

Digital subtraction angiography in primary non-aneurysmal subarachnoid hemorrhage: overdiagnosis or useful clarification of causes? [Abstract]

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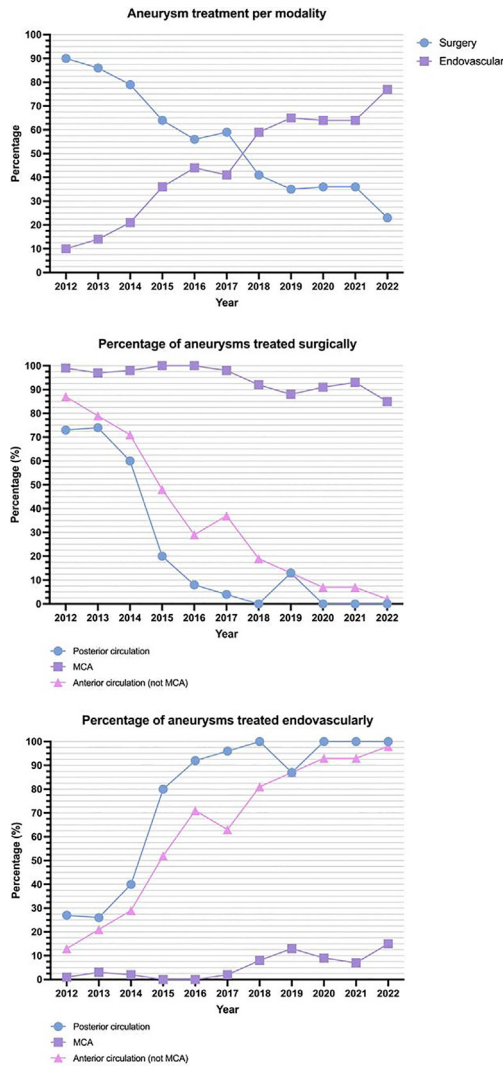
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aneurysms (10.0%/year) and ruptured internal carotid aneurysms (9.0%/year). There was no change in treatment modality for middle cerebral artery aneurysms, of which 85% were still surgically treated in 2022. A trend towards an increasing size for treated ruptured aneurysms was found ($p=0.033$).

Conclusions: A significant shift of the treatment modality from surgical to endovascular treatment occurred for all aneurysm locations except for middle cerebral artery aneurysms. Whether this shift has affected long-term safety and patient outcomes should be assessed in the future.

Optional Image



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Digital Subtraction Angiography in Primary Non-Aneurysmal Subarachnoid Hemorrhage: Overdiagnosis or Useful Clarification of Causes?

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Oral e-Poster Presentations - Booth 4: Emerging Technologies & Innovation 1, Research, October 16, 2024, 12:40 PM - 2:10 PM

Background: Subarachnoid hemorrhage (SAH), most often being caused of intracranial aneurysms harbors a risk of rebleeding, being highest during the first days after the initial SAH. Therefore, it is important to differentiate between aneurysmal and non-aneurysmal SAH. The gold standard to exclude intracranial

bleeding sources is the digital subtraction angiography (DSA). However, the role of DSA in perimesencephalic bleeding (PM SAH) pattern is unclear and up to date, it is not recommended in these patients.

Methods: A retrospective analysis of patients suffering from non-aneurysmal SAH patients being admitted and treated from January 2010 to January 2021 was performed. These were distributed into non-perimesencephalic (NPM) SAH (n=29) and PM SAH (n=71). All patients underwent at least one CT or MR angiogram and one DSA.

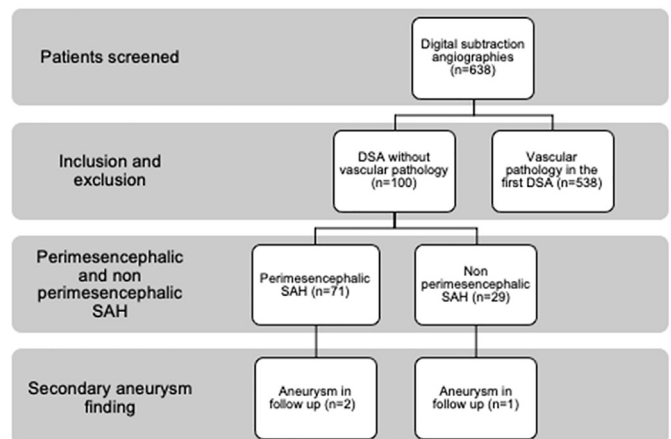
Results: In total, 100 patients with a mean age of 54.9 years (range: 27-84 years) met the inclusion criteria. Female to male ratio was 1.6:1 with 62% females being included. A total number of 96 DSA have been performed in 71 PM SAH patients. These revealed aneurysms of the cerebrovascular system in two patients (one middle cerebral artery bifurcation aneurysm and one basilar tip aneurysm), however only one of these aneurysms could be accounted for the initial bleeding (basilar tip aneurysm). This results in a rate of secondary aneurysm findings in 2/96 (2.1%) in DSA, whereof only 1/96 (1%) lead to diagnostic and therapy of a ruptured aneurysm.

In NPM SAH, 39 DSA in 21 patients revealed one basilar trunk aneurysm being the cause of SAH. This leads to the percentage of 2.6% secondary aneurysm findings in NPM SAH. In total, in 2% of the patients included, aneurysms were identified as a cause of SAH by repetitive DSA.

Conclusions: Even if the percentage of secondary aneurysm finding is low, the risk of rebleeding in case of an unsecured aneurysm could be live threatening and therefore we suggest repetitive DSA in every SAH case with special attention to the basilar artery.

Optional Image

Figure 1: Number of patients screened and included for evaluation



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Assistant Robotic Arm In Endoscopic Surgery

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Oral e-Poster Presentations - Booth 4: Emerging Technologies & Innovation 1, Research, October 16, 2024, 12:40 PM - 2:10 PM

Background: This study aimed to develop a robotic system with autonomous functionality for holding and manipulating the endoscope in endoscopic trans-nasal surgery. A cost-effective prototype was created with the goal of using robotic assistance and more efficient learning curve for endoscopic surgery (Figure 1).

Methods: The study utilized a "Stewart Platform" based endoscope holder and positioner robotic system, developed by our Mechatronics Engineering Department, in conjunction with open-source health technology softwares. Following initial configuration on an 3D skull model, the system was applied to a freshly frozen cadaver.

Results: The robotic system and its registration process proved feasible, allowing the robot to autonomously reach predetermined anatomical points during the