



A RARE CASE REPORT OF ACUTE RETINAL NECROSIS

Ophthalmology

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ABSTRACT

A 70 year old female having complain of pain and diminution of vision in right eye since 5-6 months. Her vision was finger counting close to face with inaccurate projection of rays (PR) and in left eye it was 6/12. Patient had been operated for cataract of both eyes 8 years ago. There was mild ptosis in right eye and in left eye there was a small nebular opacity at 5 o' clock position. The anterior segment was clear. Fundus examination of right eye revealed full thickness retinal necrosis in the peripheral fundus and some part of central fundus sparing the posterior pole. Left eye fundus showed dot blot hemorrhages suggestive of early non proliferative diabetic retinopathy (NPDR). Patient had a history of herpes zoster ophthalmicus 10 years ago on right side. The patient was treated with 2 doses of intravitreal gancyclovir and one peribulbar injection of combination of atropine, gancyclovir and triamcinolone with oral valacyclovir. There was improvement of vision from finger count close to face to finger count at 3 feet in right eye and no involvement of left eye. The patient was kept on follow up for 1.5 months every weekly after which she was lost for follow up. Conclusion: ARN has an extremely poor visual prognosis and the treatment is aimed at halting the progression of disease and preventing the involvement of the other eye.

KEYWORDS

Acute retinal necrosis, Gancyclovir, Valacyclovir, Acyclovir, Herpes zoster, herpes simplex, Herpes Zoster Ophthalmicus

INTRODUCTION:

Acute retinal necrosis (ARN) is a rare condition usually affecting otherwise healthy individual. It is usually caused by herpes zoster virus in old age and by herpes simplex virus in young age. [1].

It rarely occurs by Cytomegalovirus or Epstein bar virus. In 1991 American Uveitis society defined Acute retinal necrosis (ARN) on basis of: prominent anterior uveitis or vitritis, one or more discrete foci or retinal necrosis, occlusive arterial vasculitis, rapid progression in absence of treatment. [1]

The ARN is characterized by presence of white, flat well demarcated patches of retinal necrosis which usually starts in periphery and progresses to involve the central fundus. Histopathology of the tissue reveals eosinophilic intranuclear inclusions in retinal cells and the causative virus can be demonstrated in all layers using electron microscopy [2,5].

The patient usually present with complain of ocular pain, redness, diminution of vision, and floaters. Anterior chamber can show signs of uveitis and vitreous inflammation is common. Acute retinal necrosis (ARN) usually to start with is unilateral than progresses to the contralateral eye in a few months or weeks. Rarely it can present bilaterally. Polymerase chain reaction (PCR) allows accurate and rapid identification of causative virus.

Case Report:

A 70 year old female presented to our OPD with complaints of diminution of vision since 5-6 months. Her vision was finger counting close to face with inaccurate projection of rays (PR) and in left eye it was 6/12.

The vision did not improved on best corrected visual acuity. There was mid ptosis in right eye and in left eye there was a small nebular opacity at 5 o'clock position. The anterior segment was clear. The pupils were reactive to light. Patient was a known case of diabetes mellitus type 2 since 15 years. Fundus examination of right eye revealed full thickness retinal necrosis in the peripheral fundus and some part of central fundus sparing the posterior pole.

Left eye fundus showed dot blot hemorrhages suggestive of early Non proliferative diabetic retinopathy (NPDR). Patient had a history of both eyes cataract extraction 8 years ago. There was also a past history of Herpes Zoster Ophthalmicus on right side 10 years ago. Here is the image of fundus at the time of presentation.



Fig 1 Right eye fundus showing acute retinal necrosis

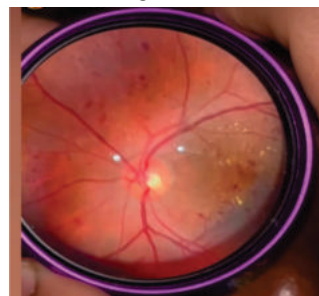


Fig 2 Left eye fundus showing dot blot hemorrhages and few hard exudates around macula suggestive of early NPDR

Optical coherence tomography (OCT) of both the eyes was done.

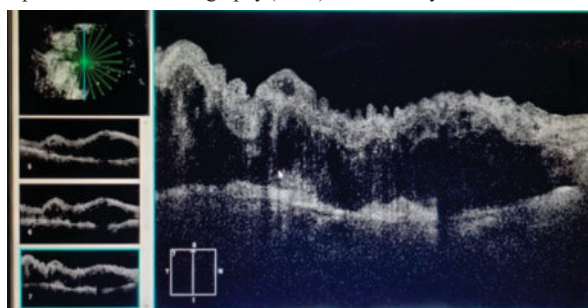


Fig 3 Right eye OCT showing full thickness necrosis

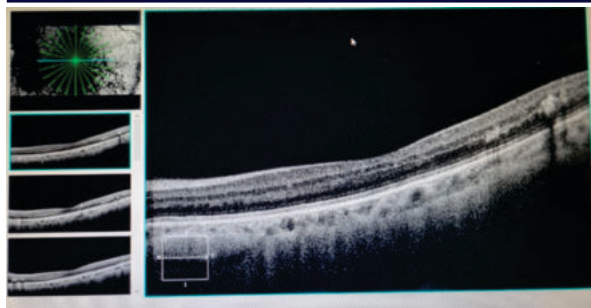


Fig 4 Left eye OCT

The patient was given intravitreal gancyclovir in right eye and 2% gancyclovir eye drops was started. The vitreous tap sample was collected and sent for polymerase chain reaction (PCR). Patient was followed after 5 days.

The polymerase chain reaction (PCR) was positive for Varizella Zoster Virus.

On the second visit right eye fundus showed involvement of central fundus as well as the posterior pole. There was no involvement of left eye.

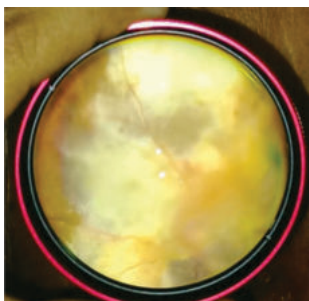


Fig 5 Right eye fundus showing involvement of central fundus as well as posterior pole along with peripheral fundus

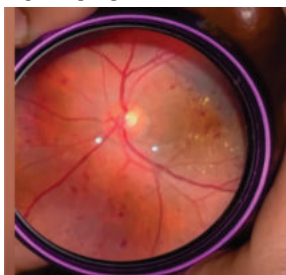


Fig 6 Left eye fundus showing no involvement.

Patient was given second dose of intravitreal gancyclovir in right eye and continued with 2% gancyclovir eye drops. Oral valacyclovir 1000 mg three times a day was started. Patient was called on follow up after a week. On the 3rd visit the right side of the fundus showed clearing of the central fundus and the posterior pole. Necrosis was present in the mid-peripheral fundus with the vision improved to finger count at 3 feet with inaccurate PR. There was no involvement of left eye. Patient was given peribulbar injection of atropine sulphate, gancyclovir and triamcinolone and oral valacyclovir was continued. The patient was called to follow up after 1 week but since then the patient didn't turn up.

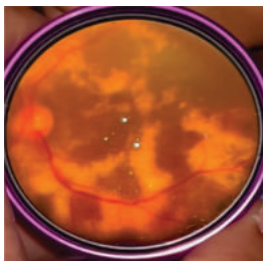


Fig 7 Right eye fundus showing clearing of central fundus and the posterior pole.

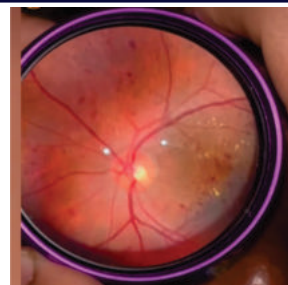


Fig 8 Left eye fundus having no involvement and no advancement in NPDR

DISCUSSION:

We present a rare case of acute retinal necrosis. They patient had a history of diabetes mellitus since 15 years and herpes zoster ophthalmicus 10 years ago on right side. Probably the infection was due to the reactivation of herpes zoster virus. Polymerase chain reaction (PCR) was done which confirmed the causative organism of herpes zoster. Our patient was given 2 does of intravitreal gancyclovir in right eye with gancyclovir eye drops and oral valacyclovir. The patient was kept on regular follow up but was lost to follow up after 1.5 months.

Acute retinal infection is a rare type of retinal infection which is mostly caused by a virus from herpes family, mainly herpes zoster. The prognosis is relatively poor. ARN has been reported following or simultaneously with HSV encephalitis and herpetic skin infection. [1] Usually it starts unilaterally. The patient usually complains of ocular pain, diminution of vision, floaters. The Polymerase chain reaction (PCR) allows accurate and rapid identification of causative virus, detecting the viral DNA from aqueous or vitreous humor from patients with suspected ARN has a positive predictive value of 99% and negative value of 68%. [3,13]. OCT can pick up any macular edema due to inflammatory process. Fluorescein fundus angiography reveals diffuse dye leakage from veins and arteries or from optic disc. Systemic anti-viral therapy has been the mainstay of the treatment. Earlier intravenous acyclovir was used but due to its poor bio-availability, valacyclovir came into use. Now the treatment plan includes oral valacyclovir with adjuvant intravitreal gancyclovir. [4,7,8]. Role of corticosteroids (systemic or intravitreal) is controversial. [4,16] Platelet dysfunction has been demonstrated in some patients with bilateral ARN. The rationale behind the use of anti-platelet agents like aspirin or warfarin is based on the idea of preventing ischemic events in an environment of occlusive vasculitis [4,17]. After healing of retinal necrosis, prophylactic long term oral valacyclovir is recommended for 3-6 months to avoid the risk of relapse. The most common complication includes retinal detachment. If the vitreous is clear and anterior chamber is clear prophylactic laser is given to prevent retinal detachment. Prophylactically early vitrectomy for retinal detachments are also a part of treatment. Other complications include cataract, epiretinal membrane, cystoid macular edema, recurrent anterior uveitis, optic neuropathy, optic atrophy, glaucoma, phthisis rubescens [3,14,15]

CONCLUSION:

ARN is caused by reactivation of previous herpetic infection, but rarely occurs as primary infection as well. the damage caused by the virus leads to confluent necrosis in peripheral retinal cells which continues towards the center. ARN has an extremely poor visual prognosis and the treatment is aimed to the halt infection and progression to the contralateral eye. Loss of visual acuity is linked to initial low visual acuity, development of retinal detachment and late initiation of antiviral therapy. [4,18]

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