



IMPACT OF COVID-19 PANDEMIC ON UVEITIS CARE IN A REMOTELY LOCATED REFERRAL CENTRE IN GARHWAL HIMALAYAS

Ophthalmology

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ABSTRACT

Aims: To present the profile of uveitis cases seen at a remote and underserved location in Garhwal Himalayas. **Materials and methods:** All the cases of uveitis seen between September 1 and December 31, 2020; complete ophthalmic evaluation supplemented with tailored investigations were undertaken. **Results:** Of 26 patients, 14 females and 12 males (mean age 44 years +/- 14) were seen. Commonest symptoms included reduced vision (21; 80%), redness (14; 54%), photophobia (8, 30%) and floaters (6; 23 %). The commonest variant was anterior uveitis (18; 69%), followed by posterior (5; 19%) and panuveitis (3; 11.5%). There were 11 infectious, 16 non infectious cases. **Conclusion:** Financial constraints, poor public transport during the lockdown and limited functioning of the healthcare facilities affected the course of uveitis.

KEYWORDS

COVID-19, Uveitis, Non infectious uveitis, Infectious Uveitis

INTRODUCTION

On 30 January 2020 following the recommendations of the Emergency Committee, the WHO Director General declared Corona Virus disease-19 (COVID-19) outbreak a Public Health Emergency of International Concern¹. Such an advance state of alert had not been heard of in recent years even though epidemics struck at regular intervals. Globally the healthcare systems were overwhelmed with sudden influx of patients with COVID-19. Three months after India had its first COVID-19 case, it entered an aggressive lockdown on March 25, 2020. Along with normal life, healthcare nearly came to a standstill. Garhwal Himalayas in Uttarakhand are a remotely located region with sparse population, difficult terrains and few healthcare centres. The vast majority of profound visual loss in this region tends to be related to cataract or glaucoma. From a public health perspective, uveitis is traditionally not a thrust area in India especially in those regions with scant resources. We thus decided to analyze uveitis cases seen in eye clinic and study the impact COVID-19 in this remote area.

MATERIALS AND METHODS

Subjects: All the patients diagnosed with Uveitis seen in the Ophthalmology clinic of Base hospital, Srinagar, Uttarakhand between September 1 and December 31, 2020 were included. The approval for the study was obtained from the institutional research and ethics committee. Complete slit lamp and dilated fundus examination was done, systemic conditions and associations were explored.

Investigations

We used a tailored approach to investigations; uveitis specific tests included Quantiferon gold test for tuberculosis, Angiotensin converting enzyme level, X-ray chest for hilar lymphadenopathy or tubercular lesions, X-ray sacroiliac joint, HLA B27 and HLA B51, ELISA for Toxoplasma, antibody titers for viral etiology. Two patients had their previous computed tomography scans, one had previously positive anti ds-DNA antibodies.

RESULTS

A total of 26 patients, 14 females and 12 males (mean age 44 years +/- 14) were seen during the study period. Commonest symptoms included reduced vision (21; 80%), redness (14; 54%), photophobia (8, 30%) and floaters (6; 23 %). Eighteen cases were unilateral and 8 bilateral. Anatomically, the commonest variant was anterior uveitis (18; 69%), followed by posterior (5; 19%) and panuveitis (3; 11.5%). Systemic associations and comorbidities are shown in table 1. Profound diminution of vision (less than 3/60 in affected eye or at least one eye if bilateral) was noted in 9 subjects. Commonest systemic associations were arthritis (6; 23%), pulmonary and muco-cutaneous lesions (5 each; 19%). Only one subject had a previously known history of collagen disorder (systemic lupus erythematosus, SLE); one had a past history of tuberculosis. Etiology based break-up of our

patients is shown in table 2. There were 11 infectious, 16 non infectious cases with one overlap between infectious and non infectious etiology.

DISCUSSION

Our study coincides with the fourth phase of unlocking of the nationwide lockdown during which strict measures were still in force in containment zones². Although the Garhwal region was not part of these containment zones, public transport disruption coupled with difficult terrain, climatic challenges such as landslides during winter and human interventions such as road construction hampered the access to healthcare. Twenty six cases of uveitis among 1840 non refractive cases seen in out-patient department (OPD) reflect a low (1.41%) incidence of uveitis. This would be lower if the number of patients seeking refractive services through the optometrist were added. During this phase of unlocking majority of young cases in OPD reported symptoms of asthenopia due to excessive online activity while older patients had cataract that had not been addressed during the lockdown. However as many as 9 (34%) of our uveitis cases had profound diminution of vision attributable to ocular inflammation. Some of them had irreversible changes due to prolonged inflammation that caused secondary issues such as cystoids macular edema. Agarwal et al have shown the impact of COVID-19 on uveitis patients receiving immunomodulators or biological therapies³. However their patients reported to well connected metropolitan areas with state of the art uveitis clinics and in house laboratories. In their cohort, 7.8% subjects did not receive intravenous methyl-prednisolone and over 57% experienced rapid taper of steroids.

In contrast, we had 11 infectious uveitis and 16 non infectious uveitis; the exact background, infectious or otherwise was not apparent due to an overlap in one case that refused further tests. Six of our 7 cases of unspecified acute anterior uveitis (AAU), a case each of Vogt Koyanagi Harada's disease, Behçet's disease, multifocal choroiditis and retinal vasculitis and hemorrhages secondary to SLE were inappropriately managed. Six AAU patients did not receive even topical steroids when they reported to us. Takeuchi et al emphasize the importance of supplemental topical and subtenon steroids in the prevention of relapses of exacerbation of ocular inflammation⁴.

One patient was on biweekly 7.5 mg methotrexate. Only two subjects had previously known autoimmune disease, SLE and AAU. The SLE patient had previous report of anti ds-DNA antibodies. Two patients with AAU had HLA B27, two other tested negative; others could not afford this test. The subject with clinically obvious Behçet's disease was negative for HLA B51. Our non-infectious uveitis cases included an interesting case of predominantly anterior uveitis following bee sting injury. Rishi et al have reported a similar case with aggressive inflammation and electrophysiological abnormalities⁵. Unlike their case our case did not have cilio-choroidal detachment. We also had two

other cases of anterior uveitis following blunt ocular trauma, where the inflammation abated with topical steroids.

Among our infectious cases, six patients had classical granulomatous features that were suspected to be either tuberculosis or sarcoidosis. We could resolve five of these as either tuberculosis (3) or sarcoidosis (2); those with sarcoidosis had pulmonary lesions, tested negative on Mantoux test (2) or Quantiferon gold test (1) for γ -interferon indicating anergy. Sixth case was lost to follow up. We believe that a case of Scleritis in an elderly woman was secondary to tuberculosis based on her systemic evaluation. The patient was referred to our chest physician but did not revert back.

Two cases with keratouveitis were not considered for further investigations as clinical picture supported viral etiology; both improved with oral or topical acyclovir. Viral etiology was also apparent in a case of acute retinal necrosis (ARN). Though this patient needed urgent attention and was brought to us through a healthcare worker, we could not persuade him to have antiviral antibody titers for herpes simplex, varicella zoster and cytomegalovirus; worse he did not agree to initiate oral antiviral drugs. This case illustrates a common tendency of patients especially in far off areas to seek a second or multiple opinions in case the prognosis appears grave. This leads to delay in initiation of appropriate therapy and consequent visual loss. Inadequate follow-up, unwillingness or inability to undergo complete evaluation, prevented use of biologics in some of our patients as per current recommendations for the long term management of these disorders⁶.

Based on previous investigations available with our patients, we realized that two tests, rheumatoid factor (RF) and Mantoux test were very commonly advised in peripheral set up. Our small cohort did not have any juvenile case with arthritis or uveitis and we believe such practice to include RF is undesired and redundant as adult onset uveitis unlike scleritis is not associated with RF. Further it makes a financial impact on poor patients who have limited resources for investigations or treatment. Mantoux test is almost universally ordered in peripheral centres and is common in urban areas as well; unfortunately, as we previously described, it is often misinterpreted since the distinction between true anergy and miliary tuberculosis is difficult and requires further work up⁷. A systemic and judicious approach is strongly emphasized in the evaluation of uveitis cases⁸.

CONCLUSION

We report a small cohort of uveitis cases seen during the COVID-19 pandemic. While some of our patients had been previously worked up elsewhere, most were fresh cases. Poor access and delay in seeking healthcare resulted in profound visual loss at the time of presentation. Financial constraints apparently led to many patients declining further work up. Follow up was relatively poor. This could be attributed to poor connectivity during the unlocking period. Although uveitis services are often rudimentary at peripheral centres, we experienced that many of our patients lacked trust or resources; some may have been overwhelmed by the reported prognosis and the gravity of the situation. In conclusion, COVID-19 seems to have impacted the care of uveitis patients adversely. It is likely that other remote areas that have no uveitis clinic may also have similar impact.

Table 1: Systemic involvement and comorbidities

Arthritis 6
Pulmonary lesions (sarcoidosis or tuberculosis) 5
Erythema/ rash/muco-cutaneous involvement 5
Diabetes 4
Hypertension 3
Hypothyroidism 1
Collagen disorder 1
Cardiomegaly 1
Tinnitus 1
Urological symptoms 1
Diabetic nephropathy 1
Polycystic ovary 1

Table 2: Etiology based break up of uveitis cases

Infectious (11)
Sarcoidosis / tuberculosis – unresolved 1
Tuberculosis 3
Sarcoidosis 2
Toxoplasmosis 1

Keratouveitis 2
Scleritis 1 (presumed to be tubercular)
Viral retinitis (Acute retinal necrosis) 1
Non infectious (16)
Unspecified anterior uveitis 7 (2 tested positive for HLA B27)
Post traumatic 2
Honey bee sting associated 1
Postoperative status 1
Multifocal choroiditis 1
VKH Syndrome 1
Presumed Behcets disease 1
SLE associated retinal vasculitis 1
Episcleritis 1
Infectious/autoimmunity overlap (Scleritis) 1

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