

Meningiomas Invading the Major Dural Sinuses: Long-Term Results of Attempted Radical Resection and Adjuvant Treatment After Subtotal Resection

Seonah Choi MD; Soo Jeong Park; Kyoung Su Sung; Ju Hyung Moon; Eui Hyun Kim MD; Won Seok Chang MD; Chang Ki Hong MD, PhD; Kyu Sung Lee MD; Jong Hee Chang MD, PhD
Dept. of Neurosurgery, Brain Tumor Center,
Yonsei University College of Medicine, Seoul, South Korea

Introduction

Radical resection of meningiomas invading the major dural sinuses remains controversial. In particular, whether the fragment invading the sinus must be resected and whether the venous system must be reconstructed continue to be issues of debate. The aims of this study are to evaluate results of patients with a meningioma infiltrating the major dural sinuses and to discuss our management strategy.

Methods

Between 2003 and 2015, 103 patients (75 women and 28 men; mean age, 54.0±13.5 (18-83) year-old) underwent surgery for meningiomas originating at the superior sagittal sinus in 82, the transverse sinus in 12, the sigmoid sinus in 13, and the confluence of sinuses in 6. Meningiomas even if it was adjacent to the sinus and not invading its wall, as well as any tumor potentially detachable from the lateral wall, were excluded from this series.

Results

Total and nearly(grossly) total resection was achieved in 49 (47.5%) of cases. In grossly total resection group, 19 patients with a meningioma totally occluding the major dural sinus had complete resection of the encased portion of the sinus. In the remaining 30 patients, the opened sinus was closed with hemostatic materials or was sutured for repair of sinus wall after the resection of the tumor. The grossly total resection group was better than subtotal resection group in terms of progression free survival. In the subtotal resection group of grade I meningioma patients, performing adjuvant stereotactic radiosurgery(SRS) was effective than follow-up group without adjuvant treatment in considering progression free survival and recurrence rate.

Conclusions

We conclude that if the sinus is completely obstructed, the portion of the sinus involved can be resected completely. However, if the sinus is incompletely occluded or adjacent drainage vein could not be dissected from tumor, subtotal resection of the tumor followed by SRS may be a good alternative treatment option.

Learning Objectives

By the conclusion of this session, participants should be able to 1) describe the importance of intraoperative sinus injury considering postoperative complications 2) discuss, in small groups, about WHO grading system and prognosis of meningiomas 3) identify an effective treatment for meningiomas which invaded sinuses.