



Introduction

Endovascular treatment of intracranial aneurysms can be complicated by thrombus formation, requiring administration of intra-arterial (IA) abciximab, a glycoprotein IIb/IIIa inhibitor. While the safety of this practice has been well established, few studies have examined the long-term angiographic outcomes.

Methods

Single institution, retrospective review of all endovascular interventions for intracranial aneurysm treatment, over a 4-year period.

Results

A total of 198 aneurysms were treated with endovascular techniques. Balloon assisted coiling (BAC) was used in 70 (35%) of cases, stent assisted coiling (SAC) in 32 (16%) of cases, primary coiling in 59 (29%), and flow diversion in 37 (19%). Thirty-two patients developed intraoperative thrombus treated with IA abciximab (16%). Thrombus formed during BAC in 15/70 cases (21%) ($p=0.159$), SAC in 3/32 cases (9%) ($p=0.307$), and primary coiling in 14/59 (24%) ($p=0.017$). Gender, age, aneurysm location and rupture status were not statistically significant risk factors for development of intraoperative thrombus. Smoking status was related to thrombus formation; 17/32 (53%) patients in the thrombus group were active smokers compared to 49/166 (30%) in the control cohort ($p=0.013$). In the thrombus group, immediate Raymond-Roy Scale (RRS) 1 results were seen in 73% ($n=23$), while 27% ($n=9$) achieved RRS 2. Of these 9 patients with residual aneurysm, 8 had long term follow-up. Five of the 8 (63%) spontaneously resolved to RRS 1, while 3 (37%) aneurysm remnants persisted during follow-up. Of the 23 patients with immediate RRS 1, 15 (65%) had long term follow up, and only 1 (6.67%) developed aneurysm recurrence.

Conclusions

Primary coiling and smoking status are predictors for intraoperative thrombus formation necessitating abciximab therapy. Long-term aneurysm residual is rare despite abciximab treatment.

Learning Objectives

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

- 1) recognize the frequency of intra-procedural thrombus formation during endovascular treatment of aneurysms
- 2) identify risk factors for thrombus formation
- 3) understanding strategies for treating thrombus.