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IP International Journal of Ocular Oncology and Oculoplasty

Journal homepage: https://ijooo.org/

Case Series

Episcleritis and sub-conjunctival haemorrhage in Post- acute COVID-19 patients - A case series

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ARTICLE INFO

Article history:
Received 26-07-2021
Accepted 21-10-2021
Available online 07-02-2022

Keywords:
COVID-19
Episcleritis
Cornea
Sub Conjunctival Haemorrhage
Severe Acute Respiratory Syndrome
Coronavirus 2(SARS- CoV-2)

ABSTRACT

The research on COVID-19 is mainly focused on the respiratory system for survival rate improvement. In recent days, the affect of the disease on other organs including eye has been reported. However, a lot of research and data is needed to understand the pathophysiology and develop effective treatment strategies.
In the present study, we report a series of 8 patients who presented themselves in the hospital with complaints of redness in the eye. All these patients had a history of COVID-19 illness during preceding one month.
Patients were diagnosed with epislecritis and/or sub-conjunctival haemorrhage using clinical evaluation. They were put on topical steriods and ganciclovir. All the patients improved/recovered within 10 days of presentation.
Our study reports the ocular manifestations- episcleritis and sub-conjunctival haemorrhage as Post-acute COVID-19 symptom in cases of lab positive and symptomatic mild COVID-19 disease. These ocular manifestations have been otherwise reported during acute phase or as one of the early signs of infections.
Key Messages: Mild cases of COVID-19 presented themselves with episcelritis and/or sub-conjunctival haemorrhage after acute phase (3- 4 weeks after commencement of infections). This highlights that SARS-CoV-2 leads to hemorrhagic and inflammatory response in the eyes as a sequelae, well beyond the period when replication-competent SARS-CoV-2 have not been isolated.

1. Introduction

COVID-19 has become a health challenge to the world since the outbreak of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) epidemic in early December 2019, in Wuhan, Hubei Province. It was declared as a global pandemic by World Health Organization (WHO) on March 11, 2020. Emerging evidence has shown the virus to cause hemorrhagic and immunologic responses, which impact all organs, including lungs, kidneys, brain, eyes, extremities etc.[1] However, the full spectrum of the disease is yet to be unravelled. Anecdotal and published data continue to emerge on the spectrum of ophthalmic manifestations in patients infected with SARS-CoV-2. These symptoms appear at different stages of the disease, which range from neuro-ophthalmic, anterior segment, ocular surfaces to posterior segment manifestations.[2,3] The present case series highlights the ocular symptoms that appeared as a sequelae of SARS-CoV-2 infections.

2. Materials and Methods

This is a hospital-based, retrospective, descriptive case-series study.

A series of eight cases presented to the out-patient department (OPD) of this eye hospital with complaints of

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https://doi.org/10.18231/j.ijooo.2021.089

unilateral, painless red eye. Out of these, two patients had a sudden onset of symptoms and the other two complained of irritation along with redness in the affected eye. All these patients presented to the OPD three to four weeks after the onset of COVID-19 symptoms.

Detailed history and routine ophthalmic examination were conducted on all patients and clinical diagnosis was made on the basis of symptoms and signs. All the patients were reviewed by a single ophthalmologist.

3. Results

Of the eight patients, six of them had an episcleritis whereas two had sub-conjunctival haemorrhage (Figure 1). Most of these patients primarily came to verify the diagnosis of black fungus. All the cases were diagnosed as COVID-19 based on reverse transcription polymerase chain reaction (RT-PCR) positive nasopharyngeal swabs samples. The age ranged from 34 years to 68 years with the median age of 44.5y. None of these patients required hospitalisation for COVID-19 illness. Only one patient, out of eight, received systemic steroids during the course of COVID-19 disease. The patients were started on a combination of topical steroids (Loteprednol 0.5%) for 10 days, first 5 days 3 times, next 5 days 2 times and Ganciclovir ointment 0.15% w/w 3 times a day in the affected eye for 10 days. One patient who was not started on Loteprednol 0.5% returned with complaint of no improvement in symptoms. The patient improved subsequently after Loteprednol 0.5% eye drops were started. All the patients improved within 10 days of starting this combination of drug. Table 1 presents the characteristics of eight patients with their ocular manifestations.

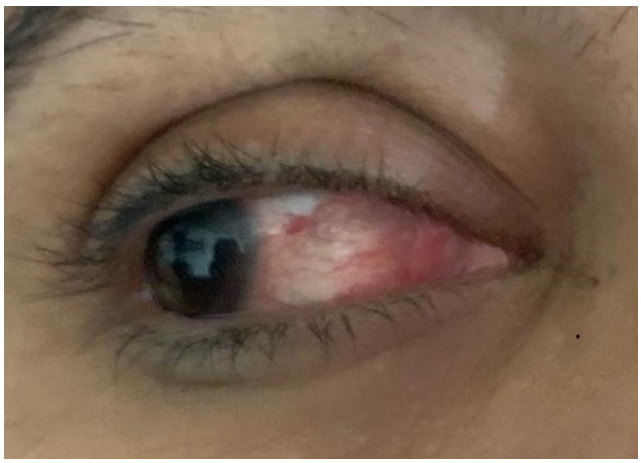

Fig. 1: Image of an eye with episcleritis in a patient four weeks after the onset of COVID-19 symptoms (A Post-acute COVID-19 ocular manifestation).

Table 1: Details of patients with ocular manifestations in Post-acute COVID-19 phase.

Patient no./Sex/ Age (y)	Systemic Disease	Clinical Type*	Hospitalization during COVID-19 Illness	Best Corrected Visual Acuity	Ocular manifestations
1/M/35	None	Mild	No	20/20 OU	Left Episcleritis at 5'O Clock
2/F/52	None	Mild	No	20/40 OD 20/30 OS	Left Episcleritis
3/M/68	Diabetes mellitius -II	Mild	No	20/40 OD 20/30 OS	Right Sub-Conjunctival Haemorrhage
4/M/25	None	Mild	No	20/30 OU	Left Episcleritis at 9'O Clock
5/M/34	None	Mild	No	20/30 OD 20/20 OS	Left Sub-Conjunctival Haemorrhage
6/M/44	Hypertension, Diabetes Mellitius-II	Mild	No	20/20 OU	Right Episcleritis
7/F/54	None	Mild	No	20/30 OU	Right Chemosis with Episcleritis
8/F/45	None	Mild	No	20/30 OU	Mild corneal Infiltration, Right Episcleritis at 3'O Clock

Abbreviations: M-Male, F-Female, IOP- Intraocular Pressure
*Graded by clinical management protocol:COVID-19.
Government of India Ministry of Health and Family Welfare Directorate General of Health Services to be written as Government of India, Ministry of Health and Family Welfare, Directorate General of Health Services.

4. Discussion

COVID-19 caused by SARS-CoV-2 has had huge implications on human health. The infection can range from asymptomatic, to life threatening respiratory distress and death.[2] Emerging data suggests that it can affect almost every organ of the body. Eye specialists around the world are reporting various manifestations of the infection in the eye. These manifestations vary in terms of presentation, severity and timings.[2] Kerato-conjunctivitis was reported as an initial presentation in a patient with mild respiratory symptoms by Cheema et al.[4] Chen et al. suggested ocular manifestations to be more common in the middle phase of the disease.[5] Otaif et al reported a patient that presented with the ocular signs as the first sign of the disease.[6] There is an ever increasing need to report the manifestations of the novel COVID-19 disease so that we can develop a better understanding in order to diagnose, and treat the conditions. In our hospital setting, we observed a sudden increase in the number of patients with redness, conjunctivitis and sub-conjunctival haemorrhage during the end of May 2021. On analysis, it was observed that all these patients had a history of mild COVID-19 illness and these ocular surface symptoms developed three to four weeks after the onset of disease. The patients were asymptomatic and had recovered from Acute COVID-19 when they developed the ophthalmic manifestations. All the patients, at the time of presentation of the eye symptoms, were RT-PCR negative. The meta-analysis carried out by Sen et al, 2021 classifies episcleritis as an early symptom that develops within the first week of COVID-19 infection. However, in our study we have observed ocular symptoms in a number of patients as a delayed manifestation. These delayed symptoms can be termed as Post-acute COVID-19, a syndrome characterized by persistent symptoms and/or delayed or long-term complications beyond four weeks from the onset of symptoms. Though the definition of the Post-acute COVID-19 timeline is evolving, it has been suggested to include persistence of symptoms or development of sequelae three or four weeks from the onset of acute symptoms of COVID-19, as replication-competent SARS-CoV-2 has not been isolated after three weeks.[7]

Scientific and clinical evidence is evolving on the long-term effects of COVID-19, which can affect multiple organs. Early reports suggest residual effects of SARS-CoV-2 infection, such as fatigue, dyspnoea, cognitive disturbances, arthralgia and decrease in quality of life.[8] This is the first report where episcleritis and sub-conjunctival haemorrhage were observed in the Post-acute COVID-19 patients. Episcleritis (an inflammatory condition of episclera), though idiopathic in most cases has also been reported with viral diseases like Ebola, herpes zoster, and hepatitis.[6] Inflammatory damage in response to the acute infection, and a pro-coagulant state induced by SARS-CoV-2 infection may have contributed to this sequelae.

The multi-organ sequelae of COVID-19 beyond the acute phase of infection are increasingly being valued as data and clinical experience in this timeframe is limited. Necessary active and future research is needed to know the sequelae of the COVID-19 illnesses which will help us to understand the natural history and pathophysiology of this new disease entity.

5. Acknowledgement

None.

6. Conflicts of Interest

The authors declare that there are no conflicts of interest regarding the publication of this paper.

7. Source of Funding

None.

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Cite this article: Singh H, Chaudhary G. Episcleritis and sub-conjunctival haemorrhage in Post- acute COVID-19 patients - A case series. *IP Int J Ocul Oncol Oculoplasty* 2021;7(4):421-423.