

Risk of Developing Postoperative Deficits Based on Tumor Location After Surgical Resection of an Intracranial Meningioma

Jeff Ehresman BS; Kelly Gassie; Tomas Garzon-Muvdi MD MS; Davis Rogers BA; Michael Lim MD; Gary L. Gallia MD; Jon D. Weingart MD; Henry Brem MD; Chetan Bettegowda MD, PhD; Kaisorn L. Chaichana MD

Introduction

Meningiomas occur in various intracranial locations. Each location is associated with a unique set of surgical nuances and risk profiles. The incidence and risk factors that predispose patients to certain deficits based on tumor locations are not clear. This study aimed to determine which preoperative factors increase the risk of patients having new deficits after surgery based on tumor location for patients undergoing intracranial meningioma surgery.

Methods

Adult patients who underwent primary, non-biopsy resection of a meningioma at a tertiary care institution between 2007 and 2015 were retrospectively reviewed. Stepwise multivariate logistic regression analyses were used to identify associations with postoperative deficits based on tumor location.

Results

Of the 659 included patients, the tumors were location along the convexity in 188 (28.5%), anterior skull base in 81 (12.3%), parasagittal/parafalcine in 169 (25.6%), tentorial in 34 (5.2%), sphenoid wing in 112 (17.0%), cerebello-pontine angle in 67 (10.2%), and foramen magnum in 9 (1.4%). The factors independently associated with any postoperative deficits were Simpson grade 4 resections (HR [95 % CI] 2.171 [1.301-3.598], $p = 0.003$), non-convexity tumors (HR [95 % CI], 2.201 [1.168-4.472], $p = 0.01$), coronary artery disease (HR [95 % CI] 4.657 [1.852-11.122], $p = 0.002$), and KPS < 70 (HR [95 % CI] 2.222 [1.262-3.819], $p = 0.006$).

Conclusions

Consideration of the factors associated with postoperative deficits in this study may help guide treatment strategies for patients with meningiomas.

Learning Objectives

By the conclusion of this session, participants should be able to

- 1) explain how postoperative deficits vary with tumor location and
- 2) explain the factors independently associated with higher rates of different postoperative deficits