

Proximal Carotid Aneurysm Treatment in the Flow Diversion Era.

Cameron Michael McDougall MD, FRCS(C); Jeffrey S. Beecher DO; Vin Shen Ban; Jake Alford; RObin Novakovic; Jonathan A. White MD; G. Lee Pride MD; H. Hunt Batjer MD; Duke S. Samson MD; Babu Guai Welch MD

Introduction

Proximal carotid aneurysms (PxCAs) are a unique subset of aneurysms.

The best method of treatment for PxCAs is unknown. Microsurgery, endovascular treatment and flow diversion are all utilized in the management of these lesions. As a result PxCAs represent an intersection with clinical equipoise between the three principle treatment modalities to a greater extent than any other cerebrovascular location. In this study we evaluate and compare the clinical and radiologic outcomes of patients with unruptured PxCAs treated at our institution

Methods

From January 2008 to May 2015, 303 unruptured proximal carotid aneurysms were treated in 282 patients at a single center. Patients were categorized according to treatment modality. Each group was then compared based on lesion characteristics including calcification, as well as patient risk factors. We compared aneurysm occlusion rates, retreatment rates, and clinical outcomes.

Results

157 patients underwent conventional endovascular treatment of 170 aneurysms while 104 aneurysms were treated microsurgically in 98 patients. 29 aneurysms were treated with flow diversion in 27 patients.

7 patients (4.1%) in the endovascular group underwent retreatment for residual or recurrent aneurysms. Four patients (3.8%) in the microsurgery and 1 patient in the flow diversion group (3.5%) required retreatment. These differences were not statistically significantly.

In addition to a shorter length of hospital stay, Kruskal-Wallis statistical analysis revealed a significantly better clinical outcome at discharge in patients who underwent endovascular treatment compared to those who underwent microsurgery ($p < 0.01$). However, these differences were no longer significant at 6 months follow up and remained not significant at 1 year.

Aneurysms treated with flow diversion tended to have more features that would impart a higher degree of difficulty to clip reconstruction ($p < 0.05$) including a larger size ($p < 0.05$).

Conclusions

PxCA treatment should be individualized and all treatment modalities should be considered based on specific patient and lesion characteristics.

Learning Objectives

By the conclusion of the session, participants should be able to:

1) Make an informed decision when choosing a treatment strategy for unruptured proximal carotid artery aneurysms.

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