SHORT REPORT

True Aneurysm of Extracranial Internal Carotid Artery in a 10-year-old

B. Çınar, O. Fazlıoğlu and O. Goksel*

Dr. Siyami Ersek Thoracic and Cardiovascular Surgery Center, Cardiovascular Surgery, Istanbul, Turkey

Introduction

Although atherosclerotic occlusive disease in the extracranial carotid arteries is relatively common, true aneurysms of these vessels are rare. Furthermore, true aneurysms in the paediatric population are exceptionally rare, especially in those without any history of relevant coexisting disease. In spite of their rarity, extracranial carotid aneurysms should be considered in the differential diagnosis of a neck mass.1,2

Report

A 10-year-old boy with a pulsating mass on the right side of his neck was admitted to our outpatient clinic in September 2005, following referral from a general practitioner. His main complaints, besides the tender mass, were persisting neck pain and headaches for the last year. He had no previous history of trauma, vasculitis or any coexisting condition, although he had an uneventful tonsillectomy procedure in early 2004.

Upon examination, the mid-cervical mass on the right lateral side was pulsatile and had an audible bruit. Cervical doppler and contrast-enhanced CT studies showed a 25 × 50 mm true aneurysm of the right internal carotid artery, just distal to the bifurcation (Fig. 1.).

He was admitted to hospital and given 10000 IU sodium heparinate as an infusion over 24 hours and was scheduled for surgery for the next day. Standard anterior sternocleidomastoid incision was used for surgery, under general anesthesia, with 1mg/kg systemic heparinization. Shunt insertion was applied upon arteriotomy regardless of stump pressures, in anticipation of a long dissection time. Resection of the aneurysmatic segment was possible with careful dissections and a 5-mm ePTFE graft (Impra ePTFE vascular grafts, Bard Peripheral Vascular, Inc., Tempe, AZ, USA) was interposed (Fig. 2.). A pragmatic shunting technique was used where the shunt was inserted first through the graft and then into the proximal and distal ends of the carotid artery. In this way, obliteration of the surgical field was minimal with easy manipulation and control of the shunt. The distal anastomosis was completed first; the shunt was removed just before completion of the proximal anastomosis for the sake of easy manipulation.

Low-dose heparin was continued for the first 12 hours post-operatively. The perioperative and postoperative course was uneventful and the patient was discharged on day 3 without complications.

*Corresponding author. Dr. Onur Goksel 4. Gazeteciler Sitesi, C3 Blok, Da: 16, 1. Levent, Istanbul 80620, Turkey.
E-mail address: onurgokseljet@gmail.com

Keywords: Aneurysm; Internal carotid artery; Cerebrovascular disease; Carotid artery surgery.
Discussion

In contrast to atherosclerotic and ulcerative occlusive lesions of the carotid arteries, true aneurysms these vessels are rare and more difficult to manage. The internal carotid artery, next to common carotid bifurcation is the second most common location for aneurysms. In adults, the aetiology is usually atherosclerosis, penetrating or nonpenetrating trauma, dissections, previous surgery, vasculitis or infection. The latter was the principal cause before the antibiotic era. However, a true cervical aneurysm of any aetiology in the paediatric population is very rare. The case report by Unal OF et al is one of the scarce instances of this situation in children.

Starting with Sir Ashley Cooper, who ligated the common carotid artery for a cervical aneurysm for the first time, techniques such as wrapping, endoaneurysmorraphy, resection and eventually endovascular interventions have been described. In our case, we resected the aneurysm and interposition of a synthetic graft was performed, although the primary intention was to use greater saphenous vein, but this was less than 5 mm in diameter at saphenofemoral junction. Our patient did not have any history of vasculitis, congenital disorder eg Marfan syndrome or trauma. The previous uneventful tonsillectomy procedure in early 2004; raises the possibility that inadvertent operative trauma was the cause of the aneurysm, although there was no evidence for this at operation. Microbiology and pathology provided no additional information.

Despite its rarity, prompt differential diagnosis of this pathology is crucially important for the natural history and therapeutic options. Misdiagnosis as a parapharyngeal abscess or a delayed diagnosis may result in a disastrous scenario, with life-threatening haemorrhage or a debilitating stroke. As stroke rate as high as 50% and even higher mortality have been reported in untreated patients. In general, aneurysms at this location can be managed surgically with acceptable results, although the results may vary depending on the size, extension and the type of the aneurysm. Autologous vein grafts for interposition are the first choice; however, synthetic grafts may be used when necessary. In this case, a slightly longer
graft was inserted to allow for the normal growth of the patient (Fig. 2). Follow-up with doppler ultrasonography every three months was recommended for our patient for the first year; additional CT or MR angiograms may be used if indicated.

References


Accepted 14 February 2006
Available online 3 April 2006