Multiple Sclerosis and Related Disorders 27 (2019) 147–150

Contents lists available at ScienceDirect

Multiple Sclerosis and Related Disorders

journal homepage: www.elsevier.com/locate/msard

Correspondence

Acute vision loss in multiple sclerosis: Optic neuritis or central serous chorioretinopathy?

ARTICLE INFO

Keywords:
Multiple sclerosis
Central serous chorioretinopathy
Optic neuritis
Acute vision loss

To the Editor,

Neurologists are well aware of visual disturbances associated with multiple sclerosis (MS) among which, 'Idiopathic demyelinating optic neuritis' (IDON) is almost always the cause. Wisely, diagnosis and management of presumed IDON cases necessitate a joint effort by neurologists and ophthalmologists. Lack of inter-specialty collaboration may lead to diagnostic confusion. In a report of Horwitz et al. (2014), 10% of referrals to an exclusive optic neuritis clinic were diagnosed incorrectly

Our practice in Isfahan, Iran, has the highest rate of MS in Asia and Oceania (Etemadifar et al., 2014). We have observed MS patients with episodes of vision loss diagnosed incorrectly as a relapse of IDON. Some have been treated inappropriately with intravenous corticosteroids (IVCS). We have witnessed several instances of acute/subacute central serous chorioretinopathy (CSCR) misdiagnosed as IDON. Surprisingly, no quantitative data are available about the frequency of CSCR as a cause of acute visual loss in MS.

The Isfahan computerized MS cohort registry consists of patients diagnosed between April 2003 and July 2013. Their demographics are detailed elsewhere; but in brief, comprises 4536 subjects, 3508 females and 1028 males (Etemadifar et al., 2014). Excluding presenting symptoms, we searched the clinical records from July 2013 (start date of our computerized surveillance recording) to July 2016. We identified 12 episodes of vision loss due to CSCR (ten unilateral and two bilateral cases) in 12 patients (eight males and four females). Patients were revisited to acquire further details. Table 1 summarizes their clinical and paraclinical findings. All had negative history of uveitis, Fingolimod use or other possible causes of macular edema. In records of internal examinations of these cases, as it is shown in the table, there was no mention of Cushing's disease or kidney disorders. Figs. 1 and 2 show the Optical coherence tomography (OCT) and fluorescein angiography, respectively, of the case number 5 (Table 1) with chronic bilateral CSCR.

We estimated the annual frequency rate of CSCR in our MS population at 66.14 (95% CI: 13.64–193.16), with 28.51 (95% CI: 7.22–158.72) for females and 194.55 (95% CI: 23.57–701.01) for males per 100,000, respectively. The frequency is not known for CSCR neither in the general Iranian population nor in other Middle Eastern countries, but based on a single paper a frequency of 9.9/100,000 for males and 1.7/100,000 for females is reported (Daruich et al., 2015).

We calculated the odds ratio of CSCR frequency in Isfahan MS population to that in the general population of males and females at 19.68 (95% CI: 18.46–20.99; $\chi^2 = 16{,}693.82$; $P < 0.0001$), and, 16.77 95% (95% CI: 14.33–19.64; $\chi^2 = 2379.62$; $P < 0.0001$), respectively. The question is whether these two normally unassociated disorders have anything in common. Among 12 cases, all had history of IVCS for controlling MS relapses. Among these, four had undergone such pulses in the 6 months prior to CSCR. Corticosteroids are well-known to trigger of CSCR and may prolong, aggravate, or reactivate CSCR course. Such an increase has been suggested previously in miscellaneous disorders treated with corticosteroids given by various routes (Daruich et al., 2015). This point may explain the increased CSCR in MS. There is a single case report of an MS patient with previous attacks of IDON followed by IVCS pulses. Over 1 year, this patient developed bilateral impairment of vision. An IVCS pulse was reused without dilated fundus examination and apparently complicated a missed bilateral chronic CSCR (Milazzo et al., 2013).

Taken together, acute/subacute vision loss in an MS case with history of corticosteroids administration should be subjected to full ophthalmologic examination and consultation with an ophthalmologist. A clue in favor of CSCR is the complaint of visual distortion such as micropsia or metamorphopsia in the absence of a relative afferent pupillary defect. A useful diagnostic tool is OCT which may show a typical blister over the macular area. This not only provides a window into the global MS disease process but can help exclude CSCR (Saidha and Calabresi, 2014).

Funding

This work was supported by Isfahan University of Medical Sciences (grant no. 395009).

Author disclosure statement

The authors have no proprietary interest in the materials presented herein.

Acknowledgment

This survey was conducted by the cooperation of the Isfahan

https://doi.org/10.1016/j.msard.2018.09.034
Received 19 April 2018; Accepted 28 September 2018

Table 1
Demographic and disease characteristics of patients.

Case number	1	2	3	4	5	6	7	8	9	10	11	12
Sex	M	F	M	M	M	M	M	M	F	F	M	F
Date of birth	1985	1979	1983	1977	1983	1987	1985	1984	1989	1980	1988	1986
Date of MS onset	2010	2007	2010	2005	2010	2010	2013	2012	2009	2008	2013	2010
Date of CSCR attack	2013	2016	2014	2016	2015	2013	2016	2016	2014	2015	2015	2014
MS presenting symptoms	Blurred vision	Paresthesia	Paraparesis	Blurred vision	Paraparesis	Imbalance	Blurred vision	Paraparesis	Blurred vision	Diplopia	Left lower limb paresis	Lower limbs paresthesia
Current symptoms	Diplopia; paresthesia	Blurred vision	Face paresthesia; blurred vision	Weakness of right lower extremity	Imbalance	Paraparesis; blurred vision	Right lower limb paresis	Blurred vision	Left upper limb paresis	Diplopia	Imbalance	Blurred vision
EDSS	1	1.5	2.5	2	3.5	3.5	2	1.5	1.5	2.5	3	1
MS pattern	RR	RR	RR	RR	SP	SP	RR	RR	RR	RR	RR	RR
Current MS medications	Glatiramer acetate	Interferon β-1a	Interferon β-1b	Interferon $\beta-1$b	Mitoxantrone	Interferon $\beta-1$b	Glatiramer acetate	Interferon $\beta-1$b	Interferon $\beta-1$a	Interferon $\beta-1$b	Interferon $\beta-1$b	Glatiramer acetate
CSCR chronicity	Acute	Acute	Chronic	Acute	Chronic	Acute	Acute	Acute	Acute	Acute	Acute	Acute
CSCR laterality	OD	OD	Bilateral	OD	Bilateral	OS	OD	OS	OS	OD	OS	OS
CSCR resolution	2 months	3 months	Partial in 12 months	4 months	Partial in 10 months	4 months	2 months	2 months	1 month	3 months	2 months	2 months
History of IVCS	+	+	+	+	+	+	+	+	+	+	+	+
IVCS 6 months before CSCR	+	–	+	–	+	+	–	–	–	–	–	–
CSCR management	Propranolol Close F/U	Close F/U	Propranolol close F/U PDT	Propranolol close F/U	Propranolol close F/U PDT	Propranolol close F/U	Propranolol close F/U	Propranolol close F/U	Propranolol close F/U	Propranolol close F/U	Propranolol close F/U	Propranolol close F/U
Concurrent diseases	None	Hypothyroidism	None	None	None	None	None	None	None	None	None	Celiac disease

MS, multiple sclerosis; CSCR, central serous chorioretinopathy EDSS, expanded disability status scale; SP, secondary progressive; RR, relapsing remitting; OD, right eye; OS, left eye; IVCS, Intravenous corticosteroids; F/U, Follow-up; PDT, Photodynamic therapy

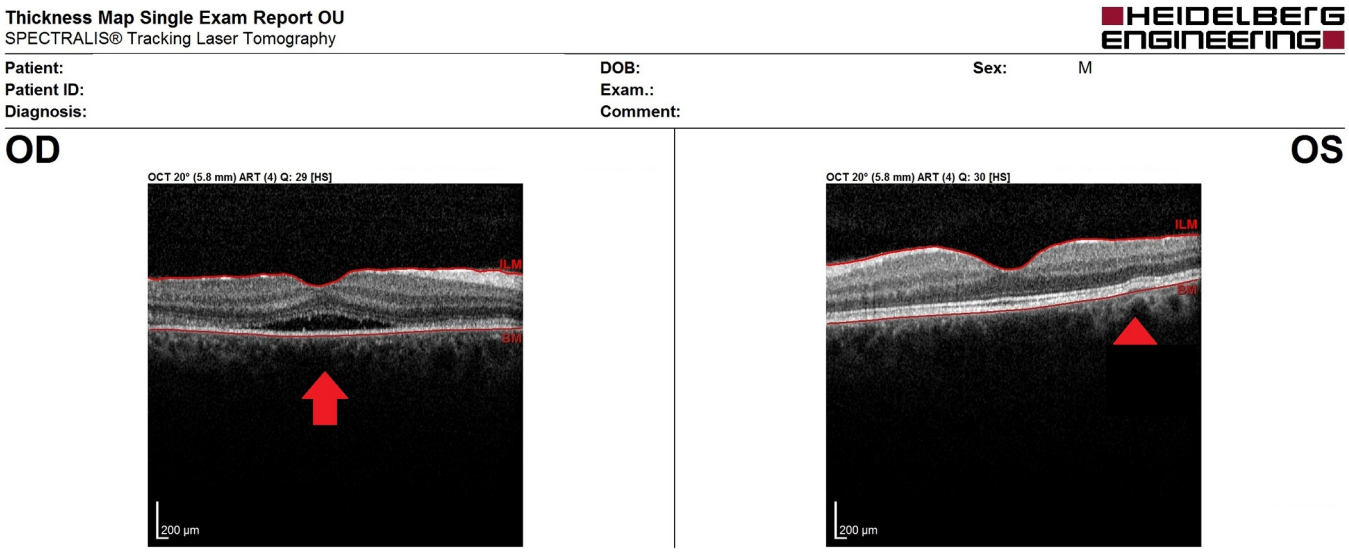

Fig. 1. Optical coherence tomography of a MS patient with chronic bilateral CSCR (case no. 5). At the time of imaging serous retinal detachment of the central macula can be observed in the right eye (arrow). While the detachment is healed in the left; there remains subtle evidences of a previous episode as alterations of retinal pigment epithelium and outer retinal layers on temporal side of the macula (arrowhead).

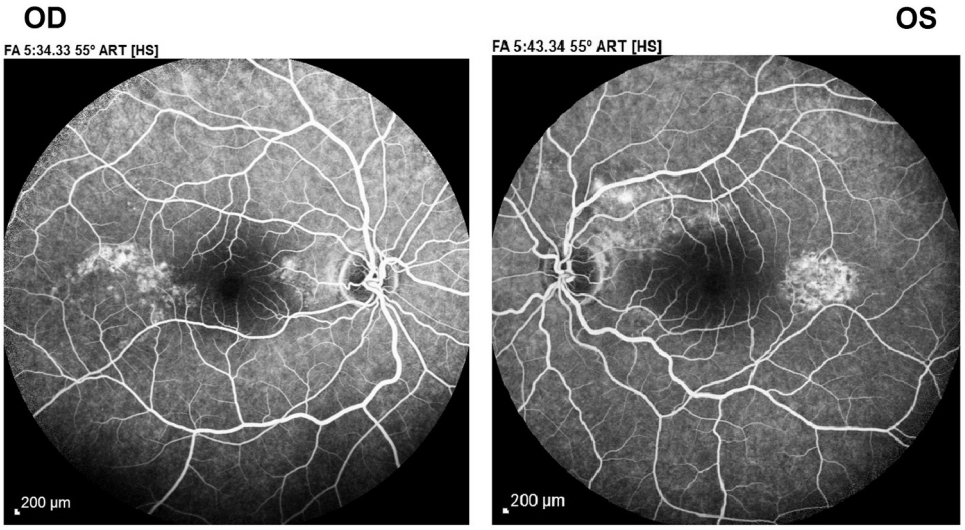

Fig. 2. Late phase fluorescein angiography of both eyes of the same patient in Fig. 1.

Research Committee of Multiple Sclerosis (IRCOMS) and Isfahan Eye Research Center (IERC).

References

Daruich, A., Matet, A., Dirani, A., Bousquet, E., Zhao, M., Farman, N., Jaisser, F., Behar-Cohen, F., 2015. Central serous chorioretinopathy: recent findings and new physio-pathology hypothesis. Prog. Retin. Eye Res. 48, 82–118.

Etemadifar, M., Abtahi, S.H., Akbari, M., Murray, R., Ramagopalan, S.V., Fereidan-Esfahani, M., 2014. Multiple sclerosis in Isfahan, Iran: an update. Mult. Scler. 20 (8), 1145–1147.

Horwitz, H., Friis, T., Modvig, S., Roed, H., Tsakiri, A., Laursen, B., Frederiksen, J.L., 2014. Differential diagnoses to MS: experiences from an optic neuritis clinic. J. Neurol. 261, 98–105.

Milazzo, S., Drimbea, A., Betermiez, P., Al Fayez, S., Bremond-Gignac, D., 2013. Diffuse multiple sclerosis and chronic central serous chorioretinopathy: pitfall not to ignore. Pract. Neurol. 13, 200–203.

Saidha, S., Calabresi, P.A., 2014. Optical coherence tomography should be part of the routine monitoring of patients with multiple sclerosis: yes. Mult. Scler. 20 (10), 1296–1298.

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