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SHORT COMMUNICATION

Iatrogenic Horner's syndrome

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PURPOSE. *To report two cases of Horner's syndrome. One presented after the ablation of a schwannoma of the cervical sympathetic chain, the second after upper thorascopic sympathectomy for primary palmar hyperhidrosis.*
METHODS. *A 42-year-old man underwent excision of a left neck mass found during routine physical examination. A 20-year-old girl with axillary and palmar hyperhidrosis was treated with cervical sympathectomy.*
RESULTS. *In the early postoperative days, miosis, ptosis, anhidrosis, and enophthalmos were observed.*
CONCLUSIONS. *In the ablation of a schwannoma, postoperative Horner's syndrome is associated with the relationship between nerves and the tumor mass, which makes it impossible to separate them surgically in most cases. In thorascopic sympathectomy, patients should be warned of this complication. (Eur J Ophthalmol 2005; 15: 504-6)*

KEY WORDS. *Horner's syndrome, Schwannoma, Thoracic sympathectomy, Primary hyperhidrosis*

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INTRODUCTION

Horner's syndrome (HS) includes enophthalmos, unilateral ptosis, miosis, and facial anhidrosis resulting from damage to the ipsilateral oculo-sympathetic pathway.

Iatrogenic HS is a side effect of several procedures: lumbar epibulbar anesthesia, thoracic sympathectomy, palatine tonsillectomy, thyroid surgery, coronary artery bypass surgery, and after resection of skull and neck tumors because of anatomic proximity (1-6).

Schwannoma or neurilemmoma are benign neoplasms of Schwann cell origin. The Schwann cell surrounds peripheral nerve tissue and is believed to originate from the neural crest. Schwann cells are normally solitary, well-encapsulated, benign tumors that characteristically run along the course of or attached to peripheral, cranial, or sympathetic nerves. In the parapharyngeal space, schwannomas may arise from the last four cranial nerves or the autonomic nerves, and the vagus is the most common site. Cervical sympathetic chain schwannomas are uncommon (5, 7-9) and most frequently found as an asymptomatic solitary neck mass, with HS rarely present on physical examination (10). Preoperative diagnosis can be difficult; on radiographic evaluation neurilemomas are best examined with contrast-enhancing computed tomography (CT) or magnetic resonance imaging (MRI) and ultrasound (5). A postoperative ipsilateral HS should be expected following removal of the tumor, due to the necessary division of the cervical sympathetic chain.

The origins of primary hyperhidrosis are unknown but the condition occurs generally in adolescents (11). The treatment includes drug therapy, biofeedback, iontophoresis, and percutaneous phenol block. The best results have been achieved with upper thoracic sympathectomy; HS occurs in 0.4 to 1.7% of patients (11, 12).

This report aims to describe the management of two cases of iatrogenic HS: one following ablation of a schwannoma and one after thoracic sympathectomy for axillary and palmar hyperhidrosis. The follow-up was at least 1 year.

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Case 1

A 42-year-old man presented with an asymptomatic left neck mass found on routine physical examination. Measuring approximately 4.5 x 3 cm, this mass lay under the upper portion of the sternocleidomastoid muscle. It was mobile, nontender, and nonpulsatile, with no associated bruit. It had progressively increased in size but was not associated with any other symptoms such as dysphonia, dysphagia, pain, or weight loss.

Diagnostic studies, included CT and MRI, confirming a well-circumscribed mass in the left parapharyngeal space with anterior and lateral displacement of the common carotid artery and the internal jugular vein. The mass extended from the base of the neck to the area of the thyroid gland. The mass was slightly heterogeneous to MRI, with a high signal intensity on T2-weighted images and moderate postcontrast enhancement.

The mass was excised through a transverse left cervical skin incision. The tumor was found to originate from the cervical sympathetic chain with no involvement of the vagus, hypoglossal, spinal, accessory, glossopharyngeal, or lingual nerves. Resection was impossible unless a portion of the cervical sympathetic chain was sacrificed.

Postoperatively, mild left pupillary miosis with ptosis, enophthalmos (Fig. 1), and facial anhidrosis of the ipsilateral face were observed. All these features indicated a preganglionic lesion, second-order neuron damage, because the interruption occurs before the superior cervical ganglion. The patient had an uneventful postoperative course and was discharged on the fifth postoperative day.

Histology showed the tumor to be a benign schwannoma originating from the cervical sympathetic chain.

On ocular examination, best-corrected visual acuity was 20/20 in each eye (-3.75 sphere). Intraocular pressure was normal.

Bilateral fundus: myopic aspect. Under Hertel exophthalmometry, the left eye showed an enophthalmos of 2 mm. Pupillary reaction was normal with the bright diameter of the right eye 2.5 mm and the left 2 mm. The marginal reflex distance (MRD1) was 5 mm in the right eye and 3 mm in the left. The elevator muscle function was 16 mm in the right eye and 15 in the left. After 1 year, the patient's ophthalmologic symptoms had remained stable.

Case 2

A 24-year-old woman developed a right HS in the immediate postoperative days following bilateral thoracic

Fig. 1 - *Case 1. Left Horner's syndrome. Note the ptosis of the upper left eyelid and the very mild "upside ptosis" of the lower eyelid.*

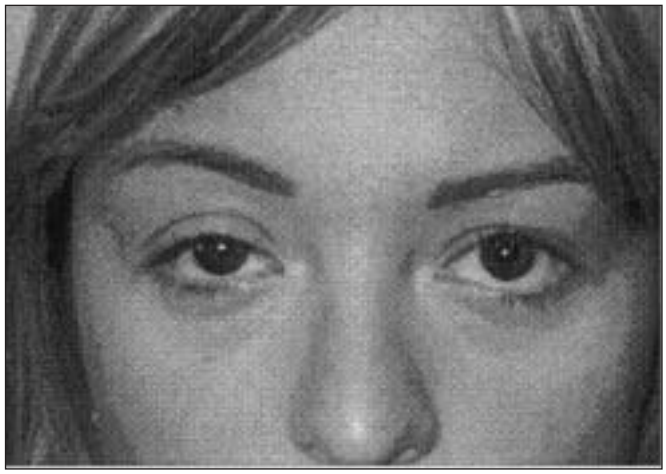

Fig. 2 - *Case 2. Right Horner's syndrome with ptosis of the upper right eyelid and "upside ptosis" of the lower eyelid.*

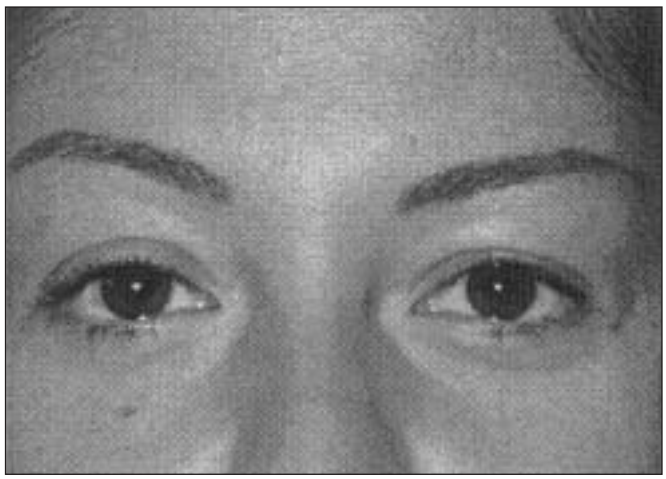

Fig. 3 - *Case 2. Seven months later, note the important reduction of the ocular symptoms.*

endoscopic sympathectomy from T2 to T4 for axillary and palmar hyperhidrosis.

On ocular examination, best-corrected visual acuity was 20/20 in each eye (-1 sphere); 4 years previously the patient had undergone bilateral laser-assisted in situ keratomileusis for myopia. Bright light pupillary diameter was 3 mm in the right eye and 4.5 mm in the left. Fundus was normal bilaterally. The MRD1 was 3 mm in the right eye and 5 mm in the left (Fig. 2). Mild right enophthalmos was 1.5 mm and there was no facial anhidrosis.

The patient was disappointed with her appearance and was prescribed adrenergic drops (tetryzoline) that reduced the ptosis of the upper right eyelid.

We suggested a transconjunctival mullerectomy 6 months after surgery because the ophthalmic parameters were unchanged. Surprisingly, at the seventh month, the right MRD had changed to 4 mm (Fig. 3), but the right pupillary miosis and enophthalmos were unchanged. The patient was very happy with her fairly normal appearance and did not require any further medical or surgical procedures.

DISCUSSION

HS is a common and sometimes persistent complication of several surgical procedures: coronary artery bypass surgery, ablation of skull and neck tumors, transthoracic sympathectomy, lumbar epidural anesthesia, and thyroid neoplasms, because surgical manipulation in these regions can cause damage to the sympathetic pathways. Patients should be clearly warned preoperatively about this complication, which can be partial or total, temporary or definitive.

Ophthalmic management is initially limited to the diagnosis: pharmacologic testing can help to determine if HS is present and whether it is preganglionic or postganglionic (13). Despite the clinical ophthalmologic findings, no adverse reactions or complaints were recorded for the first case; the opposite applies to Case 2, due to the cosmetic result related to upper right blepharoptosis. Because the syndrome is often temporary (3, 11, 12) in the first postoperative months, we can only prescribe adrenergic drops in such cases; only after at least 8 months from surgery can we suggest that the low ptosis, caused by paralysis of Müller's muscle, can be repaired using a slight advancement of the levator aponeurosis, or a resection of the conjunctiva and Muller's muscle (13).

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