



Environmental Factors and Central Serous Chorioretinopathy: How to Prevent a Potentially Blinding Disorder



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Abbreviations: CSC: Central Serous Chorioretinopathy, RPE: Retinal Pigment Epithelium, FA: Fluorescein Angiography, FAF: Fundus AutoFluorescence, OCT: Optical Coherence Tomography, OCTA: Coherence Tomography Angiography, PTD: Photodynamic Therapy

Editorial

In 1867 the German ophthalmologist Albrecht von Graefe described first an alarming and relatively common eye disorder, characterized by recurrent episodes of central retinitis in young male subjects. Nowadays, this condition is better known as 'central serous chorioretinopathy' (CSC) and represents a major cause of visual loss in middle-age men [1]. The typical clinical presentation of this condition consists of a sudden, unilateral reduction and distortion of vision (metamorphopsia), which generally affects the central part of the visual field (central scotoma). In most of the cases, CSC has an acute onset and tends to resolve spontaneously in 2-3 months with a complete recovery of visual acuity; however, in a small percentage of patients this disease may become chronic, leading to a permanent visual impairment with a severe impact on the quality life of the young adults affected [2].

Although the pathogenesis of CSC remains still poorly understood, the most prevalent theories would point out the site of the primary pathology in the choriocapillaris or in the retinal pigment

epithelium (RPE), causing initially choroidal modifications followed by RPE or sometimes even macular serous detachments due to the presence of edema [3]. The diagnosis of CSC is easily done by recurring to different and largely employed imaging techniques in ophthalmological clinical practice. In this regard, while the gold standard still remains the invasive technique named fluorescein angiography (FA), which allows the visualization of subretinal leakage through the use of a dye, several other less invasive imaging diagnostic methods are being more extensively used in this setting: fundus autofluorescence (FAF), optical coherence tomography (OCT) and, nonetheless, the new and more advanced optical coherence tomography angiography (OCTA), which permits the detection of retinal and choroidal blood flow without the use of a dye [4-6].

Currently, even if many new imaging techniques enable an early and accurate diagnosis of CSC, a better knowledge of the pathogenesis and risk factors of the disorder may lead to an improvement of the primary prevention. It is well known the positive association between stressful factors and the onset of this disease. More in particular, patients with CSC have shown to have higher blood and urinary levels of stress hormones, such as catecholamines and corticosteroids [2]. In this regard, a study published in Ophthalmology reported that patients who were taking systemic corticosteroid therapy or with a history of Cushing disease were more likely to develop CSC [7]. Another important risk factor related to CSC onset is pregnancy and this could be explained by the increased production of corticosteroids during this physiological condition, especially in the third trimester. However, pregnancy-induced CSC is usually a transitory disorder, which tends to resolve spontaneously within 1-2 months from the childbirth [8].

More interestingly, several studies revealed that some particular personality traits and temperamental features may be significantly associated with the incidence of this disorder. More in detail, type A personality, characterized by extreme competitiveness, high ambition and an aggressive and hostile attitude towards the environment seems to be an important independent risk factor for developing this disease [9]. A prospective study by Conrad et al. evaluating 57 patients with CSC described that in the examined group there were more subjects with higher emotional distress in comparison with the control group and, nonetheless, it was found that CSC patients displayed lower levels of cooperativeness and higher levels of emotional detachment and hostility [10]. Thus, the authors hypothesized that subjects with a type A personality would be more susceptible to stressful events and the higher levels of stress-induced corticosteroids would be responsible for the hemo-

dynamic alterations in the choroidal blood flow, leading ultimately to the formation of micro-thrombi and subsequent edema.

Although other risk factors such as alcohol consumption, allergic respiratory disease, antibiotics intake and some autoimmune diseases have been investigated in relation to CSC onset, at the moment, there is no consistent evidence among them [11]. In general, further larger scale studies are needed in order to better understand the complex association between CSC and the above-mentioned risk factors. However, it is important to take in account that whenever CSC does not resolve spontaneously or in case of complications like persistent serous detachment, it is necessary to treat the patients in order to avoid the RPE atrophy. Currently, focal argon laser photodynamic therapy (PTD) and more recently anti-vascular endothelial growth factor agents have shown promising results in reabsorbing the edema [12].

In conclusion, CSC has shown to be a potentially blinding eye disease, which occurs typically in young males or in pregnancy. The primary aim in the management of this disorder should be to strengthen the primary prevention, avoiding all the possible environmental factors involved in the pathogenesis of the disease. As previously demonstrated, CSC is highly associated with a stressful life style and a competitive personality. Thus, the adoption of a healthier and more relaxed life style should be suggested to all at-risk subjects as first line strategy, in order to avoid this not mortal but very limiting disease.

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Conflict of Interest

Lorenzo Ferro Desideri, Fabio Barra, Antonio Russo and Simone Ferrero declare that they have no conflict of interest

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