Saudi Journal of Ophthalmology (2015) 29, 63–66

Original Article

Sixth nerve palsy + ipsilateral Horner's Syndrome = Parkinson's Syndrome

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Abstract

Purpose: To present five patients with VIth nerve palsy and ipsilateral Horner's Syndrome (HS), as a result of cavernous sinus alteration.
Study design: Consecutive case series.
Material and methods: Five patients presented abducens palsy with horizontal diplopia (3 in primary position and 2 in lateral gaze only) and ipsilateral HS.
Apraclonidine 0.5% drops evidenced sympathetic denervation in all patients 40–60 min after instillation. All 5 cases had neuroimages (MRI in 3 cases, Computerized Tomography – CT in one case and Magnetic Resonance Angiography – MRA in one case) demonstrating cavernous sinus lesions; 2 meningiomas, 1 carotid-cavernous aneurism, 1 foreign body (bullet) and 1 squamous cell carcinoma.
Conclusion: Lesions on the cavernous sinus need to be considered in cases of abducens nerve palsy and ipsilateral Horner's Syndrome.

Keywords: Sixth nerve palsy, Horner's Syndrome, Cavernous sinus, Apraclonidine

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http://dx.doi.org/10.1016/j.sjopt.2014.09.010

Introduction

Disfunction of the sixth (abducens) cranial nerve may result from lesions occurring anywhere along its pathway between the sixth nerve nucleus in the dorsal pons and the lateral rectus muscle within the orbit.

Horner Syndrome can be caused by damage to the sympathetic pathway at any location of its route from the hypothalamus to the eye.

The association of the sixth nerve palsy with ipsilateral Horner's Syndrome has a localizing value in the posterior cavernous sinus, also known as Parkinson's Syndrome.

The syndrome has been described mainly in aneurisms in and around the posterior cavernous sinus presenting acutely with variable pain or anesthesia–hypoesthesia in the side of the lesion.

We present five patients with VIth nerve palsy and ipsilateral Horner's Syndrome (HS), an association orienting diagnosis toward the cavernous sinus.

Material and methods

Consecutive case series of five patients with horizontal diplopia secondary to VIth nerve palsy and HS with ipsilateral cavernous sinus lesion has been registered with the institutional review board and followed the tenets of the Declaration of Helsinki. After clinical diagnosis all patients were asked for neuroimaging. The diagnosis of Horner

Received 18 September 2014; accepted 18 September 2014; available online 5 October 2014.

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Peer review under responsibility of Saudi Ophthalmological Society, King Saud University

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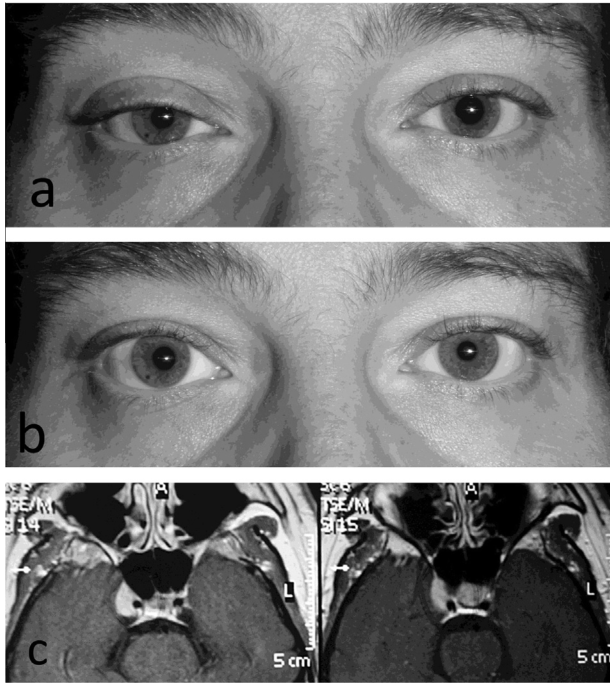

Figure 1. (a) RE VI nerve palsy and HS. (b) After Apraclonidine 0.5% midriasis and lid retraction is observed. (c) Right CS tumor (squamous cell carcinoma).

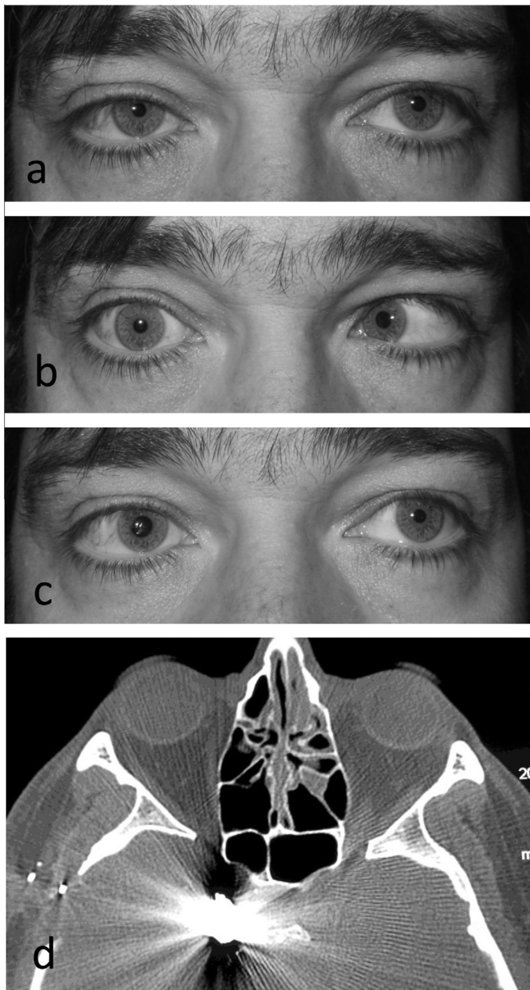

Figure 2. (a and b) RE VI nerve palsy and HS. (c) Apraclonidine 0.5% response after 40 min. (d) CT axial view shows a metallic foreign body at the right CS.

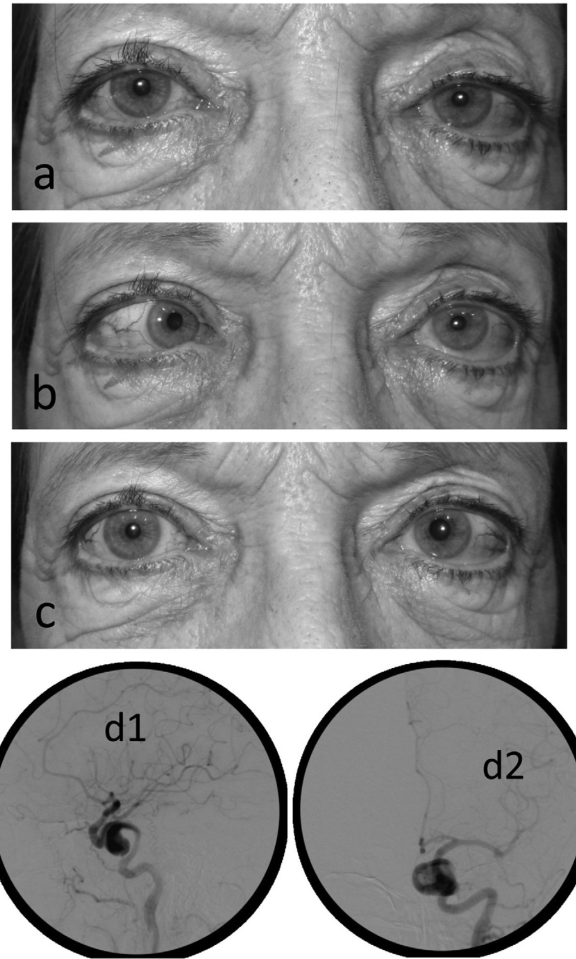

Figure 3. (a and b) Left eye VI palsy and HS. (c) Apraclonidine 0.5% response after 30 min. (d) Frozen image of carotid cine-Angiography, 1 lateral and 2 frontal view, showing Intracavernous-carotid aneurysm.

Syndrome was performed by pharmacological test with Apraclonidine 0.5% in order to confirm the sympathetic denervation feature observed (Figs. 1–4).

Results

Five patients are presented, with age range between 25 and 70 years, all patients had abducens palsy with horizontal diplopia in primary position (3 patients) or evident in lateral gaze only (2 patients) and ipsilateral Horner's Syndrome (Table 1). Apraclonidine 0.5% drops, evidenced sympathetic denervation in all patients 40–60 min after instillation. Patients had neuroimages (MRI in 3 cases, Computerized Tomography – CT in one case and Magnetic Resonance Angiography – MRA in one case) demonstrating cavernous sinus lesions; 2 meningiomas, 1 carotid-cavernous aneurism, 1 foreign body (bullet) and 1 squamous cell carcinoma.

Discussion

The cavernous sinus is a structure that contains, in its lateral (meningeal) wall the oculomotor (IIIrd nerve), trochlear (IVth nerve) and the first two divisions of the trigeminal nerve. Inside the cavernous sinus, contains the abducens (VIth nerve)

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