SHORT REPORT

Spontaneous Recanalisation of a Ligated Common Carotid Artery – a Rare Presentation of Stroke

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Introduction

Ligation of the common carotid artery used to be commonly undertaken in patients presenting with subarachnoid haemorrhage from ruptured intracerebral artery aneurysms.1 We report a patient who presented with a stroke due to recanalisation of her common carotid artery which was previously ligated 33 years ago for the treatment of a subarachnoid haemorrhage.

Case Report

The patient initially presented in 1968, aged 23 with a subarachnoid haemorrhage. Cerebral angiography performed at the time demonstrated a large aneurysm lying within the bifurcation of the left internal carotid artery. She underwent an uneventful ligation of her left common carotid artery in the neck with a braided silk suture.

She remained well until 2001, when she represented, aged 56, with headache, confusion and cortical signs of visual defects, right-sided weakness and inattention. The neurological signs suggested a left partial anterior circulation stroke, despite previous ligation of her left common carotid artery. A CT scan demonstrated an area of low attenuation adjacent to the left lateral horn consistent with an arachnoid cyst. A lumbar puncture excluded a subarachnoid haemorrhage. Surprisingly, a Doppler-ultrasound study demonstrated a patent left common carotid artery with a stenosis greater than 80% and turbulent flow. A study of the right carotid artery was normal.

Following discussion of treatment options with neurologists and vascular surgeons the patient underwent a left common carotid endarterectomy. An anterior sternomastoid approach was used and the site of the previously ligated carotid artery was apparent just proximal to the carotid bifurcation. A standard endarterectomy was performed and the arteriotomy closed with a Dacron patch. She made an excellent postoperative recovery.

Discussion

Spontaneous recanalisation of occlusive carotid artery lesions has been previously described in patients with neurological deficits secondary to carotid arterial dissection, carotid bifurcation atheroma and primary carotid arteriopathy.2

However, spontaneous carotid recanalisation following operative ligation has been sparsely reported. In the short-term, the complication of incomplete carotid ligation has been reported in patients with intracranial aneurysms.3 In the longer-term, there have been reports of three cases of carotid recanalisation. Two were determined incidentally during follow-up within 5 years following operative ligation with umbilical tape.4 The other re-presented with a further subarachnoid haemorrhage 9 years following ipsilateral ligation with a silk suture.5

We report a patient who presented with a thromboembolic stroke secondary to a recanalised common carotid artery 33 years following operative ligation for a subarachnoid haemorrhage. She underwent...
a successful carotid endarterectomy with an excellent recovery. This report demonstrates firstly, that operative ligation of the common carotid artery does not ensure permanent occlusion and secondly, that thromboembolism must be considered as a possible cause for further neurological presentations in such patients given the potential for spontaneous carotid recanalisation. This report differs from previous reports in terms of chronology and pathology. It highlights that recanalisation may occur several decades following ligation and that patients may re-present with a different pathology (thromboembolic in contradistinction to haemorrhagic). Importantly, we also demonstrate that carotid endarterectomy may be successfully carried out to treat these patients despite previous ipsilateral surgery. We believe these observations may be of interest to vascular surgeons, neurologists and neurosurgeons alike.

Fig. 1. Surgical exposure of the stenosed left common carotid artery illustrated (arrows).

References