

Management of Central Serous Chorioretinopathy Using Focal Laser Photocoagulation: A Case Report

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ABSTRACT

Introduction: Central serous chorioretinopathy (CSC) has the main symptoms of choroidal thickening, detachment of retinal pigment epithelium (RPE), and presence of subretinal fluid. Treatment of CSC is indicated for cases with SRF persisting for more than 4 months, decreased visual acuity, history of recurrence, or history of previous CSC in other eyes with poor visual outcome. This case report aims to describe the management of CSC using focal laser photocoagulation. **Case presentation:** A man, 41 years old, living in the city, came with complaints of sudden blurred vision in his left eye when he woke up 3 months ago. This complaint is accompanied by a decrease in the ability to see in the middle. There are no vision complaints such as flashes of light, no blurred vision such as tunnels or closed curtains, no red eyes, pain, or eye discharge. On ophthalmological examination, there was a decrease in visual acuity oculi sinistra (OS) 6/12, intraocular pressure within normal limits, and orthophoria. On examination of the posterior segment of the OS, a decreased positive foveal reflex was found. Fluorescent angiography fundus photo examination showed central serous chorioretinopathy OS. This patient was diagnosed with central serous chorioretinopathy oculi sinistra. Management is given to patients in the form of disease-related education, laser focal photocoagulation OS, clobazam 10 mg/24 hours, eye drops oxymetazoline HCl 1 drop in the left eye/8 hours. **Conclusion:** Treatment with laser focal photocoagulation is beneficial in the clinical improvement of cases of central serous chorioretinopathy.

1. Introduction

Central serous chorioretinopathy (CSC) is an idiopathic disease of the retina.¹ This disease is characterized by focal leakage from the choroidal vessels due to changes in the retinal pigment epithelium (RPE) which results in serous detachment of the neurosensory retina.² CSC is considered the fourth most common cause of nonsurgical retinopathy after age-related macular degeneration (AMD), diabetic retinopathy, and branch retinal vein occlusion.³ This disorder occurs more in men and between the ages of 39-51 years.^{1,3}

CSC is suspected to be a multifactorial disease. There are several risk factors that are thought to be associated with CSC, such as genetics, corticosteroid use, pregnancy, cardiovascular disease, gastrointestinal disease, psychiatric disorders, and some drugs.⁴ CSC classified There are two types: acute and chronic. These two types are distinguished by the duration of eye complaints, accumulation of subretinal fluid (SRF), and the presence or absence of RPE atrophy. Patients with chronic CSC generally have poorer visual acuity than patients with acute CSC. Approximately 40% of chronic CSC patients

present with bilateral SRF.⁵

In general, CSC resolves without sequelae within 3 months, although severe visual loss can occur in very rare cases. Treatment of CSC is indicated for cases with SRF persisting for more than 4 months, decreased visual acuity, history of recurrence, or history of previous CSC in another eye with poor visual outcome.^{4,6} This case report aims to describe the management of CSC using focal laser photocoagulation.

2. Case Presentation

A man, 41 years old, living in the city, came with complaints of sudden blurred vision in his left eye when he woke up 3 months ago. This complaint is accompanied by a decrease in the ability to see in the middle. There are no vision complaints such as flashes of light, no blurred vision such as tunnels or closed curtains, no red eyes, pain, or eye discharge. In the left eye, there were no complaints of enlarged or reduced

vision and no complaints of seeing lines that were not straight. The patient then went to the nearest hospital and was referred for further examination to the ophthalmology polyclinic at Dr. Mohammad Hoesin General Hospital, Palembang.

On physical examination, vital signs were within normal limits. On ophthalmological examination, there was a decrease in visual acuity oculi sinistra (OS) 6/12, intraocular pressure within normal limits, and orthophoria. On examination of the posterior segment of the OS, the papillae were within normal limits. The positive foveal reflex was decreased, the contours of the blood vessels were good, and there was no exudate and bleeding on examination of fundus fluorescein angiography (FFA) image inkblot hyper fluorescence in the macular area at 11 o'clock. Examination of the fluorescent angiographic fundus photo showed the presence of central serous chorioretinopathy OS (Figure 1).

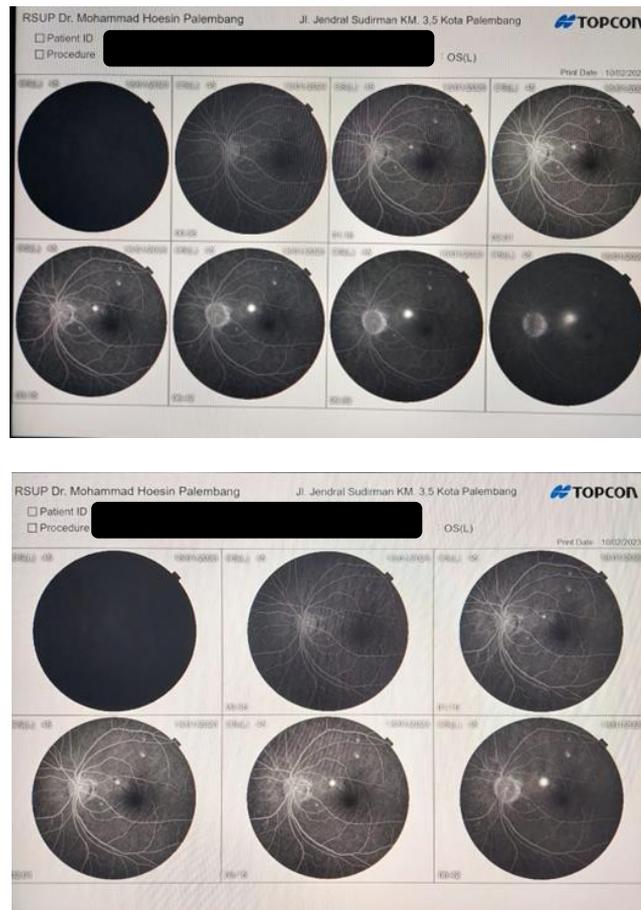


Figure 1. Results of photo examination of fundus fluorescein angiography.



Figure 2. Macula OS ocular coherence tomography examination before the procedure.

This patient was diagnosed with central serous chorioretinopathy oculi sinistra. Management is given to patients in the form of disease-related education, laser focal photocoagulation OS, clobazam 10 mg/24 hours, eye drops oxymetazoline HCl 1 drop in the left eye/8 hours. The procedure for focal laser photocoagulation is as follows; After equipment preparation, the patient's left eye was anesthetized with 2% pantocain local anesthetic. Then set the slit lamp and lens to be used. The chosen wavelength is argon green light. Then the monitor screen display is set with a spot duration of 0.1-0.2 seconds with power, spot size, and energy adjusting the argon green light. The lubricated lens is placed on the OS, and then the retina is identified to determine the laser spot. After

that, the laser beam was fired to close the choroid and RPE leaking sites. After the procedure is completed, the lens is removed from the patient's eye, and the eye is cleaned.

Improvements in clinical symptoms after the procedure are as follows; vision OS 6/9 ph (-), intraocular pressure within normal limits, fovea reflex OS positive with cicatricial at 11 o'clock. Evaluation of the results of laser focal photocoagulation was performed with optical coherence tomography macula OS (Figure 3). Furthermore, the patient was given management in the form of conservative pharmacological therapy using acetazolamide 250 mg/12 hours orally.

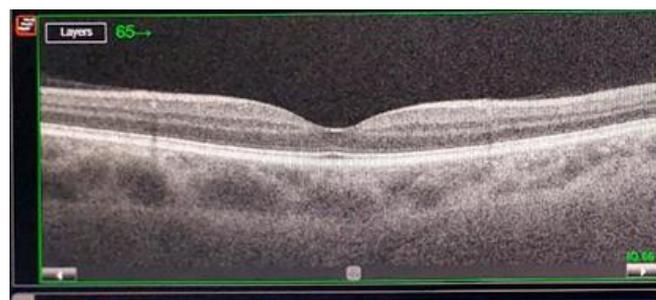


Figure 3. Macula OS ocular coherence tomography examination after the procedure.

3. Discussion

Central serous chorioretinopathy (CSC) has the main symptoms of choroidal thickening, detachment of retinal pigment epithelium (RPE), and the presence of subretinal fluid.^{2,3} Clinical signs experienced by patients can be asymptomatic or in the form of complaints of central scotoma, metamorphopsia,

dyschromatopsia, and micropsia.³ CSC disease course is usually benign with spontaneous resolution within 3-4 months. However, in some patient cases, CSC may occur recurrently or persistently with extensive loss of RPE and photoreceptors.⁵

CSC is more common in men between the ages of 39 and 51 years or older. This is associated with the

production of a lot of androgen hormones in men. Testosterone is a vasoactive hormone that can increase the process of blood vessel vasodilation which is thought to be related to the incidence of CSC. Psychological conditions are also thought to be related to the CSC case. Psychological stress can increase the risk of CSC by 59 times.⁶ This is related to high levels of cortisol and catecholamines, which are thought to be one of the risks in cases of CSC.⁶ Several theories state that CSC cases are related to sleep disturbances, where there is an increase in epinephrine and norepinephrine levels in the circulation, increased oxidative stress, vasoconstriction, or blood clotting disorders can cause CSC.^{3,4}

The pathogenesis of CSC is not clearly understood, but choroidal thickening, increased hydrostatic pressure in the choroidal vessels, increased vascular permeability, and retinal pigment epithelium dysfunction play an important role in the formation of subretinal fluid in CSC.² On fundoscopy, this subretinal fluid accumulation shows an elevational appearance of the retinal neurosensory area, which is round in shape with distinct margins and surrounded by a halo of reflected light. This accumulation of subretinal fluid results in disruption of photon transmission from the outside to the retinal neuroreceptors, causing a decrease in visual acuity.²

CSC is a self-limiting disease, and the first episode in most patients resolves within 3-4 months, so observation is the appropriate initial approach. Unfortunately, there is no consensus regarding the appropriate observation period. Generally, treatment is indicated for cases with subretinal fibrosis persisting for more than 4 months, decreased visual acuity, history of recurrence, or previous history of CSC in other eyes with poor visual outcome.^{7,8} In these patients, there is a decrease in visual acuity, and it's going on long enough to be an indication for treatment.

This patient underwent laser focal photocoagulation. The laser procedure is carried out precisely by paying attention to the location of the leak by comparing the clinical fundoscopic picture and the FFA that has been done before. Laser treatment aims

to seal the leak in the RPE, increasing SRF uptake by stimulating the RPE pump function of adjacent RPE cells.^{9,10} Focal lasers can accelerate the resolution of SRF within 8-10 weeks. Focal laser side effects (approximately 2%) are rare, including secondary choroidal neovascularization (CNV) and paracentral scotoma.^{11,12} Laser waves are absorbed exclusively by the choroid and outer retina, thereby avoiding tissue damage to the inner retinal layer. This laser is recommended for the treatment of CSC because of its good safety profile, which limits collateral tissue damage such as retinal scarring.^{12,13}

At the time of control, 1 month after the procedure, there was clinical improvement in the patient in the form of an increase in vision from 6/12 ph (-) to 6/9 ph (-). On examination of the posterior segment, a normal foveal reflex was found, and there was hard exudate periphery at 11 o'clock. Furthermore, the patient was given management in the form of conservative pharmacological therapy using acetazolamide 250 mg/12 hours orally. At this stage, the patient can be given a conservative after there is clear evidence of clinical improvement. As for giving pharmacological therapy, acetazolamide aims to facilitate the removal of remaining subretinal fibrosis fluid through the retinal pigment epithelium.¹³⁻¹⁵ In general, the visual prognosis of CSC is good. 35 out of 45 patients with CSC cases had 6/6 visual improvement or visual improvement after a 1-year follow-up.

4. Conclusion

Treatment with laser focal photocoagulation is beneficial in the clinical improvement of cases of central serous chorioretinopathy.

5. References

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