

Does preoperative embolization improve progression-free survival in patients with high-grade meningiomas?

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Introduction

Preoperative embolization for the treatment of intracranial meningiomas is controversial, and clinical benefit is difficult to demonstrate. We hypothesized that progression-free survival would be improved in the treatment of World Health Organization (WHO) grade 2 and 3 tumors which underwent significant (>75% reduction in angiographic tumor blush) preoperative embolization.

Methods

We reviewed all WHO grade II and III tumors treated with embolization and subsequent surgical resection between 2000-2010. Data regarding extent of embolization, extent of resection, recurrence rates, endovascular complications, and progression-free survival were analyzed.

Learning Objectives

Understand the role of preoperative embolization in the treatment of high-grade intracranial meningiomas.

Results

Overall, 43 high-grade intracranial meningiomas underwent preoperative embolization and were followed for a mean of 4.6 years. Gross total resection was achieved in 62.7%, and postoperative radiotherapy was performed in 47.6% of patients. Pathology revealed necrosis in 61% of specimens. The overall progression-free survival was 35.9 months. Endovascular complications were seen in 3% of patients.

The mean progression-free survival for tumors that were significantly embolized was greater than that of tumors that had less successful embolization (38.6 months vs. 28.5 months, $p < .05$).

Conclusions

Preoperative embolization of WHO grade 2 and 3 meningiomas confers a significant progression-free survival benefit in patients in whom a substantial (>75%) embolization can be obtained. Further study is needed to determine what role, if any, suboptimal embolization plays in the treatment of these challenging tumors.