



# Horner's syndrome as a presenting sign of metastatic testicular malignancy

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## DECLARATIONS

### Competing interests

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### Ethical approval

Written informed consent to publication was obtained from the patient or next of kin

### Guarantor

NA

### Contributorship

MNM and FAA wrote the case report; MNM liaised with the radiologist to obtain the scans and consent from the patient's next of kin; NA initially saw the patient, had the idea for the case report, and edited the draft manuscript

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This is a case report highlighting testicular seminoma as a rare cause of Horner's syndrome.

## Introduction

Horner's syndrome, first described in 1869 by a Swiss ophthalmologist, is a characteristic triad of features that results from an interruption of the sympathetic pathway. The ophthalmic manifestations arise due to paralysis of the sympathetically innervated superior tarsal muscle (also known as Muller's muscle, which dilates the pupil) and thus the patient will have a pupillary miosis associated with a mild ptosis. The one non-ophthalmic feature of Horner's syndrome is facial anhidrosis.

Horner's syndrome occurs as a result of disease affecting the ipsilateral sympathetic pathway along its course from the hypothalamus to the orbit, however it may also be congenital or iatrogenic. In this case report we aim to highlight that Horner's syndrome may be a presenting feature of metastatic testicular carcinoma, especially in young men. The use of appropriate radiological investigations can identify this potentially life-threatening malignant aetiology of Horner's syndrome.

## Case presentation

We report the case of a 32-year-old man presenting to the ophthalmology outpatient department, via his general practitioner (GP), with a two-month history of new sudden onset left eye redness and ptosis. The patient denied any history of neck pain or trauma. The GP had been treating the patient for conjunctivitis without any success.

On examination there was a 1 mm ptosis of the left upper eyelid and mild conjunctival injection (Figure 1a). There was an absence of heterochromia. It was noted that the skin around the left eye was particularly dry (i.e. anhydrotic) and that the left pupil was smaller than the right pupil, this anisocoria increased in darkness.

Examination of the cranial nerves and the peripheral neurological system did not demonstrate any deficit. His best-corrected visual acuity was 6/5 in both eyes. Posterior segment examination was within normal limits. After administering apraclonidine 1% in both eyes, the difference in pupil size decreased and the ptosis disappeared in the left eye (Figure 1b).

An MRI of the head, neck and thorax revealed a large soft tissue mass within the left lung apex extending along the medial aspect of the mediastinum to the level of the aortic arch, encompassing the left subclavian artery (Figure 2). There was a large abnormal 3 cm lymph node within the supraclavicular fossa.

Subsequent further imaging in the form of CT and ultrasound scans demonstrated a testicular primary tumour with extensive retroperitoneal metastases. Biopsies of the supraclavicular node confirmed the classical picture of disseminated seminoma.

The patient went on to have numerous cycles of chemotherapy, initially showing a good response to therapy, however ultimately the malignancy proved to be fatal.

## Discussion

It is usual practice to investigate patients with new onset Horner's syndrome to determine the underlying cause. Many pharmacological tests are

**Figure 1**  
**a. Left Horner's syndrome, showing ptosis, anhidrosis and miosis; b. 30 minutes after instillation of 1% apraclonidine drops in both eyes. The ptosis has improved and the pupil in the left eye has increased in size, suggesting denervation hypersensitivity of the oculo-sympathetic pathway**



**Figure 2**  
**MRI scan showing the large soft tissue mass within the left lung apex extending along the medial aspect of the mediastinum to the level of the aortic arch**



available to help establish the aetiology of this condition. Of particular interest is to establish whether the symptoms are due to a pre- or post-ganglionic lesion, with for example Hydroxyamphetamine 1% drops, in which case the pupil would dilate in a pre-ganglionic lesion. Alternatively adrenaline drops (1:1000) can be used for this purpose, in which case the pupil fails to dilate with a pre-ganglionic lesion.<sup>1</sup> However, this case highlights that adequate imaging of the sympathetic chain is required in the context of a new and unexplained Horner's syndrome.

Horner's syndrome is associated with damage to the oculosympathetic pathway which results mostly from benign causes. However, one possible sinister cause is an apical lung tumour resulting in an ipsilateral Horner's syndrome (Pancoast syndrome). In the published literature the value of the proportion of patients with Pancoast syndrome presenting with an ipsilateral Horner's syndrome varies from 20–50% of cases.<sup>2</sup>

The overwhelming majority of cases of Pancoast syndrome are due to non-small cell lung carcinoma and very rarely may be due to a metastatic lesion in the absence of an apical primary tumour.<sup>3</sup> A thorough search of Medline (1966 to July 2010) showed a single case report of metastatic breast carcinoma presenting as Horner's syndrome.<sup>4</sup>

Testicular seminomas commonly spread to the superior thorax by contiguous spread via the retroperitoneal lymphatics and have been noted in 15% of CT scans in one particular large case series of seminomas.<sup>5,6</sup> Testicular tumours are the most common tumours in men between the ages of 20 and 40.<sup>7</sup> There is a high percentage (over 90%)<sup>7</sup> of testicular tumours having a malignant potential and this influences the management and assessment of new onset Horner's syndrome in a young man.

We propose that if a suspected metastatic lesion is demonstrated in the thorax as a cause of Horner's syndrome in a young man, then as part of searching for a primary tumour, the possibility of a metastatic testicular tumour should be excluded. A thorough assessment in such a case would include clinical examination, ultrasound imaging of the testes as well as blood tests for tumour markers such as raised serum beta human chorionic gonadotrophin, lactate dehydrogenase and alpha-fetoprotein.<sup>8</sup>

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