Implementation of preoperative embolization of intracranial meningiomas: a preliminary experience

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Background: Preoperative embolization of intracranial tumors is used for more than four decades to minimize intraoperative bleeding and facilitate surgical removal. The goal of embolization is to occlude intratumoral vessels and the large feeding arteries. Preoperative embolization is recommended for large menigiomas (>3–4 cm in diameter) with pure or predominant external carotid artery supply, tumors in eloquent areas and hypervascular tumors. Debate remains on several aspects of preoperative embolization of meningiomas including selection of embolic agent and injected volume as well as optimal timing of embolization before the open surgery.
Content: The presentation provides a brief overview of embolization agents and techniques. We also present two patients with large intracranial meningiomas (located on the sphenoid wing and the parasagittal region) who underwent microsurgery during the same session after endovascular treatment. In both cases the tumor was embolized with microparticles, after which we resected the tumor in our hybrid operating room. Complete tumor resection (Simpson Grade II) was achieved in both cases. The estimated blood loss was about 500 ml for each intervention. Postoperative histopathological exam revealed embolization particles in tumor vessels and small foci of necrosis.
Conclusions: The implementation of preoperative embolization can further improve the treatment strategy of intracranial tumors in our country. We hope that the combination of microsurgical and endovascular techniques would lead to improvement in overall clinical outcomes and further reduce the mortality and morbidity of neurooncological patients.
Key words: interventional neuroradiology, preoperative embolization, intracranial tumor, meningioma, hybrid operation.