SHORT REPORT

Unilateral Blindness Following Excision of a Carotid Body Tumour

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Abstract We present a case of branch retinal artery occlusion following excision of a carotid body tumour. A 37-year-old woman complained of partial loss of vision in her right eye 4 h following uneventful excision of a carotid body tumour. Clinical examination and subsequent retinography confirmed branch retinal artery occlusion. A duplex scan showed a kink in the internal carotid artery resulting in a significant stenosis. The kink was caused by redundancy of the carotid artery after removal of the large tumour which had caused significant splaying and stretching of the carotid bifurcation. We believe that this kink was the origin of an embolus which occluded the retinal artery branch.

A 37-year-old Nepalese woman with bilateral carotid body tumours was admitted for excision of the right sided tumour. She had no significant past medical history, was not taking any regular medication and had a family history of carotid body tumours. The procedure, which was performed under a general anaesthetic, was uneventful with no need for vascular reconstruction. Immediately post-operatively the patient developed a small haematoma in her neck which did not require drainage.

Approximately 4 h post-operatively she complained of difficulty in seeing out of her right eye. Neurological examination revealed a loss of visual acuity from the nasal half of her right eye and an afferent pupillary defect. No other abnormal neurology was identified. Dilated fundoscopy revealed a pale retina and evidence of ‘cattle tracking’ of the arteries on the temporal side. A diagnosis of branch retinal artery occlusion was made. Treatment was commenced in the form of high flow oxygen, ocular globe massage and acetazolamide. The patient was also given aspirin, low molecular weight heparin, a prostaglandin analogue (latanoprost) and dextran 40 in an attempt to reverse the occlusion and prevent further progression. Her symptoms did not resolve despite this treatment.

A computed tomography scan of her brain was normal. An arterial duplex scan revealed a normal left carotid artery but a kink in her right internal carotid artery resulting in 80% stenosis (Figs. 1 and 2).

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Histology of the excised tumour confirmed a paraganglioma with capsule intact and no evidence of spread. Her symptoms failed to improve with time and a repeat duplex scan 6 weeks after her procedure confirmed the kink resulting in a 50% stenosis. Retinal imaging showed evidence of retinal artery occlusion (Fig. 3).

Discussion

Surgical resection of carotid body tumours (CBT) is associated with significant mortality and morbidity but, to our knowledge, this is the first reported case of branch retinal artery occlusion following excision of such a tumour. A recent multicenter review of CBT management of 95 patients revealed that transient cranial nerve injury and stroke contributed to a significant post-operative morbidity rate of 35%, but there were no cases of retinal artery occlusion.1

Kinking and stenosis of the internal carotid seen on duplex scan is a result of redundancy of the artery. Several techniques aimed at repairing internal carotid artery redundancy after carotid endarterectomy in order to prevent re-stenosis have been reported including resection and patch angioplasty, posterior transverse plicaton2 and common carotid imbrication.3

The central retinal artery is a branch of the ophthalmic artery and penetrates the eye through the optic disc, dividing into several branches that supply the inner layers of the retina. A branch retinal artery occlusion occurs when one of these branches is blocked, occluding the supply to the retina. An embolism is the most common cause, including cholesterol, fat emboli, amniotic fluid and tumours (including atrial myxoma). Non-embolic causes include thrombosis, vasospasm, thrombopathias and compression. The prognosis for recovery of branch retinal occlusion is good therefore treatment is often expectant.
Some procedures that have been attempted include intra-arterial thrombolysis with a catheter placed in the ophthalmic artery and transluminal Nd:YAG laser embolysis. Neither method, however, has been unequivocally proven as effective.4,5

The complication of our patient suffered resulted in minimal residual visual deficit because she had normal vision in the left eye. This loss of her right sided nasal field, however, poses a surgical dilemma with regards to operating on the contralateral carotid body tumour. A further retinal complication on the left side would result in significant visual disability.

**Ethical Approval**

Written permission has been obtained from the patient to report her case and publish the carotid scans and retinal photos. Ethical approval required for research purposes was not applicable in this case.

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Funding was not required for this report.

**Conflict of Interest**

The authors of this paper have no financial or personal relationship with any other persons or organisations which could be deemed as a conflict of interest and therefore influence this short report.

**References**


**Figure 3** Retinal image showing branch retinal artery occlusion of the right eye.