

# Central Serous Chorioretinopathy and Stress: About 10 Cases

ACHARGUI MANAR, AZHRAI RKIA , YOUSSEF HARRAR, Fatima Zahra MABROUKI ,  
Siham CHARIBA , Asmaa MAADAN , Rachid SEKHSOUKH

Ophthalmology Department, University Hospital Center Mohammed VIth Oujda, Morocco. Faculty of Medicine and Pharmacy,  
University Mohammed Premier Oujda, Morocco.

Corresponding Author: ACHARGUI MANAR ,Ophthalmology Department University Hospital Center Mohammed VIth Oujda  
Oujda 60000 Maroc

**Abstract:- Introduction:** -central serous chorioretinopathy (CSCR) is a a retinal disease characterized by serous neurosensory detachment secondary to focal leakage at the retinal pigment epithelium. The main objective of our study is to establish the relation ship between stress and the occurrence of CRSC with a structured approach using the Perceived Stress Scale (PSS-10).

**Methods:-** We conducted a prospective case-control study comparing the PSS-10 stress score in patients with CSCR and in control patients with ocular pathology other than CSCR.

**Results:** -Over a 3-year period from October 2019 to October 2022, 10 patients diagnosed with CSCR were matched for age and sex with the control group with different ocular pathologies. The stress score for the group of cases was 28.8, and for the controls 21.30, and since the size of our sample is less than 10 (less than 30); the verification of the normality of the distribution of the sample with significance at 5% ( $P=0.2$ ).

**Conclusion:** -The results obtained are statistically significant, concluding that there is a difference in mean between the two groups and consequently the influence of stress on the occurrence of CSCR.

**Keywords:-** CSCR, Stress, Serous Retinal Detachment.

## I. INTRODUCTION

Central serous chorioretinopathy is a pathology that affects the retina and choroid, characterized by a passage of fluid through the retinal pigment epithelium. This fluid originates from the choroid and passes into the sub-retinal space, causing a detachment of the neurosensory retina. Without other possible causes of exudation such as inflammation, infection or choroidal neovascularization.

CSCR is among the ten most common diseases affecting the posterior segment of the eye. It affects young adults between 25 and 45 years of age with a male predominance [1].

Several risk factors have been described; male gender, a "type A" personality, pregnancy, administration of systemic corticosteroid therapy and poorly controlled hypertension. [2]

The main objective of our study is to establish the relationship between stress and the occurrence of CSCR with a structured approach using the Perceived Stress Scale (PSS-10) (Table 1).

## II. MATERIALS AND METHODS

We conducted a prospective case-control study comparing stress in patients with CSCR to controls with ocular pathology other than CSCR. Over a 3-year period from October 2019 to October 2022

Cases noted on the department's registry were contacted to explain the purpose of the study and to take their consent, and who are matched for age and sex with controls with different ocular pathologies who are themselves contacted.

Cases and controls were evaluated and compared for stress using the PSS-10 stress scale: For the case group, the inclusion criteria were first episode of CSCR and unilaterality of involvement, the exclusion criteria were chronic CSCR, corticosteroid use, pregnancy.

In the group of cases, we found 10 patients diagnosed with unilateral CSCR, confirmed by a good ocular examination, macular OCT and fluorescein angiography

The control group was constructed of 10 patients followed for a pathology other than SCCR. They were randomly selected during the same recruitment period and matched for sex and age with the case group.

Stress was assessed using the adapted Cohen and Williamson PSS-10 items (Arabic version) for each patient in both groups. The PSS-10 is a simple instrument that provides a quick and simple measure of the extent to which life situations are perceived as threatening, uncontrollable, and distressing (Table 1). It consists of 10 questions about mental health in the past month. For each item, patients' responses

are rated on a five-point scale (never = 0, almost never = 1, sometimes = 2, quite often = 3, very often = 4). The final PSS-10 score is calculated by summing all questions, noting that items (4, 5, 7, and 8) are scored in opposite ways. The score is directly proportional to the level of stress; a score < 21 corresponds to a person who knows how to manage his stress, a score between 21 and 26 corresponds to a person who knows how to cope with stress in general, a score >27 means that life is a perpetual threat for this person. SPSS software and the chi 2 test were used for statistical analysis.

### III. RESULTS

The total sample size was 10 for cases and 10 for controls, the average age for cases was 28.4 and controls 29.3, male to female ratio 2.3 in both groups. In the case group, the average time between the onset of symptoms and the ophthalmological examination was five days, the dominant functional sign was decreased visual acuity and the average best corrected visual acuity was 0.3. Fundus examination found a retinal serous detachment in all cases (Figure 1). Macular OCT confirmed retinal serous detachment (Figure 2) in all 10 cases, including 2 cases with thickening of the pigment epithelium and one case with an irregularity of the outer nuclear line. Retinal angiography (Figure 3) found a single leaky spot in eight patients, while the other two had three leaky spots.

The control performed after 8 weeks, found a clear improvement in the case group, the average visual acuity (8/10, parinaud 2), with regression of the retinal serous detachment on the macular OCT.

In the control group, there were 4 uveitis, two optic neuropathies, one keratitis, one central retinal vein occlusion and two diabetic retinopathies.

The stress scores (Table 2) for the case group is 28.8, and for the controls 21.30, and since our sample size is less than 10 (less than 30); verification of the normality of the sample distribution with a significance at 5% ( $P=0.2$ )

This allowed us to use the t-student test with a confidence interval of 95% to compare the average PSS score in the case and control groups. The results obtained were statistically significant with a P-value =0.04 (less than 5%) and therefore concluded that there was a difference in the average score between the two groups and, consequently, that stress had an influence on the occurrence of CSCR.

### IV. DISCUSSION

Many studies have demonstrated stress as a risk factor for the occurrence of SCRC; Fanny et al [3] reported 6 cases of CSCR after the onset of the Ivorian political-military crisis between 2003 and 2005 in a center where no case of SCRC was diagnosed before the crisis. Gelber et al [4] reported a critical life event in 91% of 33 patients before the onset of

CSCR. Spahn et al [5] reported that 9 out of 24 patients with CSCR (37%) showed a high psychological stress state using the "personality factor questionnaire".

However, all these studies were mostly subjective and retrospective mainly based on unstructured questions, while our study which was conducted with an approach adapted to our context as an Arab country, we used a very simple and reliable psychometric instrument available in Arabic language -The PSS-10- and our results are in line with most as soon as published studies.

### V. CONCLUSION

Our study was based on a well-structured approach adapted to the socio-cultural context of the population, but is still limited due to the rarity of the disease on the one hand and the small number of patients as well as the duration of the study that we intend to expand, by increasing the number of patients and considering other approaches to properly establish the link between stress and CSCR

• **Declaration of interest:** The authors declare that there is no conflict of interest that could be perceived as prejudicing the impartiality of this review.

• **Funding:** This work did not receive any specific grant from any funding agency in the public, commercial, or not-for-profit sector.

• **Consent for publication:** All authors consent to publication

### REFERENCES

- [1]. Ciardella AP, Guyer M, Spitznas M, Yannuzzi LA. Central serous chorioretinopathy. In: Ryan SJ, editor. *Retina*. 3rd edition St Louis: Mosby; 2001. p. 1153—81.
- [2]. Haimovici R, Koh S, Gagnon DR, Lehrfeld T, Wellik S. Central serous chorioretinopathy case-control study group. Risks factors for central serous chorioretinopathy: case-control study group. *Ophthalmology* 2004;111:244—9.
- [3]. Rouvas AA, Chatziralli IP, Ladas ID, Xanthopoulou V, Giannakaki E, Karamboula A, Galanis D, Datseris I, Alonistiotis D, Diamanti R, Tsilimbaris M, Chalkia A, Theodossiadi P. The impact of financial crisis on central serous chorioretinopathy in Greece: is there any correlation? *Eur J Ophthalmol* 2014; 24:559-65
- [4]. Gelber GS, Schatz H: Loss of vision due to central serous chorio-retinopathy following psychological stress. *Am J Psychiatry* 1987; 144:46–50.
- [5]. Spahn C, Wiek J, Burger T, et al: Psychosomatic aspects in patients with central serous chorioretinopathy. *Br J Ophthalmol* 2003;87:704–708

**TABLES**

Questions	0 (never)	1 (Almost never)	2 (Sometimes)	3 (quite often)	4 (often)
1. In the past month, how often have you been upset because of an unexpected event?					
2. In the past month, how often have you felt like you couldn't control the important things in your life?					
3. In the past month, how often have you felt nervous and stressed?					
4. In the past month, how often did you feel confident about your ability to handle your personal problems?					
5. Over the past month, how often have you felt things were going your way?					
6. In the past month, how often have you found that you couldn't keep up with all the things you needed to do?					
7. In the past month, how often have you been able to control the irritations in your life?					
8. In the past month, how often did you feel you were aware of things?					
9. In the past month, how often have you been irritated by things that have happened beyond your control?					
10. In the past month, how often did you feel that difficulties were building up so high that you could not overcome them?					

Table 1: PSS-10 Perceived Stress Scale

Case	PSS score	controls	PSS score
1	21	1	22
2	23	2	19
3	30	3	25
4	29	4	27
5	20	5	20
6	24	6	23
7	27	7	25
8	28	8	24
9	22	9	20
10	30	10	26

Table 2: Stress scores in both groups

	Patients	number	Average	Standard deviation	Mean standard error
Stress score	Case	10	28,80	13,39818	4,23688
	controls	10	21,30	9,93367	3,14130

Table 3: t-student test result

FIGURES

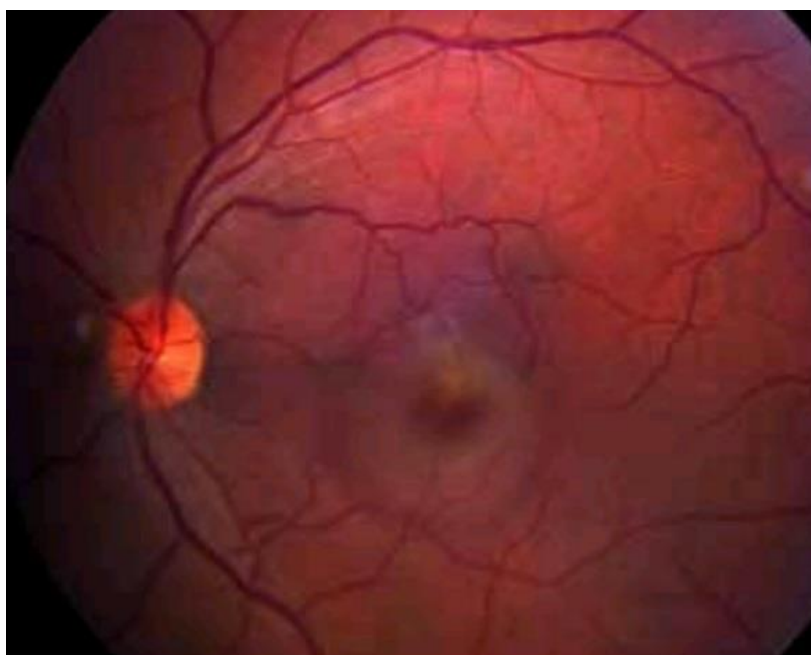


Fig 1: Acute CRSC of the left eye. Color fundus photograph, showing the retinal serous detachment bulla

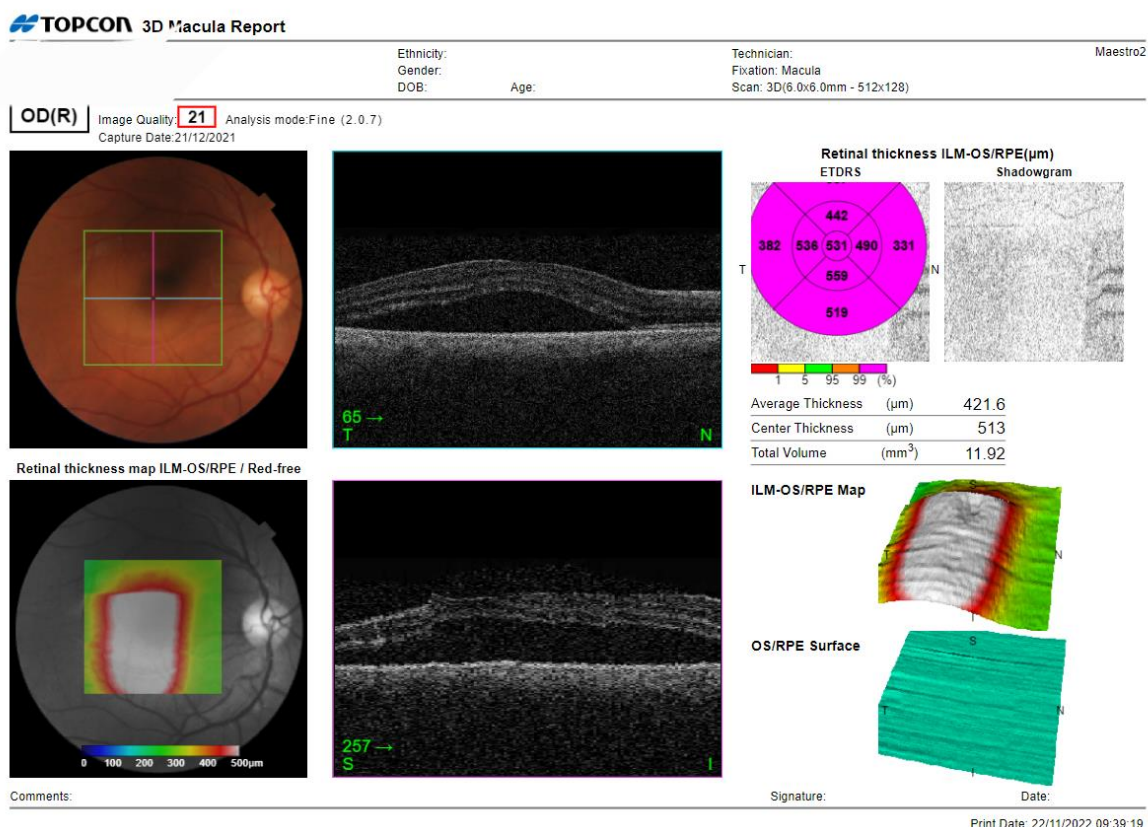


Fig 2: CRSC right eye. Horizontal OCT section showing a sub-oval retinal serous detachment



Fig 3: CRSC of the right eye. Late time fluorescein retinal angiography shows a duster-like vanishing point