Author Communication

Reduced Fluence Photodynamic Treatment for a Case of Chronic Central Serous Chorioretinopathy

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To report a case of a 49 year old male with right sided recurrent chronic Central Serous Chorioretinopathy (CSCR). He was treated with half fluence Photodynamic Therapy resulting in resolution of CSCR and significant improvement in best corrected visual acuity.

Keywords: Central serous chorioretinopathy, Photodynamic Therapy, Optical Coherence Tomography.

Chronic central serous chorioretinopathy (CSC) is a well-recognized entity characterized by accumulation of serous sub retinal fluid (SRF) which induces a localized detachment of the neurosensory retina. Patients can present with various visual complaints including central scotoma, metamorphopsia and micropsia. It is most frequently unilateral and affects young adult males more commonly. There is often a history of recent stress and the subject usually has a type A personality. The visual deterioration in chronic cases results from damage to the underlying retinal pigment epithelium (RPE) and photoreceptors. The underlying pathogenesis involves multifocal areas of choroidal vascular hyper permeability[1,2]. It is speculated that the fundamental mode of action of photodynamic therapy (PDT) with verteporfin (Visudyne; Novartis Pharma AG, Switzerland) utilized for the treatment of CSC is the shutdown of the vessels in the choriocapillaris resulting in hypo-perfusion and extended remodeling of choroidal vasculature. We approached this case of chronic symptomatic CSC by treating him with half-fluence rate (25 J/cm2), without modifying the dose of verteporfin (6 mg/m^2). The choice of a suitable fluence rate enables one to evade indirect damage to surrounding structures such as RPE atrophy, ischemia of the choroid, and development of secondary choroidal neovascularization (CNV) because of less choriocapillaris damage[3]. The intervention was done after seeking permission from the hospital's ethical and research committee. The author has no financial interest in the products used. The authors declare no conflict of interest.

CASE REPORT

We report a case of 49 years old male, shopkeeper by profession, who was suffering from right sided recurrent chronic CSCR. (Figure 1,2) His condition dated back to 2002. He was treated with various treatment modalities including oral acetazolamide and also received multiple intravitreal injections of Anti VEGF. Argon laser was also applied but the CSCR never resolved.

The earliest available OCT (done in October 2012) shows right sided CSCR involving the fovea with central macular thickness of 631 microns in the right eye (Figure 3).

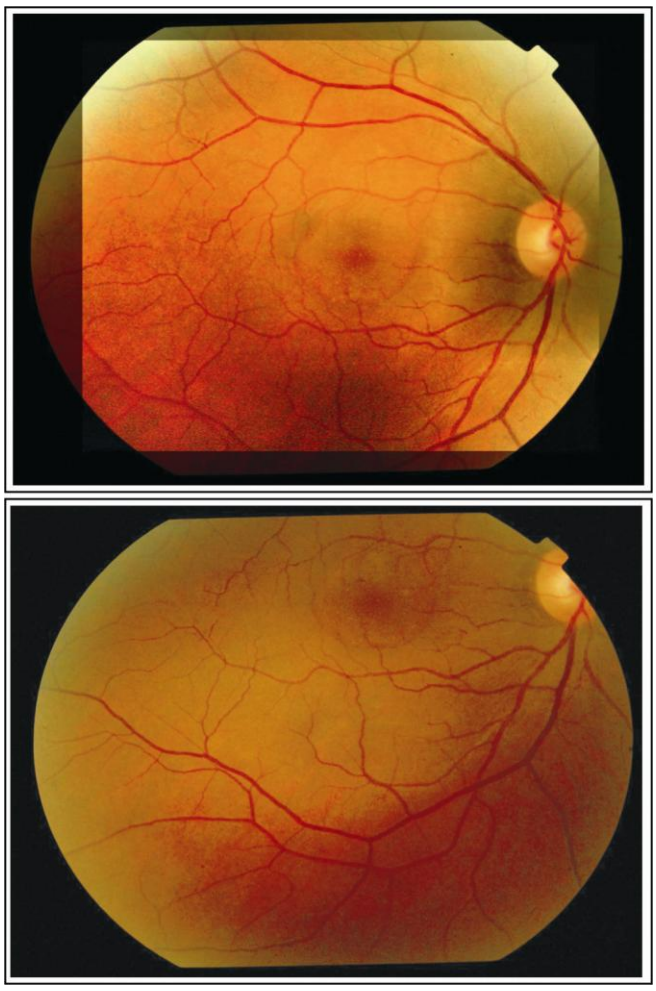

Fig. 1: Color fundus photograph of Right eye showing the dome shaped elevation of central serous chorioretinopathy.

We decided to treat him with half-fluence PDT in June 2015. At that time, his vision was 6/36 in the right eye and central macular thickness of 483 microns (Figure 4). The PDT was done on 10th of June 2015 to the right eye.

It was decided to treat him with half-fluence PDT (25 J/cm2) instead of the regular 50 J/cm2). The half-fluence rate was chosen as it is sufficiently effective while at the same time reducing the collateral choroidal hypo perfusion and thus being safer as demonstrated in the "Visudyne in Minimally Classic Choroidal Neovascularization Study Group study".

After the treatment the patient was instructed to avoid strong light and wear protective glasses for 48 hours. We followed him with 2 monthly serial OCT scans which showed gradual resolution over a period of 6 months. (Figure. 5) His latest OCT scan performed on 5th January 2016 showed complete resolution of the sub-retinal fluid in the right eye with central macular thickness of 190 microns. At this time his visual acuity was 6/9 OD (Figure 6).

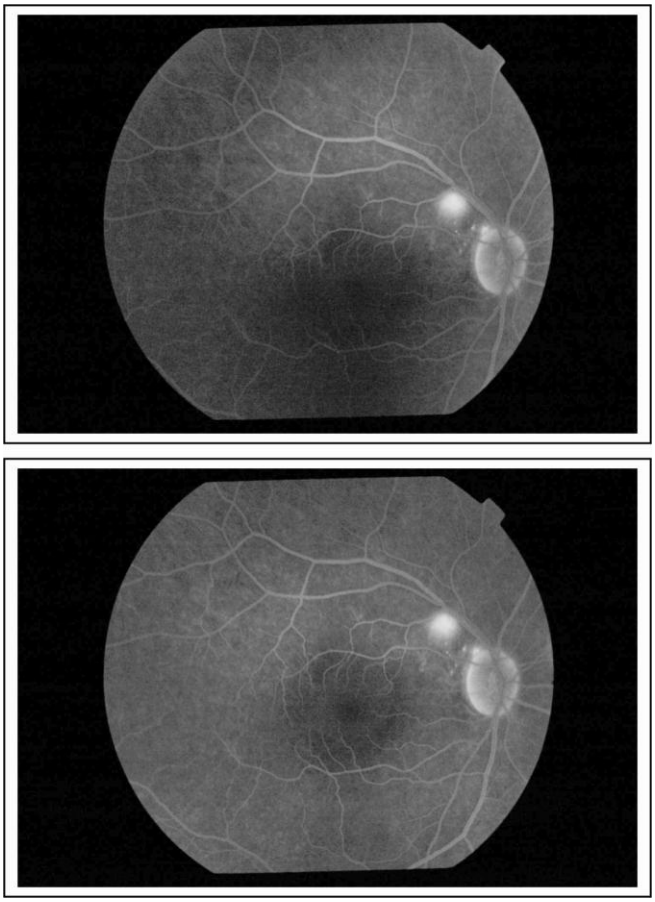

Fig. 2: FFA of the same eye localizing the area of leakage.

The patient did not experience any adverse systemic event neither during Verteporfin infusion nor in the follow-up period. No collateral damage of the retina was observed for instance the growth of CNV or detachment of the pigment epithelium.

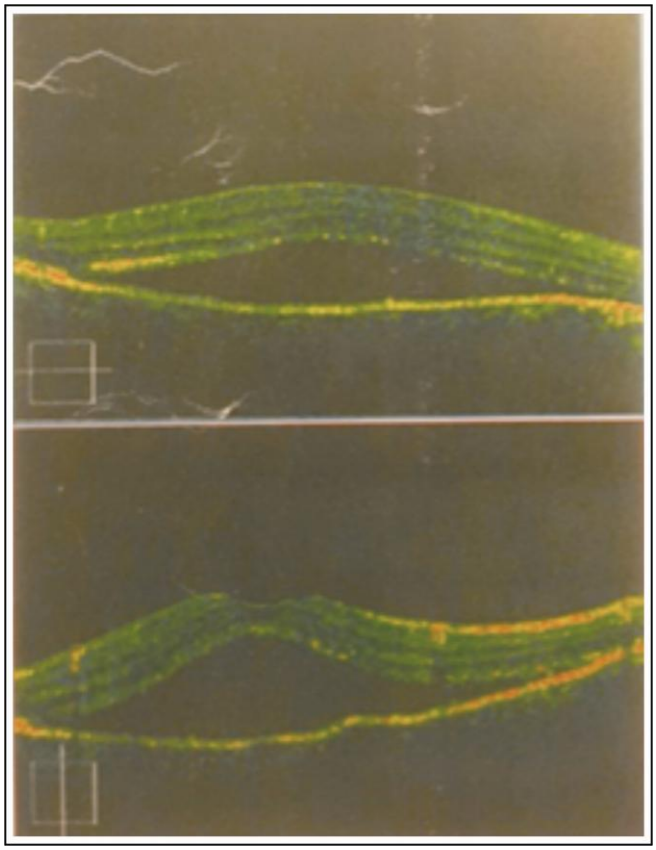

Fig. 3: OCT Macula OD October 2012.

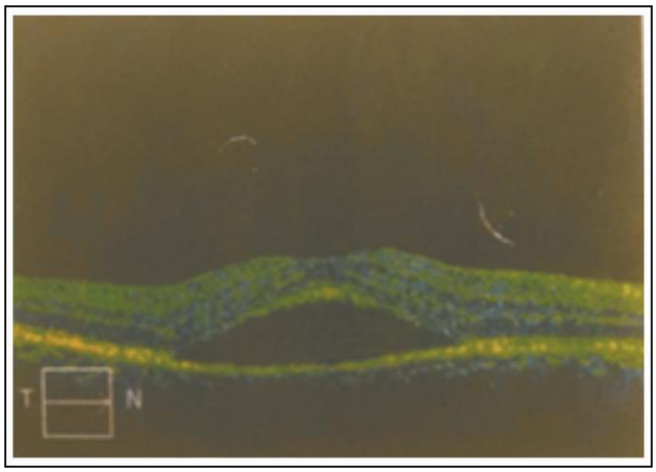

Fig. 4: OCT Macula OD June 2015 (OCT on the day of treatment).

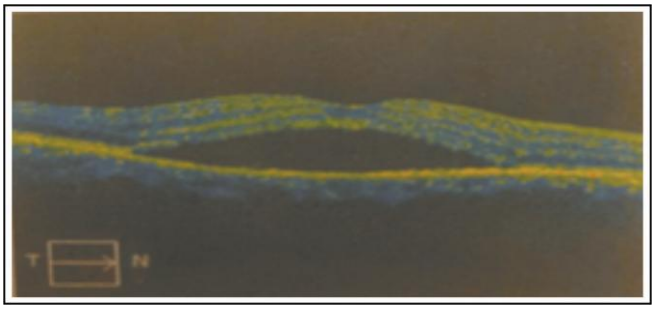

Fig. 5: OCT Macula OD October 2015 (3 months after treatment).

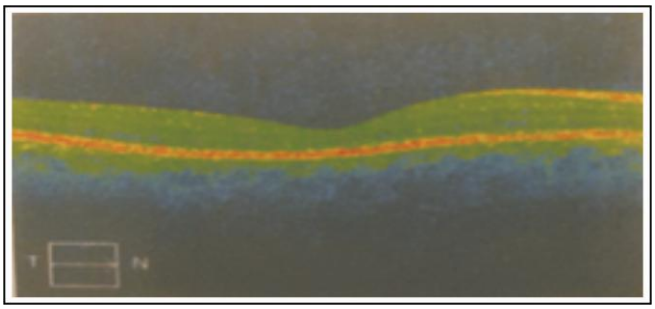

Fig. 6: OCT Macula OD January 2016 showing complete resolution of the sub-retinal fluid 6 months after half-dose PDT.

DISCUSSION

In this case, we used half-fluence rate (25 J/cm2) and routine quantity of verteporfin (6mg/m2) to increase the effectiveness and at the same time decrease the associated damage caused by PDT in a patient with chronic CSCR. We observed a steady decrease in the central macular thickness from the initial 483 microns to 190 microns and simultaneous gain in visual acuity from 6/60 to 6/9 at the last follow-up visit (Fig. 4-6).

Currently there is no definitive therapy available for cases of either acute or chronic CSCR. Diverse efforts have been made at devising a therapy for this condition including Argon laser to seal off the leakage points[4,5]. Although treatment with laser may considerably reduce the span of the ailment, it has not been found to influence the final visual acuity or rate of recurrence of CSCR[6]. Smretschnig et al have reported very good outcomes in visual acuity and significant decrease in the central foveal thickness using half-fluence PDT in cases of both acute and chronic CSCR[7]. The largest study conducted so far was by Chan et al which included 48 eyes with a follow-up of one year and revealed the complete absorption of SRF in 95%of eyes with betterment in visual acuity compared to a control group[8].

Reibaldi et al have assessed low-fluence PDT (25J/cm^2) as opposed to standard fluence (50J/cm^2) and found that the best-corrected visual acuity improved at 12 months in both the groups with resolution of SRF in a considerable number of eyes. However, they also noted substantial choriocapillaris non-perfusion in 44% of cases which were treated with standard fluence PDT versus 0% in those which underwent treatment with half-fluence PDT[9]. Shin et al have also stated identical findings[10].

CONCLUSION

Central serous chorioretinopathy is a challenging clinical problem. The use of reduced fluence PDT appears to be a safe and potent treatment modality for chronic CSCR.

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Role of Authors

Dr. Qasim Lateef Ch
Case diagnosis, treatment and follow-up

Dr. Tehmina Jahangir
Case diagnosis, documentation, treatment, literature search and discussion writing.

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