

Impact of Coronavirus Disease 19 Pandemic Lockdown on Ophthalmic Practice

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Abstract

Introduction: On January 30, 2020, the outbreak of coronavirus disease (COVID-19) was declared as public health emergency of international concern by the WHO. Subsequently, it was declared a pandemic on March 11, 2020. India reported the first case of this COVID-19 on January 30, 2020, in the state of Kerala in South India. In view of COVID-19 pandemic, only essential services were made available.

Purpose: The purpose of the study was to assess the impact of lockdown on ophthalmic practice in tertiary care center.

Methodology: Cases attending the ophthalmology outpatient department from March 23, 2020, to May 23, 2020, were examined as per AIOS guidelines of COVID practice patterns 2020.

Results: A total of 160 patients were examined, out of which 77 were male and 83 were female. Viral conjunctivitis constituted 32.5% (52/160). Bacterial conjunctivitis constituted 12.5% (20/160). Allergic causes of red eyes constituted 13.75% (22/160). Trauma to the eye constituted 22.5% (36/160). Follow-up cases including post-operative were 6.87% (11/160).

Conclusion: Lockdown resulted in a decrease in the number of follow-up cases including post-operative cases to ophthalmology outpatient department.

Key words: Coronavirus disease 19, Lockdown, Ophthalmology, Severe acute respiratory syndrome

INTRODUCTION

In the present time line, pandemic of cases with low respiratory tract infection was first detected in Wuhan city in China's Hubei Province and reported to the WHO on December 31, 2019.^[1] After this, these cases were initially classified as pneumonia of unknown etiology. Chinese center for disease control and prevention identified this virus as novel virus belonging to the corona family and named it as severe acute respiratory syndrome corona virus 2 (SARS-CoV-2).^[2]

On January 30, 2020, the outbreak was declared as public health emergency of international concern by the WHO. It

had spread to 18 countries by then with 4 countries having human-to-human transmission.^[3]

The WHO named it as coronavirus disease on February 11, 2020.^[3]

By March 11, total number of cases worldwide exceeded 118,000 with 114 countries affected and more than 4000 deaths and subsequently it was declared a pandemic on March 11, 2020.^[3]

India reported the first case of this coronavirus disease (COVID-19) on January 30, 2020, in the state of Kerala in South India, where a student with a history of travel to Wuhan presented with respiratory symptoms. This was followed by two more similar cases on consecutive days.^[4]

Initially lockdown was started in China to curb the spread of the disease where schools and colleges were shut until further orders and there were travel restrictions followed. The similar pattern was followed by other countries worldwide.

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Similarly, in India, the central government announced “Janata curfew” on March 22, 2020.^[5] Converting it into a nationwide lockdown since March 24, 2020, continuing for a period of 21 days (Phase-1).^[6] The lockdown was placed when the number of confirmed positive coronavirus cases in India was approximately 500.

On April 14, Prime Minister Narendra Modi extended the nationwide lockdown until May 3 (Phase-2), with a conditional relaxations after April 20 for the regions where the spread had been contained or was minimal.^[7]

On May 1, the Government of India extended the nationwide lockdown further by 2 weeks until May 17 (Phase 3). There

was relaxation as per the zones – red, green, and orange and the restrictions were done accordingly [Figure 1].^[8]

As per May 22, data from state health departments show that with the addition of 6510 cases, there have been a total 124,525 confirmed cases with 69,140 active infections and 51,666 recoveries country wide. Fatalities increased by 148, to take the total death toll to 3720.^[9]

Karnataka government followed similar lockdown pattern as instructed by the central government.

In Karnataka at the time of first lockdown (March 23), the total number of cases was around 108. At the end of the

#	Activity	Green	Orange	Red	Containmen
1	Travel- Air, Train, Metro	NO	NO	NO	NO
2	Inter-state Road Movement	NO	NO	NO	NO
3	Education Institutions	NO	NO	NO	NO
4	Hospitality- hotels, cinemas, malls	NO	NO	NO	NO
5	Worship & Large gatherings	NO	NO	NO	NO
6	Barbershop, spa	YES	YES	NO	NO
7	Coming out between 7 pm and 7 a	NO	NO	NO	NO
8	Age >65, <10, Pregnant - Outing	NO	NO	NO	NO
9	Medical Clinic, OPD	YES	YES	YES	NO
10	Auto, Taxi ,	1+1	1+1	NO	NO
11	4 Wheeler	1+2	1+2	1+2*	NO
12	2 Wheeler	1+1	1+1	1+0*	NO
13	Inter-district Bus	50%	50%	NO	NO
14	Intra-district Bus	50%	50%	NO	NO
15	Industrials with access control	YES	YES	YES	NO
16	Urban Industries	YES	YES	YES	NO
17	Urban in-situ construction	YES	YES	YES	NO
18	Urban single non/essential shops	YES	YES	YES	NO
19	E-com Essential goods	YES	YES	Yes	NO
20	Private and Govt (non-core)	YES	YES	33%	NO
21	Agri activiteis	YES	YES	Yes	NO
22	Bank & Finances	YES	YES	Yes	NO
23	Courier and Postal	YES	YES	YES	NO
24	Goods Traffic	YES	YES	YES	NO

Figure 1: Zone-wise restrictions during coronavirus disease 19 pandemic

first, second, and third phases of lockdown, the number of corona cases was 1463, 1755, and 4987, respectively. As of May 23, 2020, it was about 6654.^[10]

The symptoms of COVID-19 commonly present as fever, cough, sore throat, fatigue, dyspnea, occasional diarrhea, and vomiting. It was seen in certain population such as the immunocompromised and the elderly that it can progress to acute respiratory distress syndrome (ARDS), sepsis, and multiorgan failure. Due to the lack of a vaccine or drug to treat this condition, the mortality rate was on the higher side.^[11]

The World Health Organization announced that the spread of COVID-19 was also through droplets, fomites, and contacts just like SARS.^[12]

Since there was a high risk of health care workers contracting this virus, when the lockdown came in place, there was advice to the doctors to continue only with emergency services and to shut regular outpatient departments, elective procedures, and admissions across the country until further orders.

Aim

The aim of the study was as follows:

1. To document the ophthalmic cases seen in a tertiary eye care center during the lockdown period from March 23 to May 23, 2020
2. To assess the impact of lockdown on ophthalmic practice.

METHODOLOGY

Since the lockdown, in the ophthalmology department in our institution as per the AIOS guidelines 2020 (COVID practice patterns), only emergency ophthalmic conditions were treated only after screening for COVID-19 symptoms were done. Screening was done in the casualty based on history and thermal screening.

COVID-19 screening questionnaire:
• Have you had any history of fever in the last 14 days?
• Have you had any respiratory illness such as cough or difficulty breathing in the last 14 days?
• In the past 14 days, have you or any household member had any contact with a known COVID-19 patient?
• Have you or any household member traveled to international area or to areas of suspected community spread in the last 14 days?
• Have you or any household member had history of exposure to COVID-19 biologic material?

If the patients temperature was more than 99.3 F on thermal screening and if they had positive history, they were subjected to further evaluation by the physicians.

In our department, all the elective procedures were deferred indefinitely, the OTs were shut and no admissions were undertaken.

Safety guidelines in the department –

- a. The department had minimal personal on duty which included one senior faculty, one resident and a house surgeon who worked on rotation basis
- b. Doctors used PPE's such as N95 mask, face shield, gloves, and cap
- c. Slit lamps were equipped with temporary protective barriers
- d. Procedures which required close contact such as direct ophthalmoscopy and retinoscopy were deferred
- e. Frequent sanitization of equipment, patient seating area, and consultation rooms were done
- f. Ophthalmic examinations undertaken in the outpatient department preceded with history taking, anterior segment torchlight examination of the eyes followed by slit lamp examination. If indicated, posterior segment evaluation was done with indirect ophthalmoscopy after dilating the pupil with appropriate cycloplegics.

RESULTS

A total of 160 patients were examined in time period of 2 months, that is, March 23, 2020–May 23, 2020, out of which 77 were male and 83 were female [Figure 2].

Viral conjunctivitis constituted 32.5% (52/160). Bacterial conjunctivitis constituted 12.5% (20/160). Allergic causes of red eyes constituted 13.75% (22/160).

Trauma to the eye constituted 22.5% (36/160). Follow-up cases including post-operative were 6.87% (11/160).

Out of total number of viral conjunctivitis cases which were seen, 59.61% were seen during the Phase 1 of lockdown, that is, March 23–April 14, 2020, 28.84% during Phase 2 of lockdown, that is, April 15–May 3, and 11.53% during Phase 3 from May 4 onward [Figure 3].

Out of total number of bacterial conjunctivitis, cases which were seen 35.5% were seen during Phase 1 of lockdown, 30% during Phase 2, and 35% during Phase 3 of lockdown.

Allergic conjunctivitis – Phase 1 – 31.81%, Phase 2 – 18.18%, and Phase – 3.50%.

Trauma to eye – Phase 1 – 2.7%, Phase2 – 38.88%, and Phase 3 – 58%.

Follow-up cases including post-operative – Phase 1 – 9.10%, Phase 2 – 0%, and Phase 3 – 90.90%.

Other cases which were seen –

- Blepharitis – 1
- MGD – 2

- Chalazion – 2
- Optic neuritis – 1
- Dacryocystitis – 3
- Inflamed pterygium – 2
- Inflamed pinguecula – 1
- POAG – 1
- PACG – 1
- HMC – 1
- Papilledema – 1
- Preseptal cellulitis – 1
- Anterior uveitis – 1
- Corneal ulcer – 1

DISCUSSION

Coronavirus is positive-stranded RNA viruses with a crown-like appearance under an electron microscope (corona is the Latin term for crown) due to the presence of spike glycoproteins on the envelope. The subfamily Orthocoronavirinae of the Coronaviridae family (order Nidovirales) [Figure 4].^[13]

Common human CoVs: HCoV-OC43, and HCoV-HKU1 (beta CoVs of the A lineage); HCoV-229E, and HCoV-NL63 (alpha CoVs). They can cause common colds and self-limiting upper respiratory infections in immunocompetent individuals. In immunocompromised subjects and the elderly, lower respiratory tract infections can occur.^[13]

These cause epidemics with variable clinical severity featuring respiratory and extrarespiratory manifestations.^[13]

The epidemic of unknown acute respiratory tract infection broke out first in Wuhan, China, since December 12, 2019, possibly related to a seafood market. Several studies suggested that bat may be the potential reservoir of SARS-CoV-2 as an emerging acute respiratory infectious disease, COVID-19 primarily spreads through the respiratory tract, by droplets, respiratory secretions, and direct contact.^[14]

Based on current epidemiological investigation, the incubation period is 1–14 days, mostly 3–7 days. Moreover, the COVID-19 is contagious during the latency period.^[15] It is highly transmissible in humans, especially in the elderly and people with underlying diseases.

As it is designated SARS-CoV-2, COVID-19 patients presented certainly similar symptoms, such as fever, malaise, and cough.^[16] Most adults or children with SARS-CoV-2 infection presented with mild flu-like symptoms and a few patients are in critical condition and rapidly develop ARDS, respiratory failure, multiple organ failure, and

even deaths.^[17] SARS-CoV-2 is capable of causing ocular complications such as viral conjunctivitis in the middle phase of illness.

Possible theories include direct inoculation of the ocular tissues from respiratory droplets or aerosolized viral particles, migration from the nasopharynx through the nasolacrimal duct, or even hematogenous spread through the lacrimal gland.

Patients infected with SARS-CoV-2 can present with symptoms of conjunctivitis, including eye redness, ocular irritation, foreign body sensation, tearing, and chemosis. These symptoms have more commonly affected patients with severe systemic symptoms of COVID-19, though they can rarely present as an initial manifestation of the disease.^[18]

Examination findings include those consistent with mild follicular conjunctivitis, including unilateral or bilateral bulbar conjunctiva injection, follicular reaction of the palpebral conjunctiva, watery discharge, and mild eyelid edema. As with other viral infections, ocular manifestations of COVID-19 are presumed to be self-limited and can be managed with symptomatic care.

During the Phase 1 out of the total number of cases, there were more cases of viral conjunctivitis followed by bacterial conjunctivitis and allergic conjunctivitis.

There were Less trauma cases and no workplace injuries in this period.

During Phase 2, the viral conjunctivitis cases remained more followed by more number of trauma to the eye cases followed by bacterial conjunctivitis and allergic conjunctivitis. There were no follow-up cases of pseudophakia seen.

Phase 3 trauma cases were mostly followed by allergic conjunctivitis followed by follow-up cases and bacterial conjunctivitis and allergic conjunctivitis.

Treatment protocols followed during the lockdown period in our outpatient department were as follows –

1. Viral conjunctivitis – Topical steroids, for example, prednisolone/loteprednol/fluorometholone were given with antibiotic cover, for example, moxifloxacin/gatifloxacin/tobramycin 4–6 times/day depending on the severity of the inflammation. Lubricants were also added for about 4–6 times/day
2. Bacterial conjunctivitis – topical antibiotics along with lubricants 4–6 times/day depending on severity
3. Allergic conjunctivitis – antihistamine eye drops, for

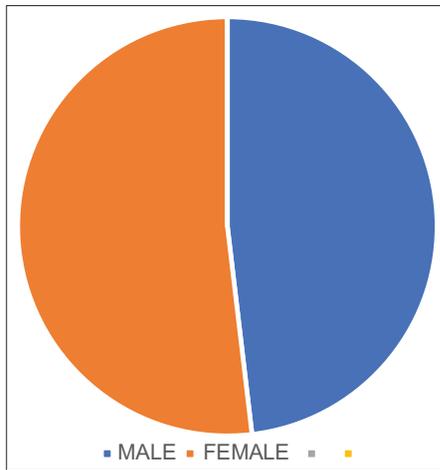


Figure 2: Gender distribution of the cases seen in the outpatient department during lockdown

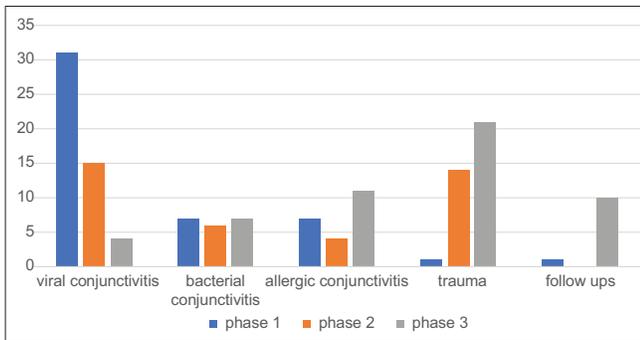


Figure 3: Number of cases according to the different phases of lockdown

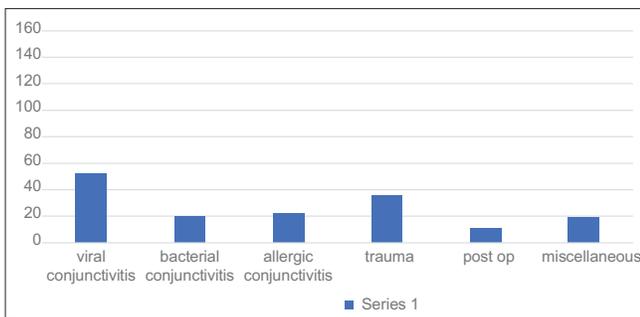


Figure 4: Types of cases visiting outpatient department during lockdown

example, olopatadine/bepotastine 2 times/day along with lubricants

In cases having vernal keratoconjunctivitis, immunomodulators such as tacrolimus or cyclosporine eye ointments were given 1–2 times/day.

4. Trauma – symptomatic treatment was given along with primary suturing done in cases where it was indicated taking adequate precautions under aseptic conditions.

As the lockdown was relaxed in different phases, trauma cases were more followed by follow-up cases which were very less in the first phase compared to second and third cases.

Due to non-availability of public transport during the initial phases on the lockdown (1 and 2), it could have been a contributory factor to the decrease in the number of cases visiting the outpatient department other than the fact that non-essential movements were restricted. As the public transportations gradually resumed in the latter half of the lockdown, there was a slight increase in the number of patients visiting the hospital.

The study done by Nair *et al.* stated that elective procedures such as cataract and refractive surgeries can be rescheduled to a later date while patients with sudden loss of vision, infections, and post-operative patients needed immediate care and intervention.^[19]

CONCLUSION

Lockdown resulted in a decrease in the number of follow-up cases including post-operative cases to ophthalmology outpatient department.

Cases with infectious etiologies prevailed more during the lockdown mostly in majority during Phase 1 and Phase 2. Trauma cases spiked up during the second and third phases of lockdown due to relaxation given in lockdown period as work and day-to-day activities started resuming.

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