EMERGENCY CASEBOOK

Isolated Horner's syndrome caused by intraoral gunshot

R Toledano, J Corres, A Culebras, E Riva, J Masjuán

Emerg Med J 2006;23:e65 (<http://www.emjonline.com/cgi/content/full/23/12/e65>). doi: 10.1136/emj.2006.040964

A 45-year-old man developed Horner's syndrome after sustaining an intraoral gunshot in a suicide attempt. Examination did not show any major vascular injury or other neurological symptoms. Radiograph of the skull and helical computed tomography angiography of the brain and neck detected a bullet embedded in the interior of the left internal carotid artery (ICA) sheath. Surgical examination showed an intact left ICA. Horner's syndrome resulting from intraoral trauma rarely presents as an isolated sign and is generally associated with carotid injuries. It may herald a life-threatening artery injury and needs urgent investigation.

A 45-year-old man with a history of depression sustained an intraoral gunshot in a suicide attempt. On arrival at the hospital, the patient was alert with stable vital signs. Physical examination showed a torn soft palate and a haematoma in the posterior wall of the pharynx. Neurological survey showed an incomplete left-sided Horner's syndrome (fig 1). Radiograph of the skull and helical computed tomography angiography (CTA) of the brain and neck detected a projectile in the left poststyloid parapharyngeal space, embedded in the interior of the left internal carotid artery (ICA) sheath (figs 2 and 3). No signs of carotid dissection were found. Likewise, carotid duplex ultrasonography failed to show any injury. Hours later, the haematoma of the pharynx expanded and the patient developed progressive respiratory distress requiring an urgent tracheotomy. The projectile was surgically removed 24 h after admission and the patient's postoperative course was uneventful. Neurological examination after 1 week was normal.

Horner's syndrome resulting from intraoral penetrating trauma rarely presents as an isolated sign and is generally associated with carotid injuries.¹ Oculosympathetic paresis in the setting of our patient implies a pericarotid sympathetic plexus or ganglia lesion, and therefore it constitutes a potential vascular emergency due to carotid proximity. A delay between the onset of neurological deficits and the underlying trauma to the carotid wall has been described previously in patients with both spontaneous and traumatic carotid dissection, and provides a time window for diagnosis.² However, there are still controversies on the best method of examination in patients without ischaemic events and just local carotid signs. Both cerebral arteriography and magnetic resonance imaging are useful techniques for detecting injuries of the carotid arteries. Nevertheless, they are not recommended in unstable patients. The diagnostic performance of helical CTA is considered to be high, with a specificity of 100%.³ In our patient, CTA could not assess the whole length of the left carotid artery owing to artefacts caused by the bullet. On the other hand, carotid Doppler ultrasound is proposed as a sensitive screening method, but it might not detect subtle dissections. In this regard, ultrasound is not accurate enough to exclude carotid artery dissection

Figure 1 Left-sided incomplete Horner's syndrome: miosis, upper lid ptosis and elevation of the lower lid. Reproduced with permission.

Figure 2 Frontal radiograph of the skull showing a bullet located dorsolateral to the left occipital condyle. Reproduced with permission.

causing no ischaemic events but either no or just local symptoms and signs.⁴ Imaging studies in this particular patient could have misdiagnosed a serious artery injury, prompting us to perform surgical examination that showed an intact left ICA. Presumably, the mechanism of the Horner's syndrome in our case was secondary to mechanical compression or stretching of the pericarotid sympathetic plexus according to the localisation of the projectile, and the quick recovery of the patient when it was removed. In conclusion, recognition of Horner's syndrome after a penetrating intraoral trauma may herald a life-threatening artery injury and needs urgent investigation.

Authors' affiliations

R Toledano, A Culebras, E Riva, J Masjuán, Department of Neurology, Hospital Ramón y Cajal, Madrid, Spain
J Corres, Department of Emergency Medicine, Hospital Ramón Y Cajal, Madrid, Spain

Figure 3 Transverse helical computed tomography angiographic image at the level of the first cervical vertebra depicts the bullet lodged in the left internal carotid artery sheath.

Competing interests: None declared.

Correspondence to: R Toledano, Department of Neurology, Hospital Ramón y Cajal, Carretera Colmenar 9, Madrid 28034, Spain; rafatoledano@hotmail.com

Accepted 13 August 2006

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