SHORT REPORT

Mycotic Aneurysm of the Carotid Artery Following Streptococcal Angina

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Introduction. Mycotic aneurysm of the carotid artery is a rare but potentially life-threatening event.


Discussion. To our knowledge, this is the first report of mycotic aneurysm of carotid arteries managed conservatively. Although conservative management is not the first-choice therapy, in our case, surgery or stent grafting of the mycotic aneurysm of the carotid artery was avoided.

Keywords: Mycotic; Aneurysm; Carotid arteries; Magnetic resonance imaging.

Introduction

Tonsillopharyngitis is a common infection in adults and children. Even the complications, either suppurrative or non-suppurative, are well known. In contrast, mycotic aneurysm of the internal carotid artery is a potentially life-threatening but rare complication of streptococcal angina.1,2 Usually, several clinical findings, such as incomplete resolution of a properly treated neck infection, a rapidly expanding pulsatile neck mass, or recurrent minor bleeding from the mouth or nose should immediately raise a red flag.3 We describe a case a mycotic aneurysm of the internal carotid artery following streptococcal angina that was resolved with systemic antibiotics alone.

Report

A 53-year-old man was referred to our emergency department with a nine-day history of streptococcal-positive angina treated correctly with 875 mg amoxicillin and 125 mg clavulanic acid twice daily. After initial improvement of the symptoms, the patient developed night sweats, pain in the left submandibular neck region, and pain on swallowing and turning the head to the right. The only significant finding on physical examination was a firm, tender, 2 × 3 cm, left-sided cervical mass. The erythrocyte sedimentation rate was 68 mm/hour, C-reactive protein level was 20 ng/l, and white blood count was 6.94 × 10^9/l. An aneurysm of the carotid bifurcation was seen on ultrasound, with an internal carotid diameter of nearly 16 mm at the bifurcation and the common carotid artery measuring 7 mm. The wall of the internal carotid artery was massively thickened and hypodense (Fig. 1). An urgent MRI scan of the neck and brain was performed revealing an augmented volume of the left tonsil with extensive inflammatory changes surrounding the pseudoaneurysm (Fig. 2). The patient was placed on an intravenous antibiotic regimen, and daily ultrasound controls were performed to track potential enlargement of the carotid aneurysm. The vascular surgeon was informed in case of worsening, but the patient remained surprisingly stable without any signs of progression of the aneurysm, rupture, or septic embolic complications. The intravenous regimen with amoxicillin and clavulanic acid continued two
weeks, followed by oral administration for a total of six weeks. A slow regression of the aneurysm was noted sonographically over a period of days. The patient was also treated with aspirin and heparin and discharged two weeks later. At follow-up examinations two and six months later, the size of the internal carotid artery regressed to a stable diameter of 12 mm, and the patient remained asymptomatic.

Discussion

Vascular complications after neck space infections are rare today with the universal use of antibiotics. The source of infection can be intravascular (bacteremia, septic embolisation, especially infective endocarditis) or extravascular (contiguous spread from infected lymph nodes, abscesses). When bacterial endocarditis is the origin, Streptococcus (viridans and faecalis), Pneumococcus, Haemophilus, and Staphylococcus (aureus and epidermidis) predominate. In the other cases, Salmonella, Klebsiella, Escherichia coli, Proteus mirabilis, and Yersinia enterocolitica have been reported. It is thought that the infection leads to a gradual destruction of the arterial wall by bacteria, accompanied by a strenuous inflammatory response resulting in pseudoaneurysm formation. The exact mechanism is not fully known, but proteases and collagenases produced by bacteria are, among other factors, involved in this process. Intervention is required in most cases to relieve symptoms and/or prevent complications such as rupture, bleeding, and stroke. Of course, first-choice management consists of a combination of surgery and systemic antibiotics. Salinger and Pearlman’s most important finding in their landmark paper from 1933 was the high mortality rate of 77% among patients not undergoing surgery (119 out of 154) compared with 36% (26 out of 73) in those undergoing ligation of the carotid artery. Ligation of the carotid artery (‘Hunterian ligation’) was therefore performed traditionally but is nowadays only rarely done because of the high incidence of postoperative stroke and death. Resection is sometimes possible for a small aneurysm followed by end-to-end anastomosis. In larger aneurysms, restoring arterial continuity by reconstruction with autologous vein is the preferred option. Although there are little data, especially regarding long-term observations about the outcome, endovascular treatment is increasingly used. Sometimes endovascular treatment can provide a temporary solution until the patient is stable.

In the case of our patient, we were ready to act at any time if necessary, justifying the conservative handling. To our knowledge, this is the first report of mycotic aneurysm of carotid arteries managed without surgery or stent grafting.

References


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