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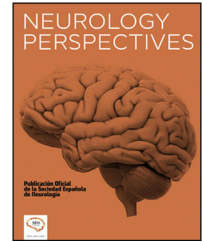
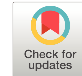


SCIENTIFIC LETTER

Pseudoaneurysm and prosthetic exposure: An exceptional complication of endarterectomy and carotid angioplasty



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The main complications of carotid endarterectomy are well known and include lesions to cranial nerves, transient ischaemic attack, stroke, myocardial infarction, and death. A less frequent complication is pseudoaneurysm, which occurs in 0.3%–0.6% of procedures.[1]

Pseudoaneurysms are ruptures in the arterial wall leading to the formation of an extravascular haematoma separated from the underlying tissue by a false wall. Their pathophysiology, which remains poorly understood, involves several factors including perioperative lesions to the arterial wall and wall degeneration secondary to infections.[1–3] Once developed, pseudoaneurysms may give rise to significant complications such as embolic ischaemic stroke, haemorrhage due to rupture, and symptoms secondary to compression of adjacent structures or due to sepsis, in the context of infection;[1] the associated morbidity rate amounts up to 60%, so the condition must be treated once identified, even in late-onset cases.[1] It is still to be determined whether optimal treatment consists of direct repair, ligation, or placement of an intravascular stent, which is the procedure of choice after infection.[1]

We report the case of an exceptional, late-onset complication of a pseudoaneurysm triggered by an iatrogenic infection.

Our patient was a 65-year-old man with history of cervical radiotherapy to treat glottic carcinoma 35 years earlier and endarterectomy using a dacron patch due to asymptomatic 90% stenosis of the right internal carotid artery. Ten years later, following a biopsy of the cervical region due to adenopathy suggestive of malignancy, which finally revealed chronic inflammation due to a foreign body, the patient presented a polymicrobial infection together with a skin fistula. A CT angiography study revealed a pseudoaneurysm in the right internal carotid artery, which was treated with angioplasty and stent placement (Viahban®), and subsequent dual antiplatelet therapy (aspirin and clopidogrel) for 6 months and single antiplatelet therapy (aspirin 100 mg/day) indefinitely. The infection and fistula became chronic and the prosthetic material was exposed (Fig. 1). Occlusion of the pseudoaneurysm was proposed after a compatible occlusion test, but was not finally performed due to spontaneous thrombosis of the carotid stent, resulting in transient ischaemic attack in the right hemisphere as the only neurological symptom. One year after the previous event, the prosthetic material was removed.

Our case shows the development of a pseudoaneurysm secondary to infection caused by a neck biopsy. Neurologists are typically the main specialists responsible for the long-term follow-up of patients undergoing carotid endarterectomy, and may therefore be aware of these sometimes late-onset complications, even more than 10 years after the initial procedure, as in our case; these patients require very specific treatment. Infection may be caused by

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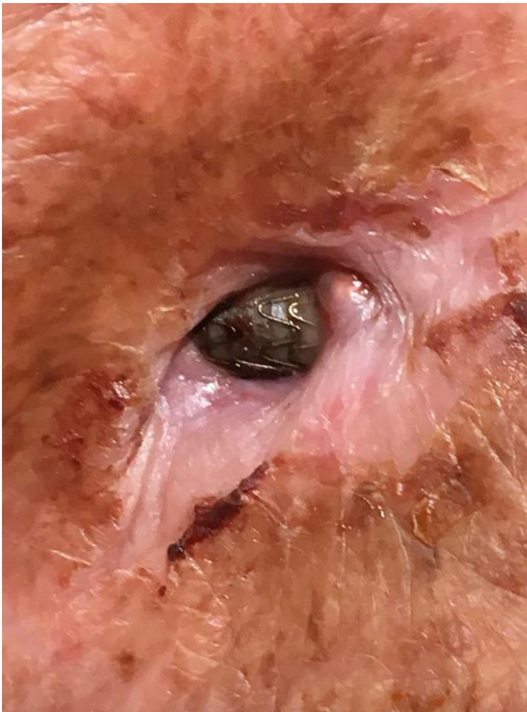

Fig. 1 Carotid stent exposed through the neck fistula.

intraoperative contamination, either from the adjacent tissue or via the haematogenous route,[3] and risk factors include diabetes mellitus, long duration of the procedure, and performance of such invasive procedures as re-exploration of a surgical wound or biopsy, whose performance should be carefully assessed and limited to unavoidable cases.[3] If infection is suspected, early antibiotic treatment must include protection against the most frequent pathogens, *Staphylococcus aureus* and *Staphylococcus epidermidis*.[2] Finally, diagnosis of pseudoaneurysm should be considered if the patient presents a persistent local haematoma, recurrent bleeding, or late-onset infection of a wound.

In our patient, symptom chronification led to exposure of the prosthesis, an unusual feature that we considered relevant for publication and dissemination among neurologists.

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Data protection

The authors observed their centre's protocols for the publication of patient data, and obtained informed consent in accordance with said protocols.

Ethical standards

Protection of people and animals: the authors declare that no human or animal experiments were conducted as part of this study.

Data protection: the authors observed their centre's protocols for the publication of patient data.

Right to privacy and informed consent: the authors obtained informed consent from the patients and/or subjects described in the article. The informed consent documents are held by the corresponding author.

Declaration of competing interest

The authors have no conflicts of interest to declare.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.neurop.2024.100151.

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