CASE REPORT

A Unique Case of Horner's Syndrome Following Subintimal Haematoma Within an Atherosclerotic Plaque

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ABSTRACT

Background and Importance We describe a patient with Horner's syndrome caused by an extensive intraparietal hematoma in the wall of the internal carotid artery confused with an arterial dissection. Detection of such pathology instead of dissection or arteritis is important as the management is different. As far as the authors know, it is the first case in which a haematoma within an atherosclerotic plaque is clinically related Horner's syndrome.

Clinical Presentation A 81-year-old man presented with acute right hemiplegia and loss of vision of the left eye due to a central retinal artery occlusion. The patient underwent a computerised angiotomography which demonstrated left internal carotid artery occlusion with recanalisation after carotid bifurcation. Clinically, the patient developed a syndrome of Claude-Bernard Horner which replaced the diagnosis on the suspicion that it was a carotid artery dissection. The patient had miosis and ptosis of left eye. In the magnetic resonance angiography, an intramural of a possible hematoma was observed. It was decided to perform surgical treatment of the carotid lesion.

Conclusion As this clinical case shows, there are symptomatic courtships that must be studied in detail so as not to confuse the carotid dissection with critical stenosis of the internal carotid artery.

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Horner; internal carotid; stenosis

Background and importance

We describe a patient with Horner's syndrome caused by an extensive intraparietal hematoma in the wall of the internal carotid artery confused with an arterial dissection. Detection of such pathology instead of dissection or arteritis is important as the management is different. As far as the authors know, it is the first case in which a haematoma within an atherosclerotic plaque is clinically related Horner's syndrome.

Clinical presentation

A 81-year-old man presented with acute right hemiplegia and loss of vision of the left eye due to a central retinal artery occlusion. The patient had a history of arterial hypertension and dyslipidemia. Treatment with clopidogrel and acetylsalicylic acid was initiated. The patient underwent a computerised angiotomography which demonstrated left internal carotid artery occlusion with recanalisation after carotid bifurcation. Subsequently, magnetic

resonance angiography was performed, in which a preocclusive lesion of the left internal carotid artery was observed (Figure 1A).

Clinically, the patient presented acute right hemiplegia and loss of vision of the left eye, the latter can be explained by a central retinal artery occlusion. On the third day, the patient developed a syndrome of Claude-Bernard Horner (Figure 1B), which replaced the diagnosis on the suspicion that it was a carotid artery dissection and not a preocclusive atherosclerotic lesion. The patient had miosis and ptosis of the left eye. We studied the response to two drops of topical phenylephrine 1% in the conjunctival sacs of both eyes of the patient to differentiate between pre- and postganglionic sympathetic lesion. The affected pupil increased its diameter minimally against the phenylephrine and therefore the lesion was classified as postganglionic.

In the magnetic resonance angiography, subintimal haematoma within an atherosclerotic plaque was observed. It was decided to perform surgical treatment of the carotid lesion.

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Figure 1. A describes the patient with ptosis and miosis. B describes the critical lesion in the internal carotid artery. C describes the thrombus in the lumen of the internal carotid artery.

Seven days after the neurological event, the treatment of the patient was changed by replacing clopidogrel with low molecular weight heparin. The patient underwent left carotid thromboendarctomy a week later, where a pre-occlusive heterogeneous atherosclerotic plaque containing subintimal haematoma was found (Figure 1C). There was the successful restoration of the lumen of the left internal carotid artery without evidence of residual stenosis postprocedure.

Discussion

Claude Bernard's syndrome has been associated to carotid artery dissection and arteritis.^{1,2} It is the first case described in relation to a subintimal haematoma within an atherosclerotic plaque of the internal carotid artery.

This clinical presentation could be in relation with the interruption of the postganglionic neurons of the cervical sympathetic plexus as a consequence of the arterial distension caused by the intraparietal hematoma.

These sympathetic fibers originate at the level of C8 to T2 in the spinal cord and travel upward to the superior cervical ganglion near the angle of the mandible.³ The posterior neurons form part of the internal carotid plexus and ascend to the cranium, being responsible for the dilation of the iris. Preganglion lesion is the most frequent cause of Horner syndrome secondary to a dissection of the artery, arteritis and surgical procedures.^{4,5} The effects of phenylephrine are most likely due to the

fact that this is a post-ganglionic Horner's, consistent with the anatomical location of the lesion.⁶

This is the first reported case related to a subintimal haematoma within an atherosclerotic plaque of the internal carotid artery what causes stenosis of the carotid artery. Detection of such pathology, instead of dissection or arteritis, is important as the management is different.

Conclusions

A correct differential diagnosis between carotid artery dissection and stenosis is fundamental because its clinical approach is different. As this clinical case shows, there are symptomatic courtships that must be studied in detail so as not to confuse both entities.

Declaration of interest

There are not any conflicts of interest.

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References

- [1] RingerAJ, FesslerRD, QureshiAI, GutermanLR, GutermanLR, HopkinsLN. Horner's syndrome after carotid artery stenting: case report. *Surg Neurol.* 2000Dec;54(6):439–443. doi:10.1016/S0090-3019(00)00289-5.

- [2] HassanAE, ZacharatosH, SouslianF, SuriMF, QureshiAI. Longterm clinical and angiographic outcomes in patients with cervicocranial dissections treated with stent placement: a meta-analysis of case series. *J Neurotrauma*. 2012May1;29(7):1342–1353.
- [3] ShieldsRW Jr. Functional anatomy of the autonomic nervous system. *J Clin Neurophysiol*; 1993 Jan; 10(1):2–13
- [4] RamsayDA. Dilute solutions of phenylephrine and pilocarpine in the diagnosis of disordered autonomic innervation of the iris. Observations in normal subjects, and in the syndromes of Horner and Holmes-Adie. *J Neurol Sci*. 1986Mar;73(1):125–134. doi:[10.1016/0022-510X\(86\)90070-5](https://doi.org/10.1016/0022-510X(86)90070-5).
- [5] ThompsonHS, MensherJH. Adrenergic mydriasis in Horner's syndrome. Hydroxyamphetamine test for diagnosis of postganglionic defects. *Am J Ophthalmol*. 1971;72(2):472–480. doi:[10.1016/0002-9394\(71\)91323-7](https://doi.org/10.1016/0002-9394(71)91323-7).
- [6] Danesh-MeyerHV, SavinoP, SergottR. The correlation of phenylephrine 1% with hydroxyamphetamine 1% in Horner's syndrome. *Br J Ophthalmol*. 2004Apr;88(4):592–593. doi:[10.1136/bjo.2003.029371](https://doi.org/10.1136/bjo.2003.029371).