

Introduction: Flow diversion (FD) procedures for intracranial aneurysms uses a stent with an increased surface area for embolization. Protection from aneurysmal rupture is gradual and follow-up imaging is indicated until the aneurysm is occluded. Multiple series have reported incomplete occlusion at six months requiring further observation or treatment. This series analyzes our outcomes and factors associated with residual anterior circulation aneurysms six months following FD.



Methods: Retrospective review of all anterior circulation aneurysms FD procedures at our facility from 5/11-1/14 with six month radiographic follow-up. Treatment data included: presentation, number of aneurysms, location, size, morphology, procedural duration, complications, number of FD, and adjunct devices. Patient characteristics: age, sex, BMI, medical comorbidities, smoking history and coagulation profile. Cases with dissections, dissecting aneurysms, pseudoaneurysms and incomplete follow-up were excluded. Data was analyzed by stepwise logistic regression using MedCalc Statistical Software (Ostend, Belgium).

Results Fifty-three patients met inclusion criteria with 71 aneurysms treated with 58 FDs. The most common aneurysm was ophthalmic segment (40%) and 26% of patients had multiple aneurysms treated by the same device (or devices with overlap for long segments, 3 patients). Sixteen of 53 patients had residual filling at 6 months. No factor reached significance at $P < 0.05$ for residual filling at 6 months. Presence of multiple aneurysms in the treatment segment reached significance at $P = 0.057$, Odds Ratio 2.3 (0.9560 to 5.7959, 95% CI).



References

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6 months following flow diversion with some residual filling.

Conclusions

This series examined patient, anatomic, and procedural data to identify elements associated with residual aneurysm filling 6 months after FD. The presence of multiple aneurysms showed a strong trend towards significance ($P = 0.057$, Odds Ratio 2.3), where 43% of those with multiple aneurysms had residual filling in this series. No element reached significance at $P < 0.05$. Further research is needed with computational fluid dynamics to determine how multiple aneurysms effect FD related changes and residual filling compared to single aneurysms.