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.

Diagnostic accuracy of computed tomography findings in premature infants with bronchopulmonary dysplasia

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Background: Bronchopulmonary dysplasia (BPD) is the most common chronic lung disease in newborns and premature infants. Low radiation dose high-resolution chest computed tomography (CT) holds great potential for providing valuable information related to the severity of BPD in premature infants and guiding the treatment strategy. The study aimed to evaluate the chest CT findings in premature infants with bronchopulmonary dysplasia (BPD).

Material and methods: The study included a total of 32 premature infants with BPD who underwent a high-resolution chest CT between January 2015 and February 2018. Their CT findings were analyzed and diagnostic value evaluated.

Results: The 3 most frequent CT findings included: mosaic lung parenchymal pattern – noted in 93.8% (30/32) patients, bronchial wall thickening – noted in 90.6% (29/32) patients and subpleural triangular/linear opacities – noted in 87.5% (28/32) patients. The diagnostic accuracy of each CT finding was as follows: mosaic lung parenchymal pattern – 89.13% (95% CI from 76.43% to 96.38%), bronchial wall thickening – 85.42% (95% CI from 72.24% to 93.93%), subpleural triangular/linear opacities – 81.25% (95% CI from 69.54% to 89.92%).

Conclusions: Low radiation dose high-resolution chest computed tomography provided valuable diagnostic information in premature infants with BPD. The most accurate diagnostic finding was the mosaic lung parenchymal pattern, which was frequently associated with bronchial wall thickening and subpleural triangular/linear opacities.

Key words: bronchopulmonary dysplasia, low radiation dose high-resolution chest CT, mosaic lung parenchymal pattern.