pandemic in India.

The inclusion criterion was of all patients who presented to our Ophthalmic emergency services during the above mentioned period. The study adhered to tenets of the Declaration of Helsinki. No identifiable parameters of patient information were used for data analysis.

A total of 1087 patients were enrolled in this study. A detailed history of all these patients was taken. Patients underwent a detailed clinical examination including visual acuity, slit lamp examination, Non contact tonometry, Fundus examination, assessment of Ocular movements.

**OBSERVATIONS**

A total of 1087 patients were seen during our study period, of which 956(88%) were Males and 131(12%) were Females. 848(78%) cases were Traumatic emergencies and 239(22%) were Non-traumatic emergencies.

Of the Traumatic injuries, 619(73%) cases were Closed Globe Injury and 229(27%) cases were Open Globe Injury.

Majority of the patients of Closed Globe Injuries, ie, 417 cases were in the active working age group of 20 to 40 years. 76 cases were less than 20 years old and 126 patients were 40 years and older. 537 patients who presented with closed globe injury, had a conjunctival / corneal foreign body, 31 patients had photokeratitis due to exposure to welding arc, 18 had chemical injuries, 16 had ecchymosis due to blunt trauma, 15 had lacerations and lid tears and 2 presented with blow out fractures (Fig 1).

**Type of Closed Globe Injuries :**

106 patients who presented with Open Globe Injuries were less than 20 years of age, 70 patients were in the age group of 20 to 40 years and 53 patients were 41 years and above.

72% of patients with Closed Globe Injuries presented to us within 24 hours of the injury while 94% of Open Globe Injuries presented to us within 24 hours of the injury.

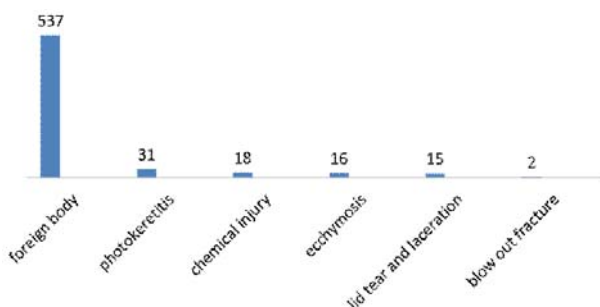


Fig 1 — Type of Closed globe injury

**Time of presentation of closed Globe Injury (Fig 2):**

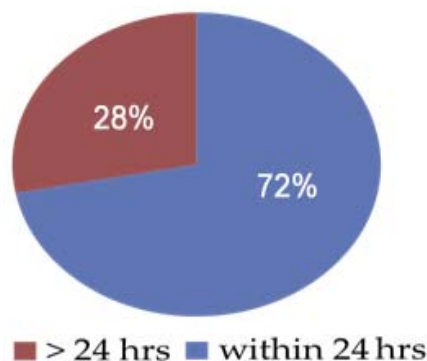


Fig 2 — Time of presentation of Closed Globe Injury

**Time of presentation of open Globe Injury (Fig 3) :**

239 patients presented to our emergency clinic during the study period with Non-traumatic ophthalmic emergencies of which, 136 cases were of red eye due to conjunctivitis, 23 cases were of corneal ulcer, 15 cases were of iridocyclitis, 15 cases were of subconjunctival haemorrhage and 11 cases were of acute attack of angle closure glaucoma. We saw 28 cases of Mucormycosis related orbital cellulitis during this period. Apart from this, 11 patients presented to us with loss of vision due to retinal vascular occlusion or vitreous haemorrhage or Postoperative Endophthalmitis.

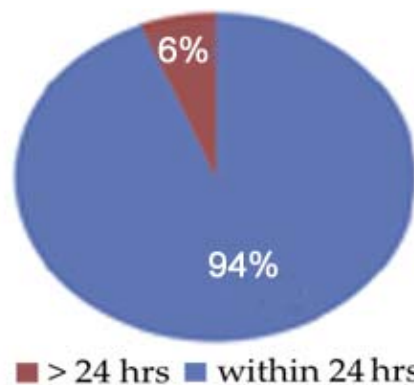


Fig 3 — Time of presentation of Open Globe Injuries

**Type of Non Traumatic Emergencies (Fig 4) :**

Majority of patients ie, 188 cases who presented with Non-traumatic emergencies due to Red Eye of various causes were in the age group of 20 to 50 years. 28 cases were less than 20 years of age. 23 patients were 51 years and above.

We observed a spike of Orbital Mucormycosis patients (28 cases) presenting during this short study period of the 2nd wave of the COVID-19 pandemic. 25

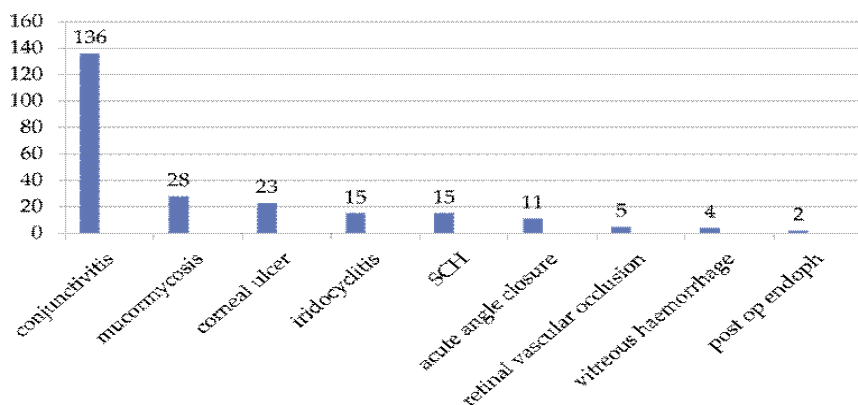


Fig 4 — Type of Non-traumatic Injuries Emergencies

patients were 40 years and above while 3 were in the age group of 20 to 40 years but none in the below 20 years age group.

**Age group in Mucormycosis Patients (Fig 5) :**

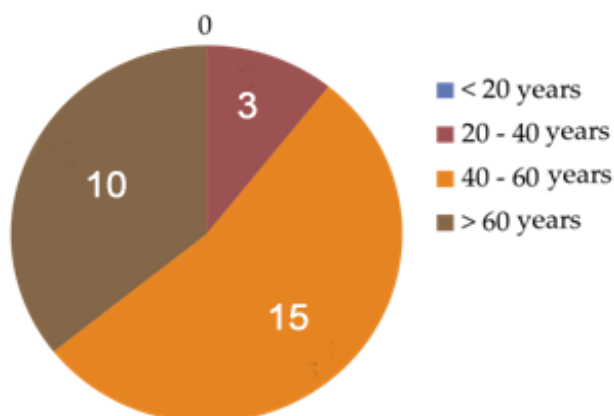


Fig 5 — Age group of Mucormycosis patients

**DISCUSSION**

Our tertiary Eye Institute in Ahmedabad saw a very high number of traumatic and Non-traumatic ophthalmic emergencies during the 2nd wave of the COVID-19 pandemic in 2021 in India which could be partly attributed to the fact that many Government and private hospitals had been totally converted into COVID hospitals during this period and many individual private practice setups were not accepting emergencies leading to a centralization of Ophthalmic Emergency Services<sup>1,2</sup>.

We saw 56.9 % cases being traumatic injuries due to minor corneal foreign bodies (49.4%) and welding are induced photokeratitis (2.85%), surface chemical injuries (1.65%) or adnexal injuries(3%)which can be attributed to the injuries at workplace or while doing

household chores since the lockdown in India in 2020 and the burden of the 1st wave of the COVID-19 pandemic had created a compulsion for the continuance of industrial work and small businesses in 2021, inspite of the medical situation of the pandemic. However agricultural injuries were minimal.

In a study, Pellegrini, *et al* observed 354 eye injuries (15.6% of emergency admissions) in 2019 between March 10 and April 10, while 112

eye injuries (19.9% of all ED presentations) were noted in the same interval in 2020. They found that during quarantine, the proportion of children and adolescents with ocular injuries decreased (from 14.7% to 8.0%) and that the proportion of men increased (from 66.7% to 75.0%). They showed a dramatic reduction in eye injuries (68.4%) during the pandemic period, and predicted that behavioral changes at the time of quarantine would decrease the risk of trauma. They stated that the decrease in sports injuries and injuries in children during school closure supports this hypothesis<sup>4</sup>. In our study, out of the 848 eye injuries, 75 cases (8.84%) of Open Globe Injuries and 106 cases (12.5%) of Closed Globe Injuries were found to be in children and adolescents which could be attributed to the inability of the Government to impose a very strict lockdown during this period.

Most of the trauma patients reached our emergency centre quite early- 72 % of closed globe injuries and upto 94% of Open Globe Injuries- within 24 hours of the injury as Ophthalmic Emergency services had been centralized during this period and there was no lockdown as had been the situation during the same period in 2020 in India<sup>6</sup>. This enabled an earlier and more efficient management of all these trauma cases.

Among the Non-traumatic emergencies, conjunctivitis was commonest (56.6%) as compared to 29.4% at a hospital in Sao Paulo, Italy<sup>4</sup> during the COVID-19 pandemic period and 13.19% at a Tertiary Eye Centre (Shankar Netralaya) in South India in 2020<sup>5</sup>. We attribute this to the poorer social distancing in India during the second wave and also the extreme rise of Mucormycosis cases in Gujarat which caused a panic situation wherein all cases of Red Eye like conjunctivitis, iridocyclitis, corneal ulcers, acute attacks of angle closure glaucoma and even

subconjunctival haemorrhage rushed to tertiary eye institutes to rule out this grave condition. We actually did see 28 cases of Orbital Mucormycosis during this period who were either, diagnosed elsewhere and referred in emergency for management, or were primarily diagnosed at our institute. Most of these patients were above the age group of 20 years. This data is comparable to the Collaborative OPAI – IJO study<sup>3</sup> and a study by Walia S, *et al*<sup>7</sup>.

We noticed that other Non-traumatic Ophthalmic emergencies like retinal vascular occlusions, vitreous haemorrhage and Postoperative endophthalmitis were also referred to our tertiary institute during this period as routine Ophthalmic services were disturbed at many centres.

### CONCLUSIONS

In conclusion, due to the unlock during the second wave of the COVID pandemic in India we saw an increase number of Closed Globe Injuries at our Tertiary Eye Hospital in Western India .

Among the non traumatic emergencies, patients with Red Eye presented in large numbers due to the fear of Mucormycosis and 28 of them actually turned out to be positive.

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**Conflicts of interest :** There are no conflicts of interest.

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