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## Horner Syndrome Due to First Rib Fracture

### Síndrome de Horner causado por la fractura de la primera costilla

To the Editor:

Horner syndrome or oculosympathetic palsy occurs as a result of an interruption in the sympathetic chain which extends from the hypothalamus to the eyeball. It is characterized by a clinical profile of palpebral ptosis, myosis, enophthalmos and at its full stage, hemifacial anhidrosis.

We present the case of a 61 year old patient with antecedents of stable ischaemic cardiopathy and coronary revascularisation surgery 6 years ago. He was seen in the Emergency Department after suffering craneoencephalic and thoracic trauma without losing consciousness, owing to an accidental fall from a height of 2m. Upon admission, the neurological exam proved normal, without thoracic deformities, and presented a haematoma in the upper right area of the rib cage. Cardiorespiratory auscultation was normal, as was that of the abdomen and the extremities. Regarding complementary tests carried out, computerized tomography scan (CT) of the thorax revealed a fracture from the first to the ninth lower right arcs, close to the costovertebral angle, lacking haemopneumothorax images; the cranial CT showed no findings. After 24 h in the observation area, he underwent thoracic surgery, where, at 48 h, signs of right-sided Horner syndrome became noticeable (Figure). An ophthalmologic consultation was requested, which confirmed the diagnosis. Following treatment with intravenous analgesia and respiratory rehabilitation, the patient showed favourable progress, and was discharged from hospital after 5 days. In follow-up, partial recovery from symptoms was observed after 3 months, with no further changes noted at 6 months.

First rib fracture associated with Horner syndrome as the result of thoracic trauma is a rarely occurring pathological phenomenon: following a search of the English-language bibliographic data base MEDLINE (key words: *Horner, chest trauma, fracture rib*) we found only 6 cases published since 1975, one of which was bilateral.<sup>1</sup> Although the lesion mechanism is well known, it is important to emphasise the possible non-immediate or unrecorded presentation of symptoms, as well as the need to understand its presentation in cases of thoracic trauma.

This cause of Horner syndrome is of great clinical relevance due to its rare occurrence and importance in differential diagnosis regarding central neurological lesions in polytraumatized patients.

The causes of this pathological process are numerous. Congenital and postsurgical reasons are among the most common. Additional causes include; penetrating lesions in the spinal region, spinal cord lesions, thoracic epidural anaesthesia, brachial plexus and subclavian artery lesions, superior sulcus tumours, inadequate positioning of the thoracic tube and first rib fractures or tumours.

The sympathetic chains descend vertically in front of the costovertebral joints on each side of the vertebral column. They



Figure. Traumatic Horner syndrome of the right eye.

connect in the front, crossing the intercostal vessels and nerves and are encased by the parietal pleura.

The first order sympathetic nerve fibres extend from the posterolateral region of the hypothalamus and end in the intermediolateral column of the spinal cord at level C8-T2. The second order pupillomotor preganglionic fibres exit the spinal cord at the T1 level and enter the cervical sympathetic chain, where they are in close proximity to the subclavian artery and the apex pulmonis. In this section of the trajectory, the sympathetic trunk and the cervicothoracic or stellate ganglion are vulnerable to thoracic trauma, which explains the physiopathological lesion in our clinical case. At times, the lesions are not permanent and the result is full recovery, however; in our case the lesion has remained and the recovery from the syndrome has been only partial.

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