

EJVES Extra 9, 84–86 (2005)

doi:10.1016/j.ejvsextra.2005.02.014, available online at <http://www.sciencedirect.com> on  SCIENCE @ DIRECT®

SHORT REPORT

**Giant Aneurysm of the Extracranial Carotid Artery:
Case Report****P. Castelli,¹ C. Scamoni,² R. Caronno,¹ G. Piffaretti,^{1*} M. Tozzi,¹ M. Carnini¹ and
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We report a case of giant extracranial carotid aneurysm treated by carotid aneurysmectomy. A 70-year-old female was referred with a palpable swelling on left lateral region of the neck, associated with dizziness and dysarthria. Spiral-CT scan showed a 5-cm aneurysm of the internal carotid artery (ICA), kinking of ICA and increased flow in the right vertebral artery. Angiography showed, a fusiform ICA aneurysm, with lengthening and tortuosity of intracranial vessels. An aneurysmectomy was performed with end-to-end repair of ICA. The patient was discharged on the 12 post-operative day. Twelve months after the operation, the patient showed a complete recovery from the neurological deficit and patency of ICA. We recommend surgical treatment in order to avoid rupture, thromboembolism and cerebrovascular insufficiency.

Keywords: Aneurysm; Internal carotid artery.

Introduction

Extracranial carotid artery aneurysms (ECA) are rare.¹ There has been a change of the etiological profile of ECA,¹ with an increase in atherosclerotic and dysplastic aneurysms and a decrease in infective and post-traumatic aneurysms.² Symptoms are usually related to cerebrovascular insufficiency. Local compression or rupture are uncommon.² Although new techniques, such as stent graft and embolization have been described, surgery remains the gold standard.¹ This report describes a case of giant extracranial carotid aneurysm treated by carotid aneurysmectomy.

Report

A 70-year-old female, with a history of hypertension, treated with an ACE-inhibitor and antiplatelet drugs for 15 years, was referred for evaluation of a palpable

swelling on left lateral region of the neck. This was associated with a 6 months history of dizziness and dysarthria.

Duplex scanning revealed a 4 cm diameter vascular lesion. A spiral-CT scan, 6 months later, showed that the internal carotid artery aneurysm (ICA) had grown to 5 cm. The CT also showed kinking of ICA and an increased flow in the right vertebral artery (Fig. 1). No other dysplastic or atherosclerotic lesions were found in the aortic or splanchnic vessels. Angiography showed a fusiform aneurysm, extended to the whole ICA, with lengthening and tortuosity of intracranial vessels. No other aneurysms were identified in the intracranial circulation (Fig. 1).

Under general anesthesia, the aneurysm was exposed through a standard approach along the anterior border of the sternocleidomastoid muscle, with continuous electroencephalographic and hemodynamic monitoring.

Isolation of VII, X, XII cranial nerves was carried out and the distal ICA was prepared by sublaxation of the mandibula and division of the digastric muscle.

Systemic anticoagulation was used; distal and proximal occlusion of the ICA was achieved,

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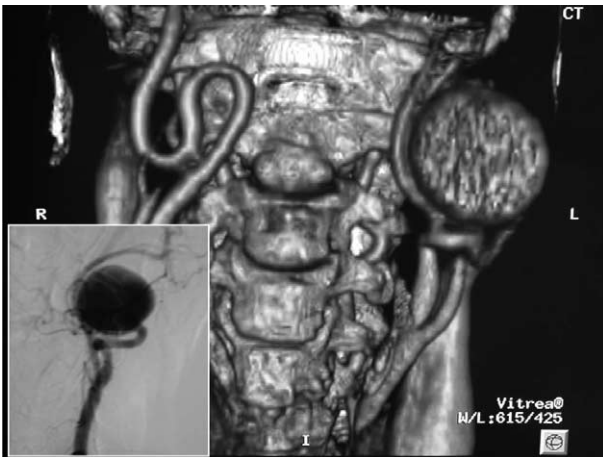


Fig. 1. Spiral CT scan 3D reconstruction, showing the giant ICA aneurysm. In the little square the aneurysm seen with the angiography.

providing the continuous perfusion of the external carotid by a lateral clamp. The excess length of the ICA allowed direct aneurysm resection with end-to-end repair of the ICA (Fig. 2).

Total occlusion time was 23 min and no electroencephalographic alteration was reported. The post-operative course was characterized by a peripheral deficit of the VII and IX cranial nerves. A diagnostic laryngoscopy, showed fixity of left emilarynx, with poor functional balance of the contralateral vocal cord.

The patient was discharged on post-operative day 12. She had speech therapy for 30 days. Twelve months after the operation, the patient had made a complete recovery from the neurological deficit. A spiral-CT scan showed patency of the left ICA (Fig. 3).

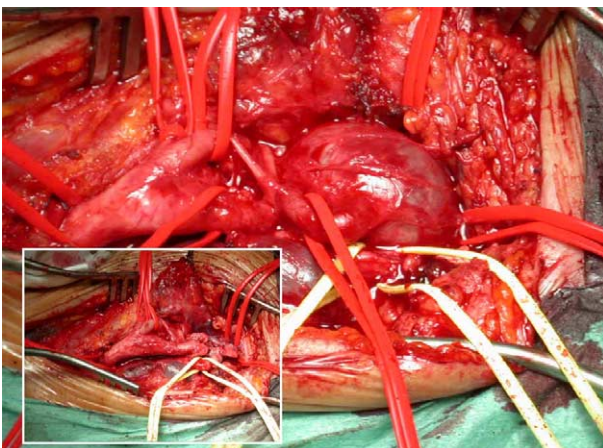


Fig. 2. Exposition of the giant ICA aneurysm, through the standard approach along the sternocleidomastoid muscle, by mandibula subluxation and section of the digastric muscle. In the little square the direct aneurismectomy with end-to-end repair of ICA.



Fig. 3.

Discussion

Surgical treatment of extracranial carotid artery aneurysms (ECA) comprises 0.1–2% of all carotid procedures. Atherosclerosis (42%) and dysplasia (20%) are the most common causes of ECA.^{1–3} Two topographic varieties, proximal and distal to the Blaisdell line⁴ have been described. The proximal types are usually fusiform, atherosclerotic and involving the common carotid artery, the carotid bifurcation and the first part of ICA. The distal ECA are usually saccular and located near the angle of the jaw.

The described case is unusual since, ECA was giant, fusiform, involving the whole of the ICA, and localized distal to the Blaisdell line. Surgical treatment is recommended in order to avoid the risk of rupture, thromboembolism and cerebrovascular insufficiency. Several surgical approaches have been proposed for fusiform aneurysms: aneurysmectomy with reconstruction by end-to-end anastomosis or interposition graft, and recently endovascular exclusion by stent.^{1,2,5}

In our case surgery was mandatory since, the ECA was increasing in size (20% in 6 months). During exposition of proximal and distal neck, ICA proved to

be very tortuous. This was not noticed on pre-operative imaging. The excess length allowed an end-to-end carotid reconstruction. Lateral clamping of the external carotid artery allowed us to complete the procedure preserving blood flow in the external carotid artery.

Since, no trauma was reported and no other site of aneurysm was identified, the pathogenesis of this ECA is unclear.^{1,2,5} The aneurysm was fusiform and distal to the Blaisdell line,⁴ and hypertension represented the only risk factor. Post-operative neurological deficit is generally related to aneurysm size, but appropriate rehabilitation can achieve complete recovery in few months.

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Accepted 17 February 2005