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EVALUATION OF CLINICAL PROFILE AND PATTERN OF CONJUCTIVAL CONGESTION IN MILD COVID -19 PATIENTS IN DESIGNATED COVID-19 HOSPITALS.

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Abstract

Background: SARS-COV-2 is thought to be transmitted from person to person mainly through respiratory droplets or close contact. The most common symptoms of COVID -19 are fever, cough, slight dyspnoea, sore throat, headache and fatigue. Complications in severe cases include pneumonia, renal failure, etc.

Methods: A retrospective cross-sectional study was conducted in Department of Ophthalmology GMC Jammu in collaboration with the Department of Microbiology, GMC Jammu, upon 139 mild Covid-19 positive patients, kept under isolation during the period: March 2020 to August 2020. Patients with fever, upper respiratory symptoms, or asymptomatic individuals who were confirmed positive for COVID -19 by reverse transcription-polymerase chain reaction from nasophayngeal swabs were included in the study.

Results: The mean age of patients was: 37-years. 37 patients diagnosed as Covid-19 positive showed no symptom of Covid-19. 72 (51.8%) patients were surely healthy individuals without any kind of illness or co-morbidities. While only 16 patients (11.5%) reported with conjunctivitis (congestion) or a recent history thereof. Three patients had developed conjunctival congestion without Covid-19 symptoms. 8 patients had recent history before the onset of Covid-19 symptoms. Most of the patients had manifestation within the first week of admission.

Conclusions: Conjunctival congestion is significant ocular manifestation among Covid-19 patients. Covid-19 related history and symptoms should therefore include such ocular examinations as well and sufficient precaution is implemented while dealing with conjunctivitis patients showing mild symptoms of Covid-19.

Key words: SARS-COV-2, COVID-19, Conjunctival Congestion, Nasophayngeal Swabs

Introduction

In December 2019, severe acute respiratory syndrome coronavirus-2 (SARS-C0V-2), an enveloped, single stranded RNA virus with pneumonia of unexplained cause, occurred in Wuhan Province, China. Deep sequencing from lower respiratory samples confirmed infection was caused by novel coronavirus and named coronavirus disease: COVID -19 by the World Health Organization (WHO).[1] On 11th March 2020, the coronavirus disease 2019 (COVID -19) was declared as pandemic by the WHO. The most common symptoms are fever, cough, slight dyspnoea, sore throat, headache and fatigue. Diarrhoea was uncommon. Complications in severe cases include pneumonia, renal failure, cardiomyopathy, encephalopathy, vasculopathy and coagulopathy.[2] SARS-COV-2 is thought to be transmitted from person to person mainly through respiratory droplets or close contact and has worrisome fatality of 2%-3%.[3]Studies conducted in China showed conjunctivitis as one of the manifestations and the first case was reportedly notified by an ophthalmologist. The ocular surface is exposed to the outside environment which may become a potential gateway for pathogens such as viruses to invade the human body. Moreover, ACE 2 is a cellular receptor for SARS –COV-2. ACE-2 has also been detected in the human retina, vascularised retinal pigment epithelium choroid and cornea and conjuctival epithelial. For these reasons, it is important to evaluate the clinical spectrum of ocular disease caused by SARS-COV-2 infection.[4] To the best of our knowledge, no studies are available in India to find the ocular symptoms among COVID –19 affected populations . This has led to a couple of studies to find the prevalence of conjunctivitis and other ocular manifestation in important nodal hospitals for COVID -19 patients in India.[5]

Our study may further help us to understand the ocular symptoms associated with COVID -19 patients and guide us for taking appropriate measures while examining a patient with conjunctivitis in a current COVID-19 pandemic era.

Method:

A retrospective cross-sectional (prevalence) study was conducted in Department of Ophthalmology GMC Jammu in collaboration with the Department of Microbiology, GMC Jammu, upon 139 mild Covid-19 positive patients, kept under isolation in designated hospitals, during the period: March 2020 to August 2020. Patients with fever, upper respiratory symptoms, or asymptomatic individuals who were confirmed positive for COVID -19 by reverse transcription-polymerase chain reaction from nasophayngeal swabs were included in the study. Diagnosis and classification of COVID—19 cases were done based on

guidelines provided by ministry of health and family welfare, directorate general of health services, India. The study was conducted in accordance with the ethical standard of the institutional research committee. Patients' information was collected from the hospital record and data were maintained in pre-designed proforma consisting of demographic details, exposure history, systemic symptoms, systemic illness, ocular symptoms and ocular signs. Ocular history and examination had been done by an ophthalmologist wearing personal protective equipment using a torch light, by maintaining at least 1 m distance to avoid exposure of COVID-19 infection and the findings were recorded in the case notes. The details of the pattern of conjunctivitis were recorded mainly on the basis of presenting symptoms and torch light examinations.

Complete data, thus collected, was entered into Microsoft Excel Sheets and statistical analysis was performed using STATA version: 12.1.

Results:

A total of 139 cases reported in the designated Covid-19 designated hospitals of Jammu city. The mean age of patients, ranging between 6-81 years, was: 37-years, with 89 (64.03%) males and 50 (35.97%) females. (Table 1)

Table 1: Demographic Distribution of subjects

Males	n=	89	%=	64.03
Females	n=	50	%=	35.97
Total		139		100.00
>70 Years	n=	7	%=	5.04
61-70 Years	n=	13	%=	9.35
51-60 Years	n=	17	%=	12.23
41-50 Years	n=	20	%=	14.39
31-40 Years	n=	35	%=	25.18
21-30 Years	n=	29	%=	20.86
11-20 Years	n=	15	%=	10.79
<10 Years	n=	3	%=	2.16
Total		139	%=	100.00

The statistical and systematic record of history of patients was maintained and studied. It was found that majority of the subjects had 'religious congregation' (49 subjects) as the major exposure history, while history of exposure was not known in as much as 38 subjects. 37 patients diagnosed as Covid-19 positive showed no symptom of Covid-19. 72 (51.8%) patients were surely healthy individuals without any kind of illness or co-morbidities. (Table 2)

Table 2: Data regarding systematic history

Exposure History	**N= 139**	**Systematic Symptoms**	**N= 139**	**Duration of Symptoms at the time of admission**	**N= 139**	**Co-morbidities or Illness**	**N= 139**
From C+ Non family	27	Cough	35	2 Days	36	Hypertension	32
From C+ family member	25	Fever and Cough	33	5 Days	37	Diabetes	13
Religious Congregation	49	Sore Throat	16	More than 5 Days	32	Diabetes and Hypertension	15
Unknown	38	Sore Throat at 7th day	18	Asymptomatic	34	Lung, Liver and Kidney disease	4
		Nil	37			Cancer (on Chemotherapy)	2
						Transplant recipient	1
						None	72

While only 16 patients (11.5%) reported with conjunctivitis (congestion) or a recent history thereof, 2 more patients complained of 'burning sensation' in eyes. A detailed ocular history regarding the onset, duration and other associated complaints was recorded of those 18 patients. Three patients had developed conjunctival congestion without Covid-19 symptoms. Out of the other 15 patients, 8 patients had recent history of conjunctival congestion before the onset of Covid-19 symptoms. Out of these total 18 patients under review, 10 had normal conjunctivitis symptoms, with conjunctival congestion with watering and/or on and off redness of eye. 6 among these 18 patients had diabetes, 4 had the history of using goggles or glasses and 4 showed symptoms of 'cough and fever'. Most of the patients had manifestation within the first week of admission while only one showed this manifestation in the third week of being Covid-19 positive. (Table 3)

Table 3: Characteristics of subjects with ocular complaints suggestive of conjunctival congestions

S. No	Age	Gender	Exposure History	Systematic Symptoms	Duration of Symptoms at the time of admission	Co-morbidities or illness, if any	Ocular Complaints	Manifes-tation day	History of use of Goggles/ Glasses
1	22	F	From C+ Non family	Sore Throat	5 Days	Diabetes and Hyper-tension	History of Conj. and Watering for 2 Days	First Week	No
2	28	F	Religious Congregation	Cough	2 Days	Hyper-tension	Burning Sensation in Eyes	First Week	No
3	29	F	From C+ Non family	Fever and Cough	5 Days	None	Conj. , watering and itching, photophobia and peri-orbital rash	Third Week	No
4	33	M	Unknown	NIL	More than 5 Days	Hyper-tension	History of Conj. and Watering for 2 Days	First Week	Yes
5	35	M	From C+ family member	NIL	2 Days	None	Conj. , watering and itching, photophobia and peri-orbital rash	First Week	No
6	38	F	From C+ family member	Cough	5 Days	None	Conj. with watering and redness on and off for 2 weeks	First Week	No
7	39	M	Religious Congregation	Fever and Cough	5 Days	Diabetes	Conj. with watering and redness on and off for 2 weeks	First Week	No
8	40	F	Religious Congregation	Cough	More than 5 Days	None	History of Conj. and Watering for one week	First Week	Yes
9	40	F	Religious Congregation	Sore Throat	Asymptomatic	None	History of Conj. and Watering for 2 Days	First Week	No
10	42	M	Religious Congregation	NIL	2 Days	Hyper-tension	Conj. with watering and redness on and off for 2 weeks	First Week	Yes
11	43	M	From C+ family member	Cough	5 Days	Hyper-tension	Burning Sensation in Eyes	First Week	No
12	46	M	From C+ Non family	Cough	Asymptomatic	Diabetes and Hyper-tension	History of Conj. and Watering for 2 Days	First Week	No
13	46	M	Religious Congregation	Cough	2 Days	None	History of Conj. and Watering for one week	2nd Week	Yes
14	48	F	Religious Congregation	Sore Throat at 7th day	Asymptomatic	Diabetes	Conj. , watering and itching, photophobia and peri-orbital rash	First Week	No
15	54	F	From C+ family member	Cough	2 Days	Diabetes	History of Conj. and Watering for 2 Days	First Week	No
16	57	M	Unknown	Fever and Cough	More than 5 Days	Hyper-tension	Conj. , watering and itching, photophobia and peri-orbital rash	2nd Week	No
17	57	M	Religious Congregation	Fever and Cough	2 Days	Hyper-tension	History of Conj. with painful swelling in one of the lower eyelid for 2 to 4 days	First Week	No
18	66	M	Unknown	Sore Throat at 7th day	More than 5 Days	Diabetes and Hyper-tension	History of Conj. with painful swelling in one of the lower eyelid for 2 to 4 days	First Week	No

Discussion:

At the time of admission and in the subsequent one week, 15 patients showed up some signs of conjunctivitis or reported a recent history of conjunctival congestion and subsequent prolonging of symptoms. As most of the patients showed contact trace other than known family member and most of them showing up some relation to some religious gatherings among distant community. Most of which through a travel undertaken, which they had managed to keep hidden for quite some time. As 10 out of 18 patients (55.56%) had quite normal symptoms of conjunctival congestion without any associated ocular complaints, it can be related to either initial manifestation of Covid-19. Even if the patients reporting unconfirmed or unrelated history of conjunctival congestion are counted, still as much as 6 patients (4.32%) showed confirmed and related symptoms. The relation of each may not be very significant, but it was apparently significant that only 4 patients showed prolonged symptoms and 14 (77.78%) patients showed manifestation within 1 week of admission.

Our study shows consistent results in relation to other such studies conducted in other countries reporting a prevalence of 4.68% (that of Chen L et al)[6], 3.57% (that of Hong N et al)[7] and 3.33% (that of Xia J et al)[8] from main land China. Sindhuja K et al[9] also reported similar prevalence of 6.29% while conducting an observational study of New Delhi based tertiary care Covid-19 Center, where in the majority of subjects pertaining to a contact trace to a 'religious gathering' of some sort.

The study being limited to one hospital/ center and that the sample size was relatively small. It also corresponded to only those patients who reported for Covid-19 isolation area and excluded more severe infections or those who preferred to use other facilities made available by the administration. Conjunctival swabs for estimating SARS-Cov2mRNA load nucleic acid were also not done.

Conclusion:

The study is important in the respect that it is the first among such clinical findings with relation to Covid-19 in Jammu area. Conjunctival congestion is significant ocular manifestation among Covid-19 patients. This prompts us to keep a high suspicion index to people displaying symptoms like: cough, fever, sore throat and conjunctivitis. Covid-19 related history and symptoms should therefore include such ocular examinations as well and sufficient precaution be implemented while dealing with conjunctivitis patients showing mild symptoms of Covid-19. Larger surveillance may be needed and more such studies be conducted to confirm it as a primary manifestation of Covid-19.

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