HOLMES-ADIE PUPIL IN A PATIENT WITH HEMICRANIA

A spectrum of a multifocal autonomic dysfunction ?

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The Holmes-Adie pupil (HAP) consists of unilateral or bilateral tonic pupils of unknown origin. When associated with arreflexia of lower limbs it is called Homes-Adie's syndrome (HAS)[1]. The trigeminal autonomic cephalalgias (TAC) comprise cluster headache, paroxysmal hemicrania and short lasting unilateral neuralgiform headache attacks with conjunctival injection and tearing. Recently, the Headache Classification Subcommittee of the International Headache Society classified Hemicrania Continua in the 4th group of headaches (Other primary headaches), although it shares features common to the others TAC's[2].

We report a case of a young female patient with a new and recently diagnosed hemicrania headache associated with HAP.

CASE

A 23-year-old woman complained of a severe, strictly unilateral, fronto-orbital, non throbbing headache on the left side of associated with episodes of lacrimation, nasal congestion, conjunctival hyperemia and rhinorrhoea. At the moment of the first evaluation she had experienced continuous pain for 12 days. She graded the pain 8 in the visual-analogic scale (VAS). She had no other complaints at that point and denied previous head trauma.

Neurological examination showed anisocoria with the right pupil midriatic and non responsive to either direct or consensual light stimulation. On prolonged convergence effort however, there was slow pupilary constriction on the right eye. Upon returning gaze to distance, there was slow and tonic redilation. Extra ocular movements were normal and there was no ptosis. Slit lamp examination was normal except for some segmental palsy of the right iris sphincter. Vermiform contractions of the right iris could be observed under magnification after intense light stimulation of the right eye. Her left eye examination was normal. Her fundus examination and intraocular pressure measurements were normal on both sides. One drop of dilute (0.1%) pilocarpine lead to strong contraction of the right pupil only. Holmes-Adie pupil was diagnosed in the right eye. Her deep tendon reflexes were normal.

Neuroimage (contrast enhanced computerized tomography scan and brain magnetic resonance), cerebrospinal fluid, laboratory tests for syphilis, hemosedimentation rate, C reactive protein, total blood count, blood electrolytes, renal and liver function tests were normal.

Indomethacin was started at 25mg bid and later titrated to 25mg tid in 48hs. After 3 days, the patient noticed great relief of symptoms (VAS=2) and one week later the pain was finally controlled (VAS=0).

Search for possible asymptomatic autonomic nervous system disorders including EKG with RR interval measurement, blood pressure response to Valsalva maneuver, tilt test with catecholamine dosing and sympathetic skin response resulted negative.

The patient signed an inform consent for this publication.

DISCUSSION

HAP is usually a benign and idiopathic condition[1]. Denervation super-sensitivity of the iris muscles from lesion of the postganglionic parasympathetic pathways is thought to be the imputed mechanism of such disorder[3]. Rarely it may be secondary to the remote effects of malignancy, primary Sjögren syndrome and temporal arteritis[4-6]. In this patient, there were no findings to support these conditions, nor primary ophthalmologic diseases, such as open angle glaucoma or uveitis that potentially could have explain her headache and pupillary changes.

HAS may be associated with diffuse or localized autonomic disturbances[7]. Many case series have described patients with HAS and a range of autonomic disturbances including orthostatic hypotension, focal and generalized hypohydrosis, impaired cardiovascular reflexes and chronic diarrhea. The cause of these associations is often not very evident, and it is thought to represent a diffuse or patchy dysfunction of the autonomic nervous system.

Classification of headache in this patient using the HIS criteria was not entirely possible at that time. Although

PUPILA DE HOLMES-ADIC EM UMA PACIENTE COM HEMICRANIA: UM ESPECTRO DE UMA DISFUNÇÃO AUTONÔMICA MULTIFOCAL ?

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the pattern of her headache was continuous, the diagnosis of hemicrania continua requires the pain to exist for at least three months[8]. Since the diagnosis of her headache was made promptly and responded completely to indomethacin, we prefer to call it possible hemicrania continua.

The pathophysiology of trigeminal autonomic cephalalgias involves the activation of the trigemino-cervical complex[9]. The HAP is classically explained by the degeneration of the geniculate ganglion, which is part of the parasympathetic inervation of the pupils. The outputs from the trigeminal parasympathetic reflex (TPR) also run close to the geniculate ganglion, although not connecting to it. Hence, lesions near the geniculate ganglion could explain the appearance of the HAP and disruption of the TPR on the same side, possibly causing autonomic symptoms in the upper face on the same side of the HAP. In this case, since the pupillary findings occurred contralateral to the headache, a localized lesion is less likely to explain all the findings. In fact, they speak for the role of a patchy or multifocal autonomic dysfunction.

Some reports of the association between migraine and HAP were published elsewhere[10,11]. To our knowledge, this is the first case report of HAP associated with a recent onset hemicrania. This report highlights a possible shared pathophysiology between these two disorders characterized by localized autonomic dysfunction and their possible explanations.

REFERENCES

1. Adie WJ. Tonic pupils and absent tendon reflexes. A benign disorder sui generis: its complete and incomplete forms. Brain 1932;55:98-113.
2. Headache Classification Subcommittee of the International Headache Society. The International Classification of Headache Disorders: 2nd edition. Cephalalgia 2004;24(Suppl 1):S9-S160.
3. Martinelli P. Holmes-Adie syndrome. Lancet 2000;356:1760-1761.
4. Bruno MK, Winterkorn MS, Edgar MA, Kamal A, Stübgen JP. Unilateral Adie pupil as sole ophthalmic sign of anti-Hu paraneoplastic syndrome. J Neuro-Ophthalmol 2000;20:248-249.
5. Bachmeyer C, Zuber M, Dupont S, Blanche P, Dhote R, Mas JL. Adie syndrome as the initial sign of primary Sjogren syndrome. Am J Ophthalmol 1997;123:691-692.
6. Currie J, Lessell S. Tonic pupil with giant cell arteritis. Br J Ophthalmol 1984;68:135-138.
7. Kimber J, Mitchell D, Mathias CJ. Chronic cough in the Holmes-Adie syndrome: association in five cases with autonomic dysfunction. J Neurol Neurosurg Psychiatry 1998;65:583-586.
8. Goadsby PJ, Lipton RB. A review of paroxysmal hemicranias, SUNCT syndrome and other short-lasting headaches with autonomic features, including new cases. Brain 1997;120:193-209.
9. Goasdby PJ, Edvisson L, Ekman R. Release of vasoactive peptides in the extracerebral circulation of man and the cat during activation of the trigeminovascular system. Ann Neurol 1988;23:193-196.
10. Massey EW. Pupillary dysautonomia and migraine: is Adie's pupil caused by migraine? Headache1981;21:143-146.
11. Jacome DE. Status migrainosus and Adie's syndrome. Headache 2002; 42:793-795.