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Effect of Eplerenone in a Case of Central Serous Chorioretinopathy!

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Abstract:
Central serous chorioretinitis is a relatively common eye condition. It is a disease of the young subject, characterized by the presence of retinal serous detachment (RSD) usually located at the posterior pole, associated with changes in the pigment epithelium. A number of factors are involved in the pathophysiology of CRSC including high levels of endogenous or exogenous corticosteroids. Spontaneous course is often favorable. However, persistence or recurrence of RSD can result in permanent damage to photoreceptors and pigment epithelium. We report the case of 36-year-old patient who presents a central serous chorioretinitis with unilateral involvement that lasts for more than 06 months, in whom a treatment based on eplerenone has been proposed with a very good evolution on the anatomical and functional plan. Different studies have been conducted to investigate the efficacy and safety of the use of eplerenone in the treatment of persistent or chronic forms of central serous chorioretinitis. The recent results are rather contradictory. Our report supports that eplerenone can be really effective in persistent CSCR.

Key Words: *Central serous chorioretinopathy; Eplerenone; Persistent; Chronic; Retinal serous detachment.*

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I. Introduction:

Central serous chorioretinopathy (CSC) is an important cause of central vision loss in young adult men. This affection is characterized by retinal serous detachment (RSD) usually located at the posterior pole, associated with changes in the pigment epithelium [1]. A number of factors are involved in the pathophysiology of CRSC including high levels of endogenous or exogenous corticosteroids. Spontaneous course is often favorable. However, persistence or recurrence of RSD can result in permanent damage to photoreceptors and pigment epithelium [2]. Current management modalities target the RPE, choroid, or both and aim to improve the ability of the RPE to remove subretinal fluid, decrease choroidal vessel leakage, or decrease fluid flow through the RPE barrier [2]. Based on the current literature, eplerenone appears to be effective, especially in the chronic stage of the disease.

We report the case of 36-year-old patient who presents a central serous chorioretinitis with unilateral involvement that lasts for more than 06 months, in whom a treatment based on eplerenone has been proposed with a very good evolution on the anatomical and functional plan.

II. Patient And Case Presentation:

We report the case of a 36-year-old patient, chronic tobacco user, type A personality. The patient presents a unilateral decrease in visual acuity reaching the left eye for more than 06 months. The clinical examination found visual acuity of the left eye reduced to the fingers, the examination of the anterior segment was unremarkable as well as pupillary reflexes. The funduscopic examination finds a loss of foveal reflex with a serous retinal detachment bubble (Figure 1). The examination of the healthy eye appears unremarkable with visual acuity preserved at 1.0 (Figure 2). Fluorescein retinal angiography found an extra-foveolar leakage point with an ink splot leakage pattern (Figure 3). Autofluorescence was performed and objectivated pigment migration. The examination was completed by macular OCT which shows significant retinal serous detachment with detachment of the pigment epithelium. Retinal thickness was estimated at 489 µm. There was also a slight damage to the photoreceptor layer (Figure 4).

Treatment with 25 mg eplerenone was started for a period of one week, then the dosage was increased to 50 mh per day for 1 month. The 30-day examination found visual acuity at 0.1 with the disappearance of the DEP. The retinal thickness was estimated to be 320 µm. There is a clear irregularity of the ellipsoid zone

(Figure 4). Treatment was continued for 3 months with monitoring of renal function and regular cardiovascular examination. The evolution was marked by the disappearance of the RSD with a final visual acuity of 03/10. (Figure 4). the treatment was stopped. Regular monthly monitoring has been recommended.

It was therefore concluded that there was a persistent central serous chorioretinitis with involvement of the ellipsoid zone which responded to treatment with eplerenone over a period of 03 months anatomically and functionally.

III. Discussion:

Central serous chorioretinitis is a relatively common eye condition. It is a disease of the young subject, characterized by the presence of retinal serous detachment (RSD) usually located at the posterior pole, associated with changes in the pigment epithelium. The affection is bilateral in 40% of cases. However, alterations of retinal pigment epithelium might be even more frequent in OCT [3].

Although spontaneous resolution can occur in 2 to 3 months, recurrences occur mainly during the first year and the disease can progress to a chronic form in 10% of cases with persistent serous detachment, extensive alterations of the epithelium retinal pigment and cystoid retinal degeneration [4]. Optimized OCT analyzes identified diffuse bilateral choroid thickening suggesting involvement of vascular deregulation in the choroid [5]. CSCR is strongly associated with psychological stressors and Type A personality characteristics [6].

Although we know the role of corticosteroid therapy in the onset and worsening of CRSC, the pathophysiology of CRSC is still poorly understood and the exact role of corticosteroids in the pathogenesis of CRSC is unclear[7].

Glucocorticoids bind to the glucocorticoid receptor as well as the mineralocorticoid receptor (MR). recent research has demonstrated the presence of glucocorticoid receptors but also mineralocorticoids and HSD2 (enzyme 11-beta hydroxysteroid dehydrogenase type 2) in the vessels of the retina and choroid [8,9].

The first case report of central serous chorioretinitis treatment was made by Zhao et al. and observed rapid resolution of subretinal fluid and decreased choroidal vasodilation. They also noted an improvement in visual acuity which was maintained even five months after stopping treatment[9]. Eplerenone is an RM antagonist with higher affinity and selectivity than spironolactone for RM. Its limited binding to progesterone and androgen receptors thus limits the unwanted side effects associated with sex hormones [10].

Eplerenone has been approved by the FDA for the treatment of hypertension and congestive heart failure[6]. The effect of eplerenone has been evaluated in several studies, the study of Bousquet et al. [6]concerned 13 patients followed over 3 months. Eplerenone treatment was started at 25 mg per day for a week then up to 50 mg per day for 3 months. 70% of patients presented a decrease in serous retinal detachment at 1 and 3 months.

The study of Sampo and al [11] concerned 27 patients treated with eplerenone for a chronic Central serous chorioretinopathy evolving for at least 3 months. A treatment with eplerenone 25 mg / day or 50 mg / day for 1 to 3 months had been carried out. A significant decrease in retinal thickness and RSD size was seen in 20 patients with improved visual acuity in all of these patients. No side effects requiring discontinuation of treatment were observed. A prospective study concerned 8 patients treated with eplerenone for a chronic Central serous chorioretinopathy evolving for at least 3 months with repercussions on visual acuity, at the dose of 50 mg per day the first month then 25 mg per day for 2 months. the introduction of eplerenone resulted in significant improvement in both anatomical and functional outcomes in patients with chronic [1]. However, a recent short retrospective study conducted at Layton Rahmatulla Benevolent Trust (LRBT) Eye Hospital, concerning 15 patients treated by 50mg per day of eplerenone about 1 month's report that eplerenone treatment failed to decrease subretinal fluid height and does not bring any significant improvement in the visual acuity of patients. This study report also some mild adverse effects of the treatment include hypertension, abdominal cramps, nausea, and migraine [12]. Another randomized, double-blind, parallel-group, multicenter placebo-controlled trial was done at 22 hospitals in the UK. Patients were given either oral eplerenone (25 mg/day for 1 week, increasing to 50 mg/day for up to 12 months) plus usual care or placebo plus usual care for up to 12 months. 114 patients to receive either eplerenone (n=57) or placebo (n=57). The study found that eplerenone was not superior to placebo for improving BCVA in people with chronic CSCR after 12 months of treatment [13].

IV. Conclusion:

Although recent research has found contradictory results, our report supports that eplerenone can be really effective in persistent CSCR.

COMPETING INTEREST: No potential conflict of interest relevant to this article was reported.
AUTHORS' CONTRIBUTIONS: All authors have contributed to redaction, verification and correction of this work.

FIGURES and Tables:
Figure 1: Funduscopic examination finds a loss of foveal reflex with a serous retinal detachment bubble (OS).
Figure 2: Funduscopic examination of the right eye, which was unremarkable (OR).

Figure 3: Fluorescein retinal angiography found an extra-foveolar leakage point with an ink splot leakage pattern (OS).
Figure 4: Macular OCT showed significant retinal serous detachment with detachment of the pigment epithelium. Retinal thickness was estimated at 489 µm. There was also a slight damage to the photoreceptor layer (a). The 30-day examination found visual acuity at 0.1 with the disappearance of the DEP. The retinal thickness was estimated to be 320 µm. There is a clear irregularity of the ellipsoid zone (b). Evolution at 60 days of treatment (c). The evolution at day 90 was marked by the disappearance of the RSD with a final visual acuity of 03/10 (d).

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Figure 1: Funduscopic examination finds a loss of foveal reflex with a serous retinal detachment bubble (OS).

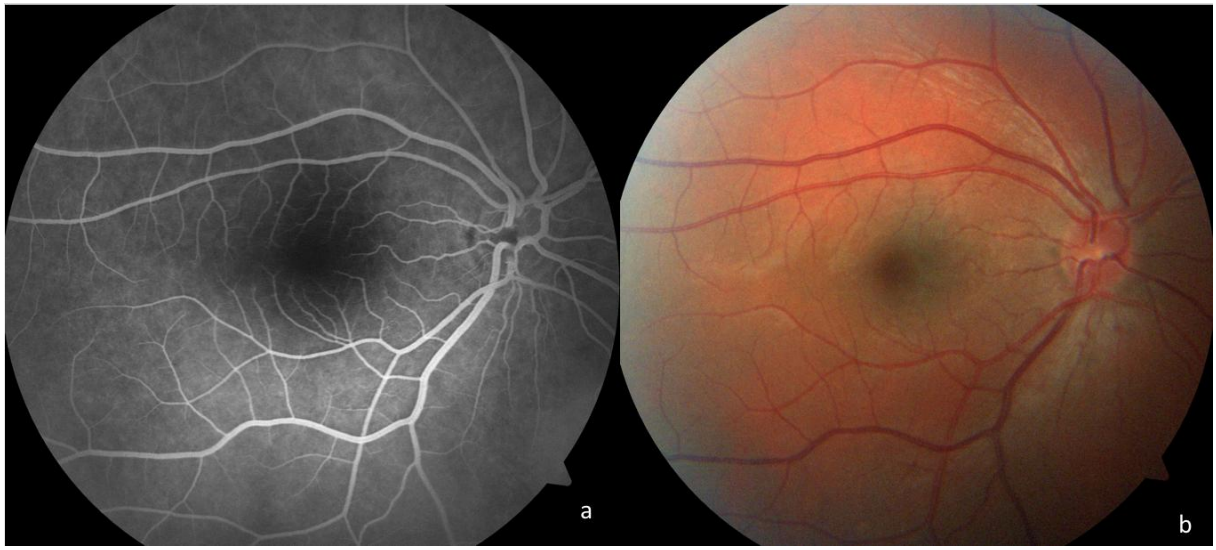

Figure 2: Funduscopic examination of the right eye, which was unremarkable (OR).

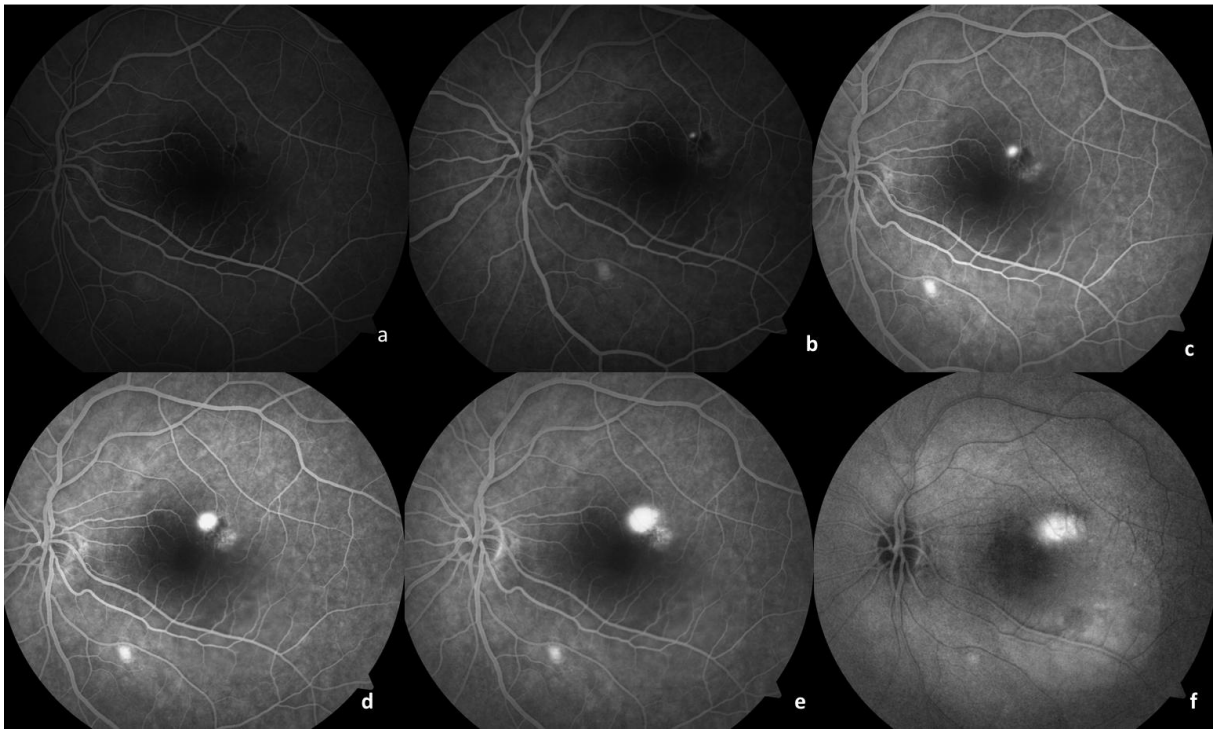

Figure 3: Fluorescein retinal angiography found an extra-foveolar leakage point with an ink splot leakage pattern (OS).

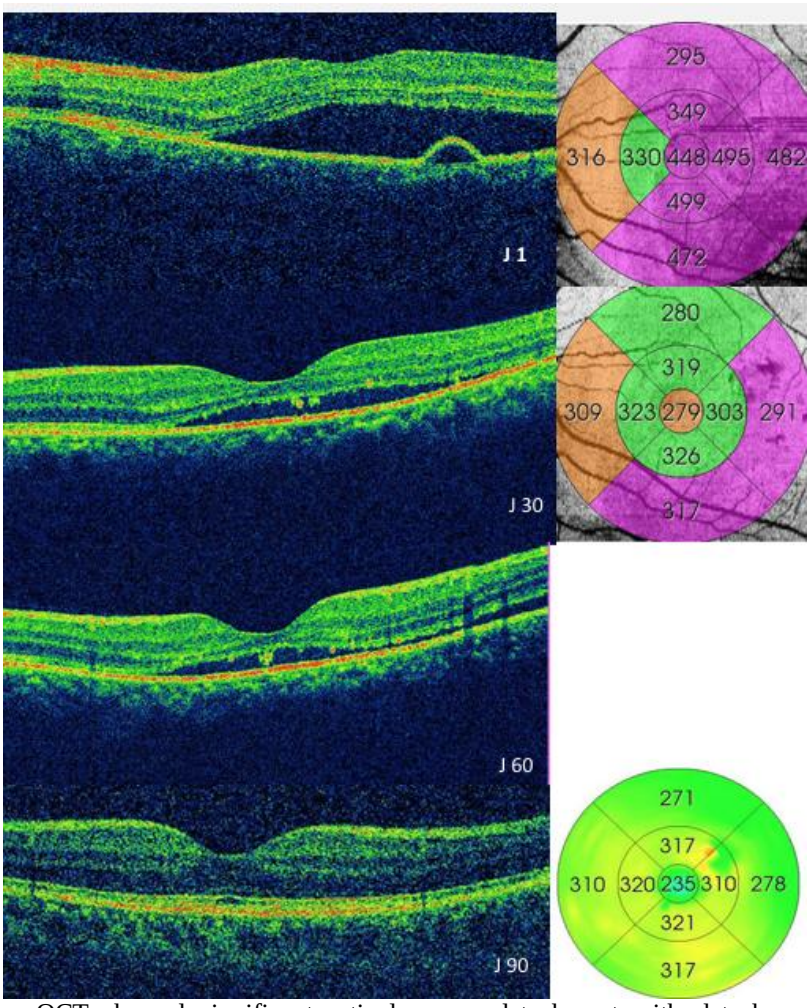

Figure 4: Macular OCT showed significant retinal serous detachment with detachment of the pigment epithelium. Retinal thickness was estimated at 489 µm. There was also a slight damage to the photoreceptor layer (a). The 30-day examination found visual acuity at 0.1 with the disappearance of the DEP. The retinal thickness was estimated to be 320 µm. There is a clear irregularity of the ellipsoid zone (b). Evolution at 60 days of treatment. The evolution at day 90 was marked by the disappearance of the RSD with a final visual acuity of 03/10 (d).

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