CASE REPORT

Infected False Aneurysm Following Carotid Endarterectomy with PTFE Angioplasty

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Introduction

False aneurysm after carotid endarterectomy is a rare complication, which has been reported in only 70 cases following either primary closure, Dacron patch or venous patch. We report the first documented case of an infected false aneurysm following patching with PTFE.

Case Report

A 71-year-old hypertensive man, with a history of transient ischaemic attacks was found to have a severe stenosis at the bifurcation of the right carotid artery and an ulcerated atheromatous plaque with a mild stenosis on the left side, on Digital Substraction Angiography (DSA). A right carotid endarterectomy with patch angioplasty was performed under general anaesthesia and shunting. A 0.4 mm PTFE patch (W.L. Gore & Assoc., Elkton, Md U.S.A.) was used and sutured with a 7-0 PTFE cardiovascular suture. Cefazolin 1 gm three times daily was administered for 2 days as a prophylactic antibiotic. The postoperative course was uneventful. Three weeks later a similar carotid endarterectomy with PTFE angioplasty was performed on the left side. The patient was discharged eight days later. Neurological symptoms were absent at 3 month and DSA follow-up examination at this time was also normal.

Six months later, the patient returned because of a rapidly enlarging, painful, pulsating cervical mass beneath the left endarterectomy scar. CT scan and DSA showed a large false aneurysm (6 × 3 cm) arising from the left carotid artery at the site of the endarterectomy (Fig. 1). Two days later, the left carotid

Fig. 1. Infected false aneurysm in left carotid following endarterectomy with PTFE angioplasty.
artery was explored under general anaesthesia. Surgical management consisted of excision of the aneurysm and saphenous vein graft replacement with end-to-end anastomosis between the common and internal carotid arteries. The surgical wound was irrigated with a 10% solution of povidone-iodide. Culture of the resected material grew *Staphylococcus hominis* and *Streptococcus viridans* sensitive to amoxicillin-clavulanic acid which was given for 10 days. The patient was discharged 10 days after the operation with a healing wound and normal neurological findings. Follow-up DSA showed no false aneurysm and a patent reconstruction.

<table>
<thead>
<tr>
<th>Method of closure</th>
<th>n (%)</th>
<th>Noninfected</th>
<th>Infected</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary closure</td>
<td>19 (27.1)</td>
<td>10 (52.6%)</td>
<td>9 (47.4%)</td>
</tr>
<tr>
<td>Patches</td>
<td>46 (65.7)</td>
<td>40 (86.9%)</td>
<td>6 (13.1%)</td>
</tr>
<tr>
<td>Dacron</td>
<td>34</td>
<td>30</td>
<td>4</td>
</tr>
<tr>
<td>SVP</td>
<td>8</td>
<td>7</td>
<td>1</td>
</tr>
<tr>
<td>EJV</td>
<td>1</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>IJV</td>
<td>2</td>
<td>2</td>
<td>-</td>
</tr>
<tr>
<td>PTFE</td>
<td>1</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>Others</td>
<td>5 (7.2)</td>
<td>1 (20%)</td>
<td>4 (80%)</td>
</tr>
<tr>
<td>Total</td>
<td>70</td>
<td>51 (72.8%)</td>
<td>19 (27.2%)</td>
</tr>
</tbody>
</table>

Abbreviations: SVP, saphenous vein patch; EJV, external jugular vein; IJV, internal jugular vein.

Discussion

False aneurysm is a rare complication of carotid endarterectomy. A review of the English literature including our case is summarised in Table 1. Although the details of each case were not uniformly reported, of 70 false aneurysms, 51 (72.8%) were non-infected and 19 (27.2%) were infected. The majority occurred before the advent of monofilament sutures and current vascular prosthetic material. Hypertension is almost always an associated risk factor. 46 false aneurysms followed patch grafting (65.7%), 19 followed primary arteriotomy closure (27.1%) and five followed techniques that were different or were not described. Whilst only 13.1% of patch grafts were associated with infection, the incidence of infection when a false aneurysm complicates carotid endarterectomy with primary arteriotomy closure was 47.4%. Therefore, although infection is a possible cause of false aneurysm, angioplasty itself constitutes an inherent risk in that disruption of the suture line or patch can also be implicated. The overall incidence in 52 reported cases with sufficient data (14,939 carotid endarterectomies) was 0.34%.

False aneurysm is a serious clinical problem that requires urgent surgical treatment to avoid severe neurological complication resulting from carotid thrombosis or rupture. Carotid ligation in these cases has a 50% morbidity and mortality. Although satisfactory outcome has been obtained by simple arteriotomy closure or carotid patch graft, in the presence of infection the best treatment is the resection of the false aneurysm and segmental replacement with autogenous graft (saphenous vein or even autogenous artery). Patch angioplasty in these cases has a high incidence of recurrence.

References


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