· Case report ·

Horner's syndrome: an unusual persistant complication of anterior cervical discectomy

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Abstract

• AIM: To present a case of Horner's syndrome which developped after neck surgery.

• METHODS: The patient was admitted to our clinic with the complaint of droop of right eye's upper lid which appeared after having a neck surgery for cervical radiculopathy. Full ophthalmologic examination was done, including pharmachological tests to confirm the diagnosis.

• RESULTS: The right upper eyelid was 1. 5mm ptotic. Right pupil was miotic. There was a lag of dilation in the right pupil in the dark. Facial anhidrosis was present at the right side of the face. Right pupil dilated and upper eyelid ptosis improved with apraclonidine 5g/L application.

• CONCLUSION: Sympathetic denervation of the eye (Horner's syndrome (HS)) usually presents as a triad of ptosis of upper eyelid, miosis and facial anhydrosis. We present a case of HS after anterior cervical discectomy operation which is an unusual and rare cause of persistant HS.

• KEYWORDS: Horner's syndrome; anterior cervical discectomy; iatrogenic

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INTRODUCTION

The oculosympathetic pathway is complicated, and may be damaged on different levels leading to Horner's syndrome (HS). Disruption of the sympathetic innervation to the eye manifests with the characteristic features of ipsilateral miosis, ptosis and varying degrees of facial anhidrosis[1]. The syndrome can be secondary to many causes such as tumors, vascular injury and trauma[2-4]. In few cases, the cause is iatrogenic trauma. Anterior cervical discectomy is one of these iatrogenic causes[5]. The purpose of this paper is to present a rare case of HS, which was persistant for 2 years, caused by anterior discectomy operation for cervical disc herniation.

CASE REPORT

A 35-year-old female patient came to our clinic with the complaint of droop of the right upper eyelid. It was apparent from her old photographs that there was no asymmetry between her right and left upper eyelids before the surgery for cervical disc herniation. The operation was performed 2 years ago. At first postoperative day she had recognised that the right upper eyelid had been ptotic which did not improve in time(Figure 1). The report given to patient by the neurosurgery clinic revealed that, under general endotracheal anesthesia, C5-6 anterior discectomy for cervical radiculopathy had been done through a right transverse median skin incision.

With inspection, the scar of anterior neck incision was apparent. Visual acuities were 20/20 OU. Both pupils were reactive to light. Slit-lamp and dilated fundus examinations were normal. Ocular movements were intact. The right upper eyelid was 1. 5mm ptotic. Anisocoria was present with pupil diameters of 3mm OD and 6mm OS. There was a lag of dilation in the right pupil in the dark. Facial anhidrosis was present at the right side of the face. Remainder of the neurologic examination was unremarkable. With these findings iatrogenic HS was considered. To confirm the diagnosis and the level of lesion, apraclonidine 5g/L (Iopidine Alcon) was dropped into both eyes. After 30 minutes, the pupil diameters were measured as 5mm in the right eye and 6mm in the left eye and right upper eyelid was retracted (Figure 2).

Figure 1 Photograph of the patient showing miosis and ptosis in the right eye.

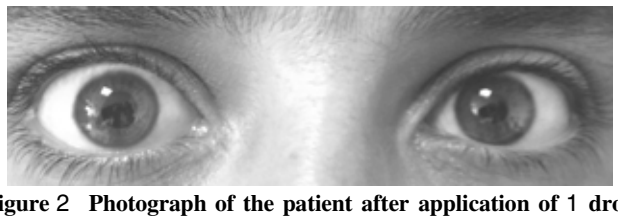

Figure 2 Photograph of the patient after application of 1 drop of 5g/L apraclonidine.

DISCUSSION

Sympathetic denervation of the eye, HS, is a well-known phenomenon resulting from a lesion at any level along the three-neuron sympathetic pathway connecting the hypothalamus with the orbit. HS presents a challenge to the clinician because the causative lesion may involve the first, second or third order neuron. The central neuron commencing in the hypothalamic area of the midbrain runs down to the ciliospinal centre in the cord. The second or preganglionic neuron then passes via the ventral roots C8-T3 to the sympathetic chain, and entering the inferior cervical ganglion it passes upwards to the superior cervical ganglion at the level of C2-3. The third or postganglionic neuron passes via the carotic plexus and trigeminal nerve to the eye innervating the dilator pupillae and the involuntary muscles of the eyelid[6]. The commonest level of interruption is that of the second neuron as is the case in our patient. In our patient, the condition appeared after the cervical discectomy operation. Since the cervical sympathetic trunk lies on the lateral border of longus colli muscle, posterior to the carotic sheath under the prevertebral fascia just lateral to the vertebral bodies, the anterior approach to the cervical vertebral bodies might have damaged the cervical sympathetic trunk which is the second neuron. HS secondary to cervical vertebral operation with anterior approach is a rare condition. Fountas *et al*[5] observed HS in 0.1 % of the patients (1 of 1 140) who had undergone anterior cervical discectomy and fusion operation. HS was ipsilateral to the surgical site and spontaneously resolved within 6 weeks. Likewise, Bertalanffy and Eggert[7] reported an incidence of 1.1%, whereas Tew and Mayfield[8] reported 0.2% in their series, all the reported cases were reversible. Similar to above reports, HS in our patient appeared as a complication of the surgery of the anterior cervical spine but the difference was that the condition in our patient had been persisting for nearly 2 years postoperatively. In the diagnosis of HS in addition to clinical findings, pharmachological tests are helpful. Application of apraclonidine 5g/L is a useful test for diagnosis of HS. It has weak α1-activity, dilates the affected pupil because of denervation hypersensitivity, and not or only minimally effects (or even constricts) the uninvolved pupil, reversing the anisocoria. Reversal of anisocoria by apraclonidine has therefore been recommended as a new test for HS[1,9,10]. In our patient, the relative mydriasis and reversal of ptosis on the right side following apraclonidine confirmed the diagnosis of HS.

In summary, the HS can occur iatrogenically after anterior cervical discectomy operations. If the damage to cervical sympathetic nerves is severe, the condition may persist even after 2 years.

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霍纳综合征:颈椎前路椎间盘切除术的罕见持续并发症

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摘要

目的:提供颈部手术后霍纳综合征 1 例。

方法:包括药物学测试,以明确诊断。

结果:患者出现右上睑 1.5mm 上睑下垂,右瞳孔缩小。扩张的瞳孔表现为暗适应滞后。右脸存在有面部无汗症。应用 5g/L 阿可乐宁后,右瞳孔扩张,上眼睑下垂改善。

结论:交感神经的去神经眼睛(霍纳综合征)通常呈现为一个上睑下垂,瞳孔缩小和面部无汗症。我们提供的 1 例颈椎前路椎间盘切除后霍纳综合征病例是一个持续性霍纳综合征的罕见原因。

关键词:霍纳综合征;颈椎前路椎间盘切除术;医源性