Reminder of important clinical lesson

Internal carotid artery dissection secondary to excessive vocal output

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Correspondence to Dr Nashila Hirji, nashila@doctors.org.uk**Summary**

A previously healthy 61-year-old male presented to eye casualty with a left-sided Horner's syndrome. He reported that while offering strong vocal support at a football match 5 days previously, he had suddenly noticed an unusual sensation behind his left eye, accompanied by a left hemifacial headache. He had noted pupillary asymmetry soon after this. Radiological imaging revealed a left internal carotid artery dissection. Anticoagulant therapy was commenced, and all symptoms and signs had fully resolved at 1-month follow-up, with no further complications.

BACKGROUND

Internal carotid artery dissection (ICAD) has been reported to occur following minor trauma or physical exertion. Rarely, in patients with certain underlying diseases, it may occur spontaneously. We report an unusual case of ICAD in a healthy male, in which symptom onset coincided solely with forceful vocal output. We propose that strong vocal output is an independent risk factor for developing ICAD in healthy individuals. Furthermore, our case highlights the importance of including ICAD in the differential diagnosis of ocular symptoms of unusual aetiology.

CASE PRESENTATION

A previously fit and well 61-year-old male presented to eye casualty, reporting that while offering powerful vocal support at a football match 5 days ago, he had suddenly noticed a 'bubbling' sensation behind his left eye. This was associated with a left hemifacial headache. Over 48 h, the pain subsided, but the patient noted pupillary asymmetry and therefore sought ophthalmic advice. On examination, visual acuity was 6/6 bilaterally. A left miosis and partial ptosis were noted, but ocular examination was otherwise unremarkable. A diagnosis of Horner's syndrome was made, and imaging and a neurology referral were organised. No other focal neurology was elicited, and general physical examination was normal. With regard to his past medical history, the patient was on treatment with a statin for hypercholesterolaemia but had no other known medical conditions and did not take any other regular medication. He was a non-smoker and generally enjoyed good health. There was, however, a positive family history of cerebrovascular disease.

INVESTIGATIONS

Blood tests revealed no haematological or biochemical abnormalities, and inflammatory markers were not raised. A chest x-ray was reported as normal, and an MRI of the head revealed no cerebrovascular disease. However, a magnetic resonance angiogram of the head and neck revealed an acute mural haematoma consistent with an ICAD in the

neck (figure 1). Duplex ultrasound of the patient's extracranial vessels revealed no evidence of associated atherosclerotic disease.

TREATMENT

As more than 7 days had lapsed between the onset of symptoms and the diagnosis of ICAD being made, it was felt that the patient was already outside the 'high-risk' period for developing a stroke. In view of this and the fact that the patient expressed a preference for aspirin over warfarin as a means of anticoagulation, he was commenced on daily low-dose aspirin. He was also counselled about the possible symptoms of a transient ischaemic attack or stroke and was advised to attend hospital immediately should any of these symptoms develop.

OUTCOME AND FOLLOW-UP

The patient was reviewed in the neurology clinic 1 month later. At this point, all his symptoms had resolved and the left-sided ptosis and miosis had fully recovered. Furthermore, he had experienced no other symptoms suggestive of cerebrovascular ischaemia. He was advised to continue on daily aspirin for at least 3 months, although it was suggested that it may be of benefit as long-term primary prevention, given his positive family history of cerebrovascular disease. The patient was also advised to have at least an annual review of his blood pressure and cholesterol levels with his general practitioner. He was discharged from clinic with the advice that should he develop any stroke-like symptoms, he should proceed directly to hospital.

DISCUSSION

ICAD is an increasingly recognised cause of stroke and can result from physical exertion or minor trauma.¹ More rarely, it can occur spontaneously, usually in the presence of underlying connective tissue disease.^{2 3} Our case is unusual in that the onset of symptoms coincided solely with forceful vocal output – a risk factor not cited in current literature. The patient denied any associated sudden head

Figure 1 Magnetic resonance angiogram of the extracranial vessels. There is abnormality of the distal extracranial left internal carotid artery between C2 and the skull base, with eccentric mural thickening (arrow). The appearances are in keeping with intramural acute haematoma, signifying acute dissection of the extracranial left internal carotid artery.

or neck movements and was otherwise fit and well. We therefore propose that strong vocal output may be an independent risk factor for developing ICAD.

Cerebral ischaemic symptoms, with neurological deficit evolving hours to days after initial symptom onset, are the commonest findings in most patients with ICAD. The clinical picture can vary widely from mild neurological

symptoms to a completed stroke, and potentially even death. Ophthalmic signs and symptoms are frequently the initial, and sometimes the only, presentation of ICAD.⁴ However, the diagnosis can be missed by experienced physicians in all specialties, leading to delays in appropriate investigation and treatment.⁵ Our case highlights the importance of including ICAD in the differential diagnosis of ocular symptoms of obscure aetiology, as prompt intervention may prevent devastating consequences.

Learning points

- ▶ ICAD is an increasingly recognised cause of stroke and can have detrimental consequences, particularly in young adults.
- ▶ ICAD usually results from physical exertion or trauma, but our report implicates strong vocal output as an independent risk factor for ICAD in healthy individuals.
- ▶ Ophthalmic signs and symptoms are often the initial or sole presentation of ICAD, but studies show that the diagnosis is easily missed.
- ▶ Our case highlights the importance of including ICAD in the differential diagnosis of ocular symptoms of obscure aetiology, as early diagnosis and treatment is key for optimal outcomes.

Competing interests None.

Patient consent Obtained.

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