CASE REPORTS

Isolated Internal Ophthalmoplegia Secondary to Herpes Zoster Ophthalmicus: A Rare Case Report

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ABSTRACT

Herpes zoster becomes latent in the sensory ganglia after the primary infection and may reactivate many years later to produce shingles in adults. Involvement of the ophthalmic branch of the trigeminal nerve with this virus is called Herpes zoster ophthalmicus (HZO). The eyelid skin, cornea, uvea, retina, optic nerve and other cranial nerves can be affected by HZO. Isolated internal ophthalmoplegia can rarely be seen. Clinicians should be aware of this condition and HZO must be kept in mind in the differential diagnosis of anisocoria.

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Herpes zoster; internal ophthalmoplegia; Herpes zoster ophthalmicus

Introduction

Internal ophthalmoplegia describes mydriasis without associated eye movement deficits due to disruption of the parasympathetic fibres at any location from the brain stem to the iris.¹ The cause may be post-infectious,^{1–4} inflammatory,⁵ autoimmune^{6,7}, or traumatic.⁸ In this report, we present a rare case of unilateral internal ophthalmoplegia secondary to Herpes zoster ophthalmicus (HZO).

Case report

A 27-year-old male was seen in our Neuro-ophthalmology clinic with the complaint of blurred vision in his right eye. He had been diagnosed a month previously with HZO by the Dermatology and Ophthalmology clinics because of conjunctival hyperaemia, discharge, periorbital oedema, and a skin rash on the right side of his face and had been treated with oral aciclovir. On assessment by us, his general physical and neurological examinations were normal. On neuro-ophthalmological examination, there was oedema of the right upper-eyelid. His eye movements were normal. His best-corrected Snellen visual acuity was 10/10 in both eyes. Both slit-lamp and fundus examinations gave normal results. There was

anisocoria; the pupil size was approximately 9 mm in the right eye and 3 mm in the left eye. The pupillary light reflex was present in the left eye, but could not be obtained in the right eye. The margin reflex distance 1 was 4 mm in both eyes (Figure 1a). Pharmacological testing was performed with topical pilocarpine (Pilosed 2%, Bilim Medicine). There was no change in pupil size with 0.1% pilocarpine. However, moderate pupillary constriction to 4 mm in the right eye was obtained with 2% pilocarpine (Figure 1b). Brain and orbital magnetic resonance imaging and laboratory examinations gave normal results.

Discussion

HZO is an acute dermatomal infection caused by reactivation of Varicella zoster virus, which often caused vesicular rashes in the periorbital region and forehead.^{9,10} It constitutes 25% of all Herpes zoster cases and generally affects immunocompromised elderly people.¹¹ Ocular involvement secondary to HZO may involve different ocular structures such as the eyelid, cornea, uvea, retina and optic nerve. Besides a simple cutaneous eyelid reaction, it may cause severe corneal and retinal involvement, which threatens vision.¹²

Figure 1. Photograph showing right upper-eyelid oedema and an enlarged pupil (a). Constriction of the right pupil after administration of 2% pilocarpine (b).

Internal ophthalmoplegia is a clinical condition that affects pupil function without affecting the eye movements. Extraocular muscle palsies and internal ophthalmoplegia may occur in 31% of the patients with HZO.³ Although the cause of internal ophthalmoplegia in HZO remains unclear, it is considered to result from a viral ganglionitis. As a result of parasympathetic denervation of the iris sphincter muscle, the pupil on the affected side is larger with the anisocoria being more prominent in bright light.¹³ Pharmacological testing with 0.1% pilocarpine, which is a topical parasympathomimetic agent, causes pupillary constriction due to denervation supersensitivity of the iris sphincter. However, Assal *et al.*³ reported that the pupillary constriction with 0.1% pilocarpine could occur some time later after the development of internal ophthalmoplegia due to delayed denervation supersensitivity of the iris sphincter. This may explain why our patient's pupil did not respond to 0.1% pilocarpine. Previous reports have indicated that internal ophthalmoplegia can persist for six months to five years following HZO.^{14,15} In our case, the internal ophthalmoplegia did not improve during four months follow-up.

In conclusion, HZO is one of the rare causes of internal ophthalmoplegia which must be kept in mind in the differential diagnosis of anisocoria.

Declaration of interest

The authors declare that they have no conflict of interest.

Patient consent

Authors obtained consent from the patients for publishing the photo.

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