

1.1. Aneurysms

P100 STRUCTURAL MECHANIC CHARACTERISTICS OF STABLE CEREBRAL ANEURYSMS

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Introduction Stable cerebral aneurysms are assumed to be aneurysms without any significant geometric change over the period of at least three subsequent yearly checkups. Many studies using computational fluid dynamics have been able to demonstrate hemodynamic differences between ruptured and unruptured aneurysms. Although dynamic simulations including complex flow models have already been performed, there are only a few computational studies focusing on the structural mechanics of cerebral aneurysms.

Aim of Study The aim of this study is to show characteristic scenarios for stable aneurysms for correct identification during regular checkups.

Methods Stable cerebral aneurysms were analyzed with Fluid-Structure Interaction simulations identifying scenarios in the structural mechanic behavior. Digital subtraction angiography images, computed tomography angiography images and magnetic resonance angiography images of nineteen patients were transferred into geometric format for the simulations including fluid mechanics of the blood flow and structural mechanics of the wall. For data evaluation solely Mises stress values from the structural results were taken.

Results Two scenarios were identified in the wall stress distribution of stable cerebral aneurysms. In one scenario, two distinct high stress regions can be identified on the sides of the aneurysms, whereas in the second scenario, high stress regions can be located at arbitrary positions on the aneurysm. Additionally, statistical evaluation shows a significant difference ($p=0.0014$) in Mises stress between the two scenarios. Wall stress may be taken as indicator for different behavior patterns.

Conclusion In this work, we were able to show structural mechanic behavior of stable cerebral aneurysms with the help of Fluid-Structure interaction simulations.

Disclosure of Interest no.

P101 ANEURYSM ORIGINATING FROM EMBRYOLOGICAL VARIANT PRIMITIVE LATERAL BASILOVERTEBRAL ANASTOMOSIS

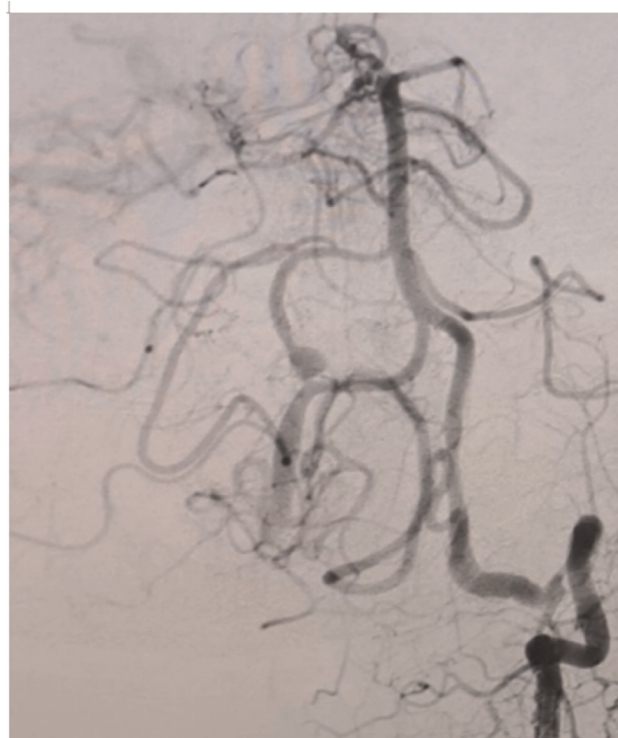
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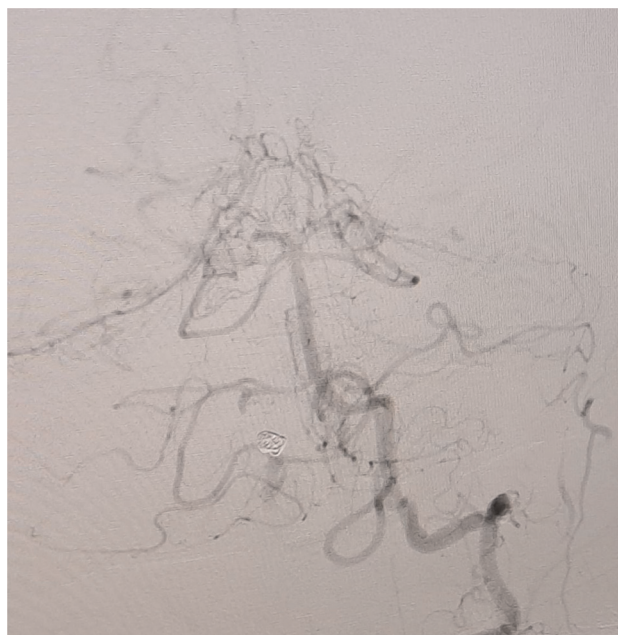
Introduction The primitive lateral basilovertbral anastomosis (PLBA) is an embryonic longitudinal channel connecting developing branches of the vertebrobasilar system. It represents the cranial equivalent of the posterior-lateral spinal artery.

Aim of Study We report a case of aneurysm arising from such an anomaly.

Methods A 38-year-old male presented with headache and sudden unconsciousness. CT scan revealed subarachnoid hemorrhage (SAH) and intraventricular bleed. Cerebral angiogram



Abstract P101 Figure 1 Aneurysm arising from abnormal connection between right AICA and PICA



Abstract P101 Figure 2 Coiling done for aneurysm arising from PLBA