Atypical central serous chorioretinopathy treated with intravitreal injection of bivacizumab – a case report

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Abstract

Central serous chorioretinopathy (CSCR) is common in adult male having sudden dimness of vision in one eye and typical pattern of leakage in fundus fluorescein angiography. Treatment of typical central serous chorioretinopathy is conservative and / or focal laser photocoagulation. But atypical central serous chorioretinopathy is uncommon having different patterns of clinical presentation and features in fundous fluorescein angiography. Treatment option of atypical central serous chorioretinopathy is not yet established. Here, we present a case of atypical central serous chorioretinopathy successfully treated with intravitreal injection of anti-vascular endothelial growth factor (anti-VEGF, Bivacizumab).

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Introduction

Central serous chorioretinopathy is a common vision lowering disease after age related macular degeneration, diabetic retinopathy and vascular occlusive disease.[1] First described by Vongraefe in 1866[2] and later OLMSTED study in Minnesota, USA reported that 9.9 per 10000 men and 1.7 per 10000 women were affected by this disease.[3] Mean age of onset is 41-45 years in case of acute CSCR and for chronic CSCR it is 51yrs.In older population (age > 51 years), CSCR is more likely to have bilateral involvement.[4] Risk factors are type A personality,[5] Cushing syndrome,[6] pregnancy,[7] systemic steroid use[8] and collagen vascular diseases.[9] Psychosomatic factor is also related with CSCR. In stress, the increased levels of stress hormones and glaucocorticoids have direct relationship with macular thickness.[10] Here, we present a case of atypical central serous chorioretinopathy in a 41 years old male.

Case presentation

In December 2014, A 41 year old male presented with sudden painless dimness of vision in both eyes which rapidly deteriorated over 10 days. The patient was non diabetic normotensive, smoker and occasionally consumed alcohol. On examination visual acuity was counting finger 2-3 feet in both eyes, pupilary reaction mildly sluggish, color, and light brightness perception were normal. Anterior segment examination revealed no abnormality. Fundus of both eye had defuse macular and perimacular edema with symmetrical engorgement of venules in both eyes. Optic disc appeared normal.

Patient underwent fundus fluorescent angiography which showed multifocal hyper fluorescence diffusely present in the macula and perimacular region extending to the temporal retina in both eyes. The hyper fluorescent increased with time (Fig-1). Optical Coherent Tomography (OCT) of both maculae showed huge sensory retinal detachment with accumulation of fluid involving the entire macular region (Fig-2). Blood biochemistry showed no abnormalities.

Based on the multiple leakage in macula and perimacular region, elevation of entire macular region with entire sensory detachment and simultaneous bilateral involvement of both eye, the patient was diagnosed as a case of acute bilateral atypical CSCR

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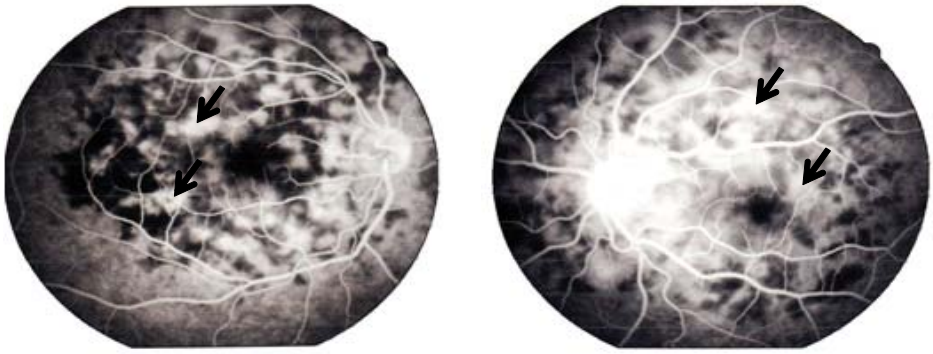

Fig.1: *Fundus Fluorescein Angiography (FFA) both eyes show multifocal areas of hyperfluorescence*

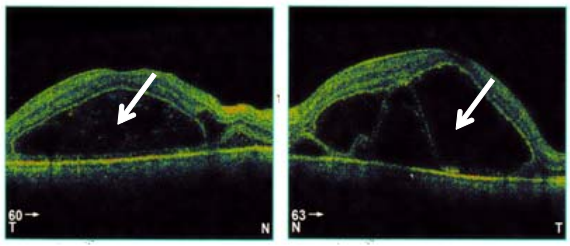

Fig.2: *Optical Coherent Tomography (OCT) of Maculae show areas of sensory retinal detachment at maculae of both eyes.*

and advised intraviteral injection of 1.25 mg anti-vascular endothelial growth factor (Bivacizumab). A total of three doses of Bivacizumab were given over three months period with non-steroidal anti-inflammatory (NSAID) eye drops twice daily in both eyes. One injection was given each month in each eye. Vision improved gradually after each injection of Bivacizumab. One month after the 3rd injection the vision improved to 6/12 in right eye and 6/9 in left eye. OCT after the third injection showed normal macular contour (Fig-3). The patient had 6/6 vision in both eye and normal retinal integrity both clinically and by OCT one year after the last injection.

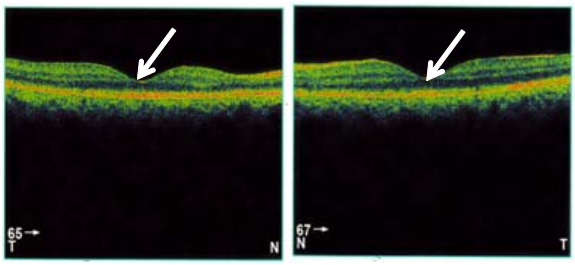

Fig.3: *OCT of both eyes after treatment with injection of bivacizumab show normal macular contour*

Discussion

CSCR is usually unilateral, starts with sudden onset of central scotoma and distortion and diminution of vision.[1] Serous fluid accumulates between retinal pigment epithelium (RPE) and photoreceptor outer segment causing detachment of neurosensory retina at the macula.[11] Majority of cases resolve in 2-3 months.[11] Chronic CSCR represent 5% of CSCR characterized by areas of widespread diffuse RPE pigmentary abnormalities with RPE atrophy which leads to geographic atrophy, pigment clamping in the posterior pole and chronic shallow serous retinal detachment and cystic intra-retinal changes.[4] Sequelae of CSCR is RPE depigmentation, geographic atrophy, sub-retinal fibrinous deposits and choroidal neovascularization.[12]

In our case, the clinical presentation was sudden, bilateral with profuse deterioration of vision within a very short period of time. This is unusual because the usual presentation of typical CSCR is unilateral with moderate deterioration of vision with a central scotoma.[1] In our case, diminution of vision was profound, which was reduced to counting finger close to the eyes. The findings of multifocal leakage and diffuse appearance in FFA were also contrary to single smoke steak appearance seen in typical CSCR. In this aspect the presentation of our case was atypical. Several treatment options have been described for acute CSCR with variable success. The treatment of CSCR includes focal argon laser,[13] photodynamic therapy with verteporfin,[14] micropulse diod laser[15] and Anti-VEGF injection in the intravitreal space.[16]

Treatment of CSCR by focal argon laser photocoagulation shows the best result in reducing the accumulation of sub-retinal fluid.[13] Some other studies

also suggest that sub-threshold diod laser micro pulse (SDM) photocoagulation was superior to intravitreous injection of 1.25 mg of Bivacizumab in the treatment of CSCR, which resulted in enhanced visual acuity and macular perimetry.[17] In our case as the leakage in FFA was multifocal and had a diffuse appearance in and around the macula, focal laser could not be applied in the leakage sites precisely. Studies reported intravitreous Bivacizumab for acute CSCR can lead to remarkable improvement in visual acuity within 3 months.[18] Other studies suggest that anatomic and functional improvement following Bivacizumab injection could be due involvement of vascular endolthelial growth factor in fluid leakage in patients with chronic CSCR.[19] It has been demonstrated that CSCR patients who responded to intrarvitreal Bivacizumab had higher aqueous levels of VEGF than those who did not respond.[20]

In our case the leakages in the FFA are multifocal and did not have typical smoke stack appearance. Focal laser photocoagulation could not be done. So intravitreal Bivacizumab was administered. The visual improvement after multiple intravitreal injection of Bivacizumab supported the earlier reports of its success in the treatment of acute CSCR. Acute atypical CSCR with multifocal leakage in the FFA and huge sensory retinal detachment, involving the whole macula responds well with intravitreal injection of Bivacizubab in repeated doses. Acute bilateral extensive CSCR with multifocal leakage and grossly reduced vision can be treated successfully with intravitreal injection of anti-VEGF instead of laser.

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