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Post Fever Retinal Inflammatory Disease - A Case series

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Abstract

Post fever retinal inflammation is a clinical condition that results due to a variety of infectious agents that cause fever followed by retinal inflammation. The retinal inflammation is typically noticed 2-4 weeks following a febrile illness (1). The diagnosis is based on clinical examination but etiological diagnosis is made based on systemic hematological tests or by microbiological examination of ocular fluids. Early recognition of the condition and proper treatment will help in preventing permanent visual loss in these patients. We report four cases of post fever retinal inflammation who presented with retinitis and retinal vasculitis who responded well to treatment.

Post fever uveo retinal manifestations or post fever retinitis is found to be associated with infections caused by either bacteria, viruses or protozoans (2,3). They usually present with retinitis and associated features of retinal inflammation and have good visual outcome if treated promptly.

Case 1:

A 52-year male patient had presented to us with history of sudden diminution of vision in both eyes. He gave a history of having had a fever lasting for two days which was treated with systemic anti pyretic medication. Systemic investigations were not done. He reported to us two weeks after the febrile illness. On examination he was afebrile, ocular examination revealed that his visual acuity was less than 6/60 in both the eyes. Anterior segment examination was found to be normal. Fundus examination showed that the media was hazy due to vitritis. Multiple yellowish retinal lesions were noted associated with retinal edema and perivascular sheathing of the vessels in the posterior pole. Disc was found to be hyperemic. Hematological investigations including complete blood count, C Reactive protein, Erythrocyte sedimentation rate, Peripheral blood Smear and specific investigations including Mantoux Test, Serology for HIV and typhoid were found to be normal. Thorough systemic evaluation was done by a physician and he was started on Tablet prednisolone (1 mg/kg body weight) and tapered accordingly. Follow up of the patient showed improvement in visual acuity. Three months follow up showed that his visual acuity was 6/9 in both the eyes, early lens changes and resolved macular lesions. (Figure 1 A & B, 2 A & B)

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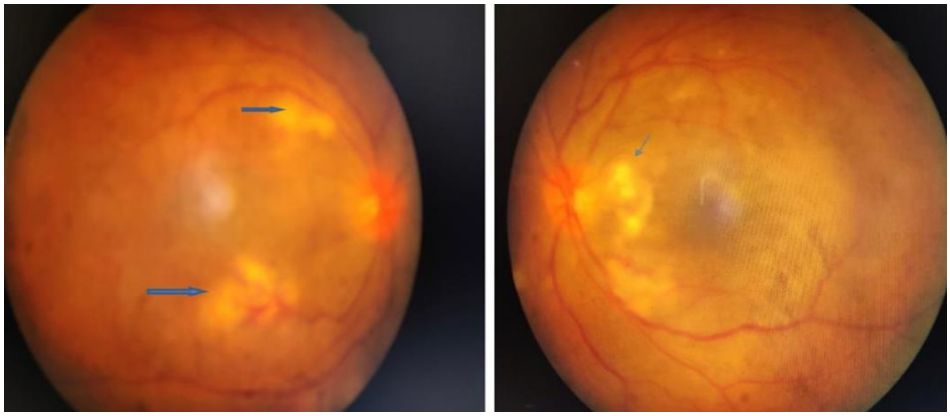

Figure: 1A & B

Fig 1 A & B: Fundus picture of both eyes showing multiple yellowish white areas of retinal inflammation with macular edema.

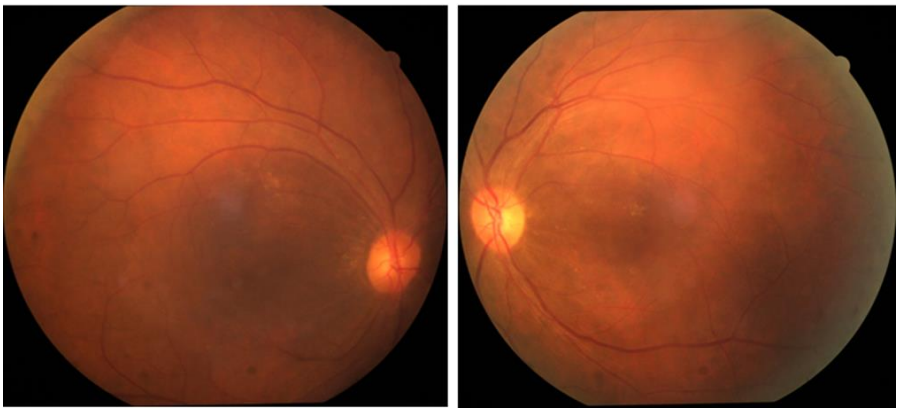

Figure 2 A & B

Fig 2 A & B: Fundus picture of both the eyes showing resolved retinal inflammation on follow up.

Case 2:

A forty-five-year-old female patient had presented to us with history of floaters in the right eye following an episode of fever that had lasted for two days. She had a history of covid vaccination done prior to the onset of the febrile illness. Examination of the right eye showed that the visual acuity was 6/12 and N12. Anterior segment examination and intra ocular pressures were within normal limits. Fundus examination revealed minimal vitritis and the disc was normal. There was an whitish area of retinitis noted along the inferotemporal vessel and retinal edema close to the fovea. Multiple areas of hemorrhages were noted in the macula and temporal to it. Areas of localized vascular cuffing suggestive of retinal vasculitis were noted along the superotemporal and the inferotemporal vessels (**Figure 3A**). Specific systemic investigations done were not diagnostic of any infectious etiology. After obtaining a physician clearance, patient was started on oral prednisolone (1 mg/kg body weight) in tapering doses. Follow up showed improvement in visual acuity to 6/6 and N6 with complete resolution of the retinal hemorrhages and retinal inflammation. (**Figure 3 B)**

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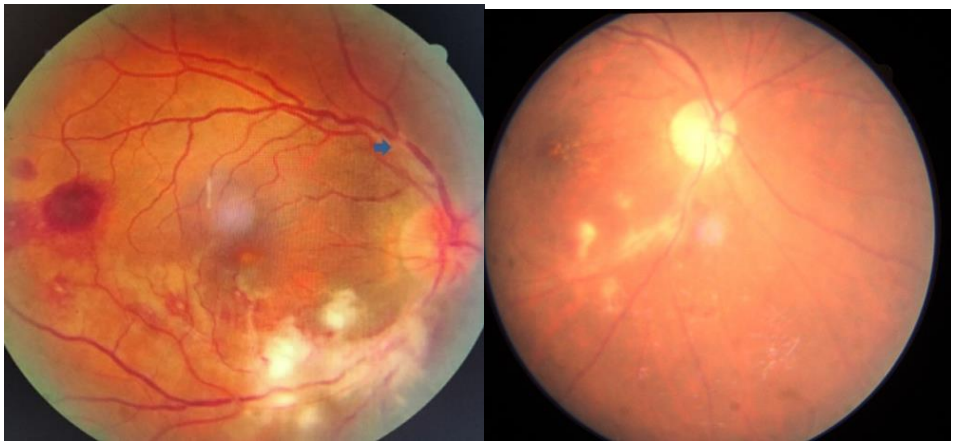

Figures 3 A & B

Fig 3 A & B: Fundus picture of Right eye showing retinal vasculitis, hemorrhages and retinitis before and after treatment.

Case 3:

A 50-year-old male patient was referred with history of diminution of vision associated with sudden onset of floaters in both the eyes following an episode of fever. He was a known diabetic on treatment. Visual acuity at the time of presentation was less than 6/60 and N36 in both eyes. Ocular examination showed vitreous cells, severe Non proliferative diabetic retinopathy with sheathing of retinal vessels similar to frosted branching in both eyes. Fundus fluorescein angiography was done which showed signs of inflammation with features of diabetic retinopathy. Systemic investigations were done and Mantoux test showed induration of 3 mm and chest X-ray was normal. Since there were signs of retinal inflammation associated with evidence of diabetic retinopathy, systemic evaluation was done by diabetologist and was started on oral prednisolone and tapered. Retinal inflammation subsided and patient is on regular follow up for diabetic retinopathy. (Figure 4 A & B)

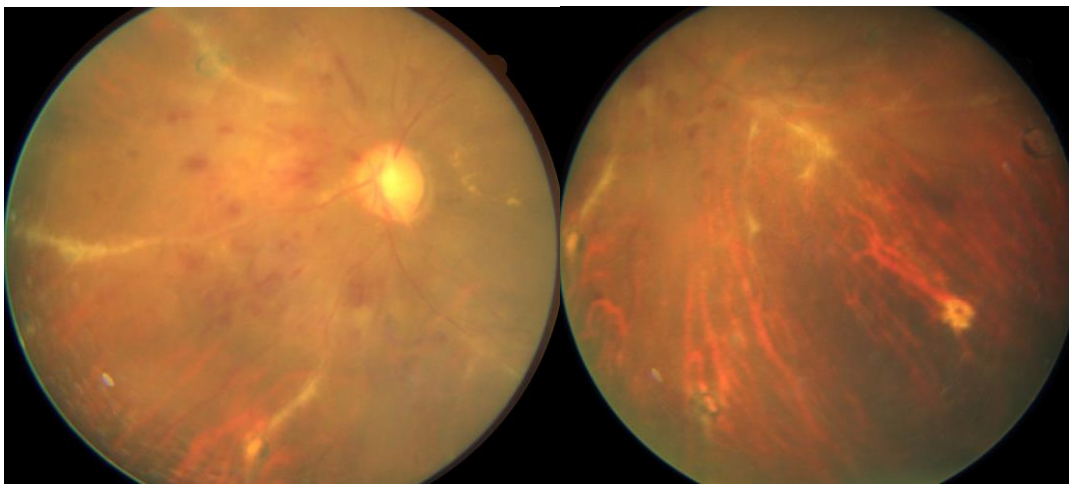

Figure 4 A & B

Fig 4 A & B: Fundus picture of both eyes showing severe non proliferative diabetic retinopathy with sheathing of retinal vessels similar to frosted branching.

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Case 4 :

An 18-year-old female patient had presented with history of floaters not associated with diminution of vision, redness or pain. She had a history of fever with rash and was diagnosed as having chicken pox infection. The onset of floaters occurred two weeks following the episode of fever with rash. On ocular examination her best corrected visual acuity was 6/6 and N6 in both the eyes. Anterior segment examination was normal. Intraocular pressure measured by Goldmann applanation tonometry was normal. There was vitritis noted inferiorly. Peripheral retinal examination revealed retinal vasculitis. Systemic evaluation for vasculitis was done which were within normal limits. Her symptoms improved well with a course of oral steroids. (Figure 5)

Figure 5:

Fig 5: Fundus picture of right eye showing Retinal vasculitis over the periphery.

Discussion:

Post fever retinal inflammation is an uveitic entity caused by infections agents typically noted few days to weeks following a febrile illness. The exact pathogenesis of post fever retinitis is unknown. Study on the ophthalmic complications of dengue fever by Yip VC et al suggested that retinitis is found to be due to immune mediated mechanisms (4).

The results of study on the intra ocular viral communities in post fever retinitis showed that viral host imbalance may trigger the immune response in patients with post fever retinitis (1). Mahendradas P et al have described the clinical features, diagnosis and treatment of few specific disease entities associated with retinitis like rickettsia, dengue, west nile, chikungunya and zika virus (3). The most common presentation is appearance of whitish cotton wool spot like lesions, retinal edema, hemorrhages or associated vasculitis. They have described them as epidemic retinitis.

Study by Dheepak sundar et al found that the commonest findings associated with retinitis were macular star, vessel wall exudation and also retinal hemorrhages (5). Study by Vishwanath et al showed that their patients had presented with anterior segment inflammation (2). Our patients did not have associated anterior uveitis.

Our study included patients presenting with febrile illness and among them two had retinitis with retinal vasculitis. Other two patients presented with vitritis and retinal vasculitis. Sanjay et al found that complications like neo vascularization were noted in

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few patients. They also noticed that visual prognosis depended on macular ischemia or optic nerve involvement (6).

Detailed serological tests to establish the etiology and guide the treatment did not alter the final outcome in terms of visual recovery. They also found that in the acute phase of febrile illness serology may be beneficial (3,7). Karkhur S et al in their study suggested that in a developing country like India, there was no need to perform a battery of expensive investigations for diagnosis of post fever retinitis if the patient is clinically found to be normal based on the laboratory investigations and physical examination findings (8).

Ocular ancillary investigations like fundus fluorescence angiography and optical coherence tomography help in identification of macular edema and macular ischemia which have an effect on visual recovery.

Study by Dheepak et al on the optical coherence tomography features in post fever retinitis found that among the patients with macular edema the mean central foveal thickness was 423 microns and patient with foveal atrophy had a central foveal thickness of 40 microns. They had loss of the ellipsoid zone at the time of presentation. All patients had inner retinal hyperreflectivity and 79% had neuro sensory detachment (5). Optical coherence tomography angiography studies on post fever retinitis by Sanjay et al showed microvascular abnormalities in the superficial and also the deep capillary plexus. They also noted alterations in the choroidal architecture. Microvascular changes in these eyes are better understood by ocular coherence tomography angiography studies (9).

In our study, all patients responded well to systemic corticosteroid therapy. Khirallah et al suggested that starting the patients on a combination therapy of doxycycline with oral steroids did not show benefits over treatment with only doxycycline in infective retinitis (10). But study by Sundar et al suggested that oral steroids help by hastening the healing and reducing the inflammation which helps in better visual outcome (5). Chawla R et al suggested early resolution of macular edema following intravitreal bevacizumab (11).

Conclusion:

Post fever retinitis may be a self-limiting disease or in some cases may lead to severe visual loss. Early identification and initiation of corticosteroid therapy is found to be beneficial in preventing vision threatening complications.

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