Aneurysm recurrence

- Resection of hilar renal artery aneurysm after coil embolization in 10-year-old girl
- Can bioactive glass replace bone grafts after curettage of benign bone Tumors? A systematic review and meta-analysis of randomized controlled trials
- Outcomes after total en bloc spondylectomy at a mean follow-up of 11 years
- A Case of Surgery for a Giant Popliteal Venous Aneurysm Positive for Heparin-Induced Thrombocytopenia Antibodies with Repeated Acute Pulmonary Embolism
- Postoperative Denosumab Therapy in Aneurysmal Bone Cysts and Osteoblastomas: A Case Series and Review of Current Literature
- Comparative analysis of X-ray, CT, and MRI images in patients with chondroblastoma in tubular and non-tubular bones
- External Validation of the ARISE Prediction Models for Aneurysmal Rebleeding After Aneurysmal Subarachnoid Hemorrhage
- Progressive thrombosis and involution of a pediatric giant middle cerebral artery pseudoaneurysm following superficial temporal artery-to-middle cerebral artery bypass: illustrative case



The long-term durability of different modalities of intracranial aneurysm treatment remains unclear. The aim of a study of Hulsbergen et al. was to conduct a meta-analysis comparing long-term rates of intracranial aneurysm recurrence, retreatment, and rebleeding after surgical clipping or endovascular treatment (EVT).

A systematic review of PubMed and EMBASE was performed in accordance with the PRISMA guidelines and a meta-analysis was conducted. Cohort studies and randomized controlled trials (RCTs) with a surgical and an endovascular arm of \geq 10 patients each and a median follow-up of \geq 3 years were included. Pooled effect estimates for reported outcomes were calculated using the random effects model; sensitivity analysis was performed using the fixed effects model. Out of 4876 articles, 11 studies including three RCTs containing 4517 patients were analyzed. Coiling was the modality of EVT in all included studies. In the random-effects model, coiling was associated with an increased relative risk of 8.1 for recurrence (95% CI = 3.8 - 17.2), 4.5 for retreatment (95% CI = 3.4 - 5.9), and 2.1 for rebleeding (95% CI = 1.3 - 3.5); the fixed effects model yielded similar results. Meta-regression by study design, length of follow-up, age, aneurysm size, ruptured vs. unruptured aneurysms, or posterior vs. anterior location did not yield significant results (all p-interactions > .05). No significant publication bias was identified.

These results indicate better long-term durability of clipping compared to coiling-based EVT. The relatively high incidence of recurrence and retreatment after coiling should be considered when determining treatment strategy ¹⁾.

Angiographic aneurysm recurrence is widely used as a surrogate for treatment failure, but studies documenting the correlation of angiographic recurrence with clinical failure are limited. This trial compares the effectiveness of Matrix(2) polyglycolic/polylactic acid biopolymer-modified coils with bare metal coils and correlates the angiographic findings with clinical failure (ie, target aneurysm recurrence), a composite end point that includes any incident of posttreatment aneurysm rupture, retreatment, or unexplained death.

This was a multicenter randomized noninferiority trial with blinded end point adjudication. McDougall et al. enrolled 626 patients, divided between Matrix(2) and bare metal coil groups. The primary outcome was target aneurysm recurrence at 12 ± 3 months.

At 455 days, at least 1 target aneurysm recurrence event had occurred in 14.6% of patients treated with bare metal coils and 13.3% of Matrix(2) (P = .76, log-rank test) patients; 92.8% of target aneurysm recurrence events were re-interventions for aneurysms that had not bled after treatment, and 5.8% of target aneurysm recurrence events resulted from hemorrhage or rehemorrhage, with or without retreatment. Symptomatic re-intervention occurred in only 4 (0.6%) patients. At 455 days, 95.8% of patients with unruptured aneurysms and 90.4% of those with ruptured aneurysms were independent (mRS \leq 2). Target aneurysm recurrence was associated with incomplete initial angiographic aneurysm obliteration, presentation with rupture, and a larger aneurysmal dome and neck size.

Tested Matrix(2) coils were not inferior to bare metal coils. Endovascular coiling of intracranial aneurysms was safe, and the rate of technical success was high. Target aneurysm recurrence is a promising clinical outcome measure that correlates well with established angiographic measurements ²⁾.

References

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