CASE REPORT

Covid-19 association with anterior uveitis (post-covid acute anterior uveitis)

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Abstract

The Covid-19 outbreak in Wuhan on 31st December 2019 soon became a pandemic. Ocular manifestations in post covid patients have been widely reported. Anterior uveitis is a common form of intraocular inflammation observed on a daily basis by Ophthalmologists. Diagnosis of AAU is relatively simple but identification of its etiology is difficult, specifically with Covid-19. Post Covid-19 AAU is not reported in Pakistan yet. The patient in the given case is investigated thoroughly, no possible cause of AAU is identified. The patient was managed for uveitis.

Keywords: Covid-19, uveitis, AAU-acute anterior uveitis.

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Introduction

The present case reports a post Covid 19 patient with acute anterior uveitis). On 30th December 2019, three patients were evaluated for pneumonia of unknown etiology in Wuhan; PCR on bronchoalveolar lavage sample was positive for beta-coronavirus which was confirmed by a genetic study. Transmission of Covid-19 occurs via droplets and fomites. Symptoms include fever, cough, fatigue, body aches, diarrhoea, headache, and in severe cases pneumonia leading to death. Containment measures were taken to control the spread of coronavirus, despite that it soon became a global epidemic. On January 2021, 101,561,29 confirmed cases of Covid 19 including 2,196,944 deaths were reported by WHO.[1] In Pakistan confirmed cases were 544,813 and total deaths reported are 11,657.[2] Number of cases are increasing day by day worldwide.

Covid-19 is associated with many other diseases most of which manifest in post-Covid patients and uveitis is one of them. Anterior uveitis accounts for 75percent of all uveitis cases annually. It is the inflammation of the iris and ciliary body due to breakdown in the blood-aqueous barrier. SUN has classified anterior uveitis based on duration as; acute anterior uveitis, recurrent anterior uveitis and chronic anterior uveitis. AAU presents with sudden onset and is of limited duration. Recurrent uveitis presents with repeated episodes separated by a three months period of inactivity without treatment; whereas chronic uveitis lasts longer and deteriorates in less than three months if treatment is discontinued. On the basis of etiology, anterior uveitis is classified as infectious, viral, bacterial, fungal, protozoal, non-infectious which include autoimmune AAU[3] and pathologically it is classified as granulomatous and non-granulomatous. Consequently, the list of differentials for etiology of AAU can be lengthy and thoughtful questions are required to reach an accurate diagnosis and for starting an appropriate management. This case is reported to share the information that COVID-19 can be the cause of uveitis, so that it can be managed timely.

Case Report

A 35-year-old female patient with no known co-morbidities presented to the Eye OPD in Fauji Foundation Hospital Rawalpindi on 2nd Sept. 2020, with a complaint of redness of eyes, lacrimation, and photophobia in both eyes. The patient recovered from Covid-19 six weeks back, Covid PCR was negative but HRCT showed features of covid pneumonia for which she was given dexamethasone 10mg for five days and 5mg for the next five days. On ocular examination, her best-corrected visual acuity was 6/6p in both eyes. Colour vision and extraocular movements were normal. Lid, adnexa were normal. The pupil was reactive to light. There was no relative afferent pupillary defect. The confrontation visual field was full of finger counting. On slit-lamp examination both eyelids were normal but there was conjunctival hyperaemia in both eyes. The cornea was clear and no synechiae were noted in both eyes. The anterior chamber had 2+ cells in the right eye and 3+ cells in the left eye. Vitreous was clear and bilateral fundoscopy showed normal fundus. Her intraocular pressure was within the normal range when taken by the Goldmann applanation tonometer. She was prescribed cycloplegics and steroid eyedrops and she responded well. After one week, anterior chamber reaction was 1+ in both eyes, the eyes were clear with no reaction. Therefore after a week she stopped taking medicine. She reported back after one month with recurrent anterior uveitis. Her vision was 6/12 (6/6) in right eye and 6/9 in left eye with 3+ cells in anterior chamber of both the eyes along with few cells in anterior vitreous cavity. OCT of the patient was done in

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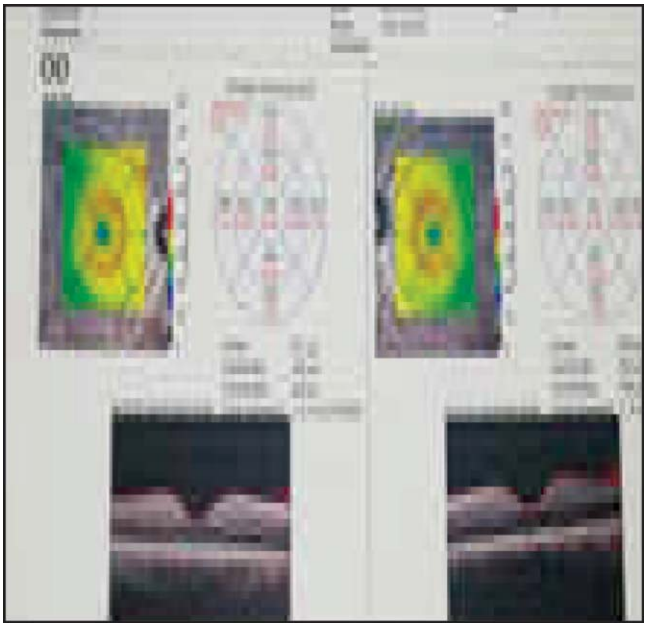

Figure: OCT - optic disk and the macula are normal.

some other hospital to exclude macular oedema and epiretinal membranes, both of which were normal. B-scan showed no choroidal or retinal detachment. Follow up of the patient was done to rule out the causes of uveitis. Her complete blood picture was normal. Erythrocyte sedimentation rate was 18mm/hr(0-20mmol/hr). C-reactive protein was 4.4mg/l(<10mg/l). The total calcium was 8.7mg/dl(8.6-10.3mg/dl). ACE was 12.2u/l(22-72u/l). Sarcoid serology, quantified one TB gold test, and reactive plasma reagin was negative. Serum lysozyme was normal. Chest x-ray, HRCT showed no features of pulmonary involvement of sarcoidosis and tuberculosis. Autoimmune profile HLA-B27, ANCA, ANA was negative. All test results were negative. She was advised cycloplegics and steroid eyedrops and then topical steroids were tapered off in 4 weeks time. Her symptoms improved after 4 weeks and she continued her routine visits.

Discussion

Covid-19 and uveitis both if left untreated can significantly affect the life of the patient. AAU is the commonest type of uveitis, which can be diagnosed clinically on opd basis as cells and flare can be seen in the anterior chamber on slit lamp examination accompanied with symptoms of pain in eyes and photophobia. There have been many reports stating follicular conjunctivitis as the most common ocular manifestation in covid positive patients;[4] however post covid uveitis is not common even though SARS-COV2 has been detected in the blood during acute covid infection and intraocular tissue has

Table: The uveitis workup.

Investigations	Etiology
CBC	Infectious diseases
ESR	Indication of systemic diseases
CRP	Inflammatory disease
Tuberculin skin test	Tuberculosis
VDRL	Syphilis
x-ray, CT scan chest, ACE	Sarcoidosis
HLA-B27	spondyloarthropathies
C-ANCA, P-ANCA	Autoimmune profile

AAU-acute anterior uveitis (It is the inflammation of uvea the middle layer of eye)
SUN-standardization of uveitis nomenclature (To develop standardized and internationally accepted terminology for the field of uveitis, an international group of 79 uveitis experts from different countries work together)
OCT- optical coherence tomography is a non-invasive test and uses light waves to take cross-section pictures of retina and also can detect any pathology related to retina
ACE- angiotensin-converting enzyme levels mainly raised in granulomatous uveitis as seen in patients with systemic sarcoid
VDRL-Venereal disease research laboratory test detect syphilis associated uveitis
C/P ANCA- centrally accentuated/perinuclear antineutrophil cytoplasmic antibody are raised in uveitis associated with autoimmune diseases like rheumatiod arthritis
ESR- erythrocyte sedimentation rate is a marker of infection.
CBC-Complete Blood Count

receptors for the virus-ACE2.[5] The first presentation of AAU is not investigated unless it is an aggressive-excessive inflammatory reaction or hypopyon. The recommended workup for AAU is given in Table. The most common etiology of uveitis is idiopathic uveitis 38-70%.[6] It is documented that careful investigation of uveitis patients showed an increase in number of patients with underlying diseases.[7] Autoimmune HLA-B27 was found to be the second commonest cause of AAU[8] associated with spondyloarthropathies. Drugs resulting in uveitis include, sulphonamide, rifabutin, chemotherapeutic agents, however since the patient in the present case had no comorbidities and was on no medication therefore the iatrogenic cause was ruled out.[9] Steroids were taken for 2weeks but there is no evidence that steroids usage can cause uveitis. AAU causes a reduction in vision. AAU has a long-lasting adverse effects if associated with complications like cataract, posterior synechiae, hypopyon, glaucoma, optic nerve oedema. If such complications occur then the patient must be investigated thoroughly for any infectious causes because steroids may worsen the condition caused by the pathogen.

Conclusion

This case report provide data regarding uveitis in covid-19 pandemic. Patient in the above case has been evaluated for any possible cause of uveitis and all test results appear negative. This is patient's first presentation of anterior uveitis, that she suffered after being infected with covid-19 virus infections. As no other cause was found in this

patient then covid-19 virus could be a possible cause.

Disclaimer: The abstract has not been previously presented or published in a conference.

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