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Case Series

Different Therapeutic Approaches in Central Serous Corioretinopathy: A Case Series

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Abstract

Purpose: To give clinical feedback to what the literature states about the different treatment of Central Serous Corioretinopathy (CSCR), outlining how, through different treatments customized on different characteristics of the patient it is possible to obtain excellent results of visual recovery.

Observations: While in acute forms a broad consensus has been reached on whether a wait-and-see attitude can be taken, in chronic forms the visual prognosis is very much influenced by the treatment to which it is subjected.

Conclusions: In the acute form (aCSCR), which has a relatively high rate of spontaneous resolution, an effective treatment should ideally prevent recurrences and subsequent disease progression. In the chronic form (cCSCR), the primary aim of treatment is currently to achieve and maintain the complete resolution of subretinal fluid.

Keywords: Subthreshold Micropulse Laser; Argon Laser; Eplerenone; Photodinamyc

Introduction

Central serous chorioretinopathy (CSCR) is the fourth most common cause of central vision loss, affecting men 20-60 years of age. To date, no consensus has been reached regarding the treatment of this disease, in fact there are a variety of different approaches proposed. According to the literature, many strategies are available and effective, modulating the choice upon patient's characteristics. In the acute form, it is reasonable to wait and observe the patient for the first 3-4 months, time in which subretinal fluid could be reabsorbed spontaneously; otherwise, half-dose PDT or high-density subthreshold micropulse laser could be considered. In the chronic form, PDT could be performed, adding anti-VEGF treatment if signs of CNV are present at multimodal imaging. Another possibility is pharmacological treatment: antagonists of mineralocorticoid receptors, spironolactone and eplerenone have shown beneficial effects in several promising studies, but no large, prospective randomised controlled trials have been conducted yet.

Findings

Case 1

A 50-year-old woman with a history of CSCR in her right eye (RE) came to our center in 2019: her BCVA was 20/20 in her RE and OCT showed parafoveal PED. FA showed a leaking point temporally to the fovea, with no signs of neovascularization. Therapy with acetazolamide and curcumin-based integrator was started in cycles. OCT and BCVA stayed stable until 2021: the patient was lost for two years at the follow up due to Covid-19 pandemic

situation. At this time, her BVCA was 20/40 and OCT showed PED and neuroepitelium detachment. Pharmacological treatment with acetazolamide was promptly restarted. Two weeks later BVCA was 20/25 and OCT showed a reduction in height of PED. After two weeks she underwent high-density subthreshold micropulse laser (HSML) and her BVCA was again 20/20. HSML was performed using these parameters: photonic radiation was delivered to the retina in pulses lasting 200 msec, the duty cicle was set at 5%, the spot size was 100 µ with a power of 300 mW.

Figure 1: OCT in 2019, showing a PED temporally to the fovea (on the left), FA showing a leaking point in the same area (on the centre) and ICGA showing iperpermeability in correspondence (on the right). BCVA was 20/20.

Figure 2: OCT in 2021, showing a PED and a neuroepitelium detachment, of 582 µm in maximum height, involving the fovea. BCVA was 20/40 currently.

Figure 3: After high-density subthreshold micropulse laser OCT shows the resolution of neuroepitelium detachment and her BCVA was again 20/20.

Case 2

A 56-year-old man referred to our center in 2015, with a history of ipovisus: his BCVA was 20/25 in his RE and 20/63 in his LE. OCT was performed: in both eyes there were multiple neuroepitelium detachments, with focal PED and signs of macular subatrophy. Indocianine-green angiography showed diffuse leakage of choriocapillaris. Therapy with eplerenone 50 mg was promptly started. OCT and BCVA were stable for three years, the patient had continued his therapy with eplerenone 50 mg, that was reduced in 2018 to 25 mg. By the way, this patient too was lost at the follow up due to Covid-19 and came back to our clinic in 2021: his BCVA was 20/63 in his RE and count-fingers in his LE. FA showed leaking points and a diffuse neuroepitelium detachment, so PDT was performed. In particular, we performed a half-fluence (25 J/cm^2) PDT, with a full dose of verteporfin (6 mg/m^2) and full treatment duration (83 s). After 4 months BCVA was 20/50 in his RE and 20/200 in his LE.

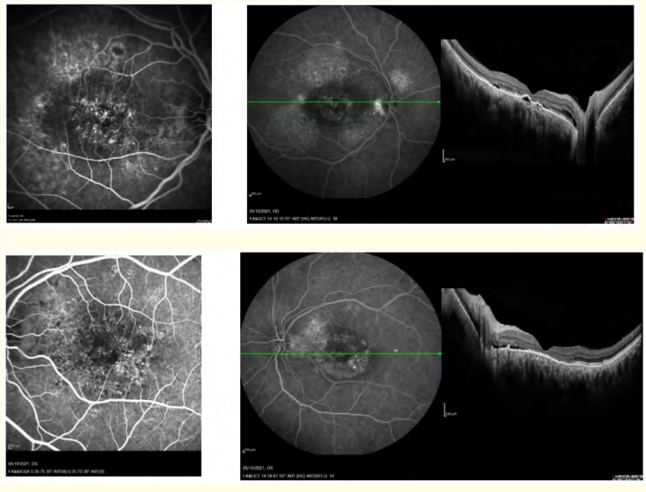

Figure 4: FA showing leaking points (on the left) and OCT in 2021 showing diffuse neuroepitelium detachment in macular area in both eyes (on the right). His BCVA was 20/63 in his RE and CF in his LE.

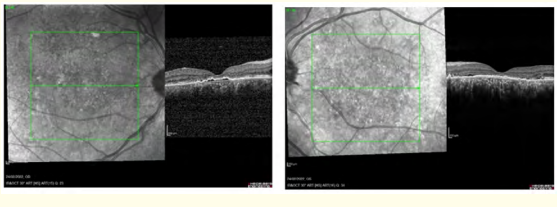

Figure 5: After 4 months OCT showed a reduction in height of the detachment and BCVA was 20/50 in his RE and 20/200 in his LE.

Case 3

A 35-year-old man with a history of CSCR came to our center in 2021 with a subfoveal neuroepitelium detachment in LE and a leaking point nasal to the fovea in FA. His BCVA was 20/20 in his RE and 20/25 in his LE. Treatment with curcumin-based integrator was started and then argon laser was performed on leaking point. Laser treatment consists of few spots (3-5 impacts) of small diameter (150 µm), low intensity (70-80 mW), to achieve a slight whitening of the retina, and short pulse duration (100 mSec). After a month, BCVA was 20/20 in his LE and intraretinal fluid was almost totally disappeared. After 6 months, BCVA was still 20/20, but in OCT a PED reappeared in correspondence of the leaking point. After 3 months the OCT was improved, with only pharmacological treatment.

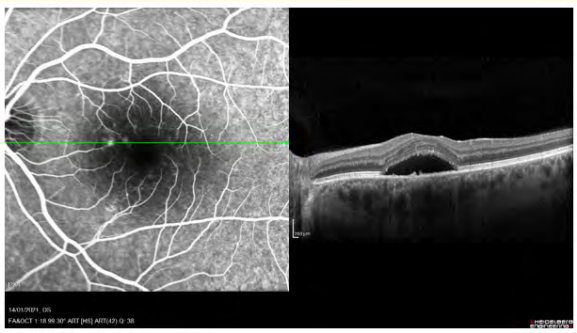

Figure 6: OCT and FA showing a subfoveal neuroepitelium detachment and a leaking point nasal to the fovea. At this time BCVA was 20/25.

Figure 7: After argon laser treatment on leaking point OCT shows reabsorption of fluid. BCVA was 20/20.

Figure 8: After 6 months OCT showed again a little neuropitelium detachment nasally to the fovea, but BCVA was still 20/20.

Figure 9: With only pharmacological treatment after three months the fluid disappeared.

Discussion

We report three patients with CSCR that were treated in different ways.

The first patient underwent high-density subthreshold micropulse laser that consist of repetitive ultrashort laser pulses targeting the RPE [1]. The pulses are targeted on the points of leakage identified in FA so that only a minor thermal energy is released to the choroid and neurosensory retina, and thus avoiding damaging those structures [2-5]. Micropulse laser treatment may be more effective in cCSCR eyes with focal leakage compared to eyes with diffuse leakage [6]. Our case was, indeed, perfect for this treatment, because of the single points of leakage temporally to the fovea.

The second patient has a chronic history of CSCR. He was treated with PDT. It is supposed that PDT acts in CSCR by inducing choroidal hypoperfusion, vascular narrowing and remodelling in order to negate choroidal hyperpermeability which is often found in CSCR [7]. Patients with cCSCR generally respond better to half-dose PDT compared to HSML treatment [8].

The third patient was treated with argon laser on the point of leakage. This method of laser treatment targets the focal leakage points measured on FA and attempts to close the focal defect in the outer blood-retina barrier by applying photocoagulation to the affected area of the RPE. Laser photocoagulation should be limited to extrafoveal leakage sites, as vision loss, scotoma, reduced contrast sensitivity, and/or CNV can occur at the treated area [9-11].

Conclusions

The classification and treatment of CSCR has long been subject to controversy. Regarding aCSCR, treatment can often be deferred, due to the high rate of spontaneous recovery. When treatment is indicated in aCSCR, the current evidence suggests that half-dose or half-fluence PDT guided by either ICGA or FA may be the treatment of choice for accelerating SRF resolution, improving vision, and decreasing the risk of recurrence. Regarding cCSCR half-dose (or half-fluence) PDT should be considered the treatment of choice. When a good visual result is obtained in these forms, the aim should be the maintenance of the recovery and this can be reached by using less invasive approaches such as pharmacological treatment which, in our clinical experience, might be sufficient to this purpose.

Patient Consent

Patient consent was obtained for this publication.

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- All authors attest that they meet the current ICMJE criteria for Authorship.

Intellectual Property

We confirm that we have given due consideration to the protection of intellectual property associated with this work and that there are no impediments to publication, including the timing of publication, with respect to intellectual property.

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