Methods Data was collected on all intracranial aneurysm embolization procedures performed were retrieved from a retrospectively maintained database. All intraoperative complications were gathered. They were categorized into: 1. major complications (consisting of haemorrhagic and thromboembolic events) and 2. Non-major and technical complications (such as stent and coil migration and coil breakage). Time was divided into 3 months increments (quarters) from the date an attending started work as an interventional neuroradiology Attending. The data was visualised as percentage of complications over time (Figure 1).

Results The complication rate for major complication at 1, 3, 5, 10, 15 years was: 5.0%, 6.8%, 7.0%, 6.0% and 5.25% respectively. All complications (Major, non-major and technical) at 1, 3, 5, 10 and 15 years were 9.2%, 9.4%, 9.3%, 8.4% and 7.0% respectively. Complications rates were higher in the first 30 months of an interventionalist attending’s career and decreased thereafter.

Conclusion There was a gradual drop in complication rates with experience long after an attending has completed fellowship training. This complication rate seems to level off after about 6 years of training, which was longer than the authors expected.

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P-013 PREDICTING MASS EFFECT EXACERBATION AFTER PIPELINE EMBOLIZATION OF INTRACRANIAL ANEURYSMS
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Introduction In this study, we investigated the clinical and procedural predictors associated with interval growth manifested as new or worsened mass effect after Pipeline Embolization Device (PED) placement for treatment of intracranial aneurysms.

Methods We evaluated the baseline clinical and procedural characteristics of 46 consecutive patients who underwent 48 PED procedures. The clinical factors analyzed included age, history of smoking, history of hypertension, aneurysm size, pre-existing mass effect, platelet aggregation measured by PDP-200 (electron), and administration of alternative antiplatelet treatment. Procedural factors included fluoroscopy time, adjunctive coiling, and device balloon angioplasty for optimal apposition of the coil. Univariate analyzes using Chi-square and T-tests were conducted for categorical and continuous variables respectively. Multivariate regression model was used to define the strongest predictor of interval growth or worsened mass effect after PED placement. The logistic regression equation was used to determine cut off values for continuous variables included in the model.

Results The median age was 58 (5-88), 35/46 (76%) patients were female, and the median aneurysm size was 14.5 mm (2-38 mm). PED angioplasty was performed in 21/48 (44%) procedures, and adjunctive coiling was performed in 13/48 (27%) procedures. The median fluoroscopy time was 39 (15-114) min.

15/46 (33%) of patients had pre-existing mass effect prior to PED placement, of which 3 had worsened symptoms and 2 had new mass effect after the procedure. Of the 5 patients who had new or worsened mass effect, 4 experienced complete symptomatic resolution, while 1 had a delayed aneurysm rupture requiring vessel sacrifice. 7/15 (46%) patients with pre-existing mass effect eventually experienced symptomatic improvement. Complete aneurysm occlusion rate at 6 months was 32/43 (74%).

Among all baseline clinical and procedural factors, the strongest predictor of interval growth, manifested as new or worsened mass effect, was aneurysm size larger than 18 mm (OR 15.51, p = 0.018).

Conclusions 1. New or worsened mass effect after PED placement may be anticipated in patients with intracranial aneurysm exceeding 18 mm in size. Although this phenomenon is uncommon and transient in most cases, physicians should be aware as pre-procedural counselling, administration of steroids, or close follow may be warranted.

2. Overall, PED placement is an effective treatment of symptomatic mass effect from intracranial aneurysms with 46% success rate in our cohort.

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Conclusion

The DSA TT correlated with improvements in neurological status in patients with clinical vasospasm. TT might reflect a better way to assess vasospasm severity and response to treatment as compared to vessel diameter. This method may serve as a useful indirect technique for cerebral blood flow assessment in the angiography suite.

Disclosures

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Abstract P-014

Figure 1

Transit time (TT) in major cerebral arteries in patient with severe vasospasm before (A) and after (B) endovascular treatment

Abstract P-014 Figure 1

Transit time (TT) in major cerebral arteries in patient with severe vasospasm before (A) and after (B) endovascular treatment

Abstract P-014 Figure 2

ACA and MCA transit time in patients before and after endovascular treatment

Introduction

Angiogram negative subarachnoid haemorrhage (AN-SAH) account for about 15% of all non-traumatic SAH cases. In this paper we developed a new CT based grading system for distinguishing AN-SAH cases, aneurysmal SAH (a-SAH).

Methods

A new CT grading classification was developed based on the Hijdra system. Patterns of SAH in 13 cisterns were scored between 0–2 depending on the amount of haemorrhage (0 = No blood; 1 = partial; 2 = full). The patterns of blood in the interpeduncular, pre-pontine and pre-medullary cisterns were scored in one category: P score (range 0–6); the total amount of blood in the entire 13 cisterns was scored under T score (range 0–26). Initial CT scans from 148 consecutive AN-SAH and 180 a-SAH patients were reviewed and scored by two independent blinded neurosurgeons. Patients with pure cortical or traumatic SAH or those with CT scan performed >72 h after the SAH ictus were excluded. All performed angiograms (1st, 2nd and 3rd look, if performed) were reviewed for presence of aneurysms.

Results

In patients with CT scan scores between P0-1; T < 9, the performed angiograms were positive in 92% (23 a-SAH vs. 2 AN-SAH), whereas in those scoring P0-1; T ≥ 10 angiography revealed a much higher incidence of positive findings (52% a-SAH vs. 48% AN-SAH, p = 0.33). For P<10: T < x+8 (x between 2–6), the angiograms were negative in 94.6% of cases (3 a-SAH vs. 53 AN-SAH), and in a subset of this category (P4-6; T < 14) the angiograms were negative in 100% of cases (n = 34). For patients scoring (P0-1; T < 10) and P<10: T > x+7(x between 2–6) the scores were not predictive of angiogram results (65% a-SAH vs. AN-SAH 35%).

Conclusion

The new CT scan scoring provides an estimate for the likelihood of a negative angiogram in patients with SAH. Significant blood in the pre-brainstem cisterns with minimal or modest blood in the remaining cisterns best predicts absence of aneurysm or vascular lesion on initial and follow-up angiography.

Disclosures

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