

Abstract

Therapy and follow-up of patients with atypical vascular malformations are not standardized. The goals of this dissertation are the comparison of relevant treatment and imaging methods, the determination of an optimal follow-up program based on the type of lesion or the character of therapy, and the documentation of the behavior of atypical malformations after incomplete closure.

Long-term observation of 195 embolized dural arteriovenous malformations (DAVM) confirmed the high success rate of Onyx embolic material compared to other agents – complete occlusion was achieved in 88% of cases compared to 35% in the control group. A total of 93% of DAVMs treated with Onyx were closed at the last follow-up. The material also proved to be stable in the long term. Recurrence was diagnosed in 1,8% of patients. The recurrences of DAVM occur due to the accentuation of originally negligible vascular fistulas that are not visible on post-interventional digital subtraction angiography (DSA). Prospective comparison of magnetic resonance angiography (MRA) and DSA concluded that patients after complete embolization of dural fistula can be safely followed using only MRA.

In the case of carotid-cavernous fistulas (CCFs), imaging and clinical outcomes of traditional and new endovascular materials, as well as non-invasive techniques, were analyzed. According to a review study of indirect CCFs, endovascular materials are equal. Non-invasive methods, stereotactic radiotherapy and carotid compression, achieved a lower occlusion rate (72% vs. 83%) but at least equivalent clinical outcomes. Retrospective monocentric analysis revealed a significantly higher risk of ischemic complications (23%) when using liquid embolizates in indirect CCFs. Flow-diverters, compared to coils, did not show significant advantages; therefore, they should be considered a secondary option for direct CCFs that cannot be treated by coiling only. In prospective study of patients after partial embolization of CCF, a high percentage of spontaneous thrombosis (90%) was recorded. In 21% of patients, MRA did not show a persistent fistula. Therefore, it is essential to monitor the patient after partial embolization of CCF using DSA until the confirmation of CCF closure.

Keywords

Angiography, carotid-cavernous fistula, dural arteriovenous malformation, embolization, magnetic resonance