CNS 27 ANNUAL 07 MASSACHUSETTS 0CTOBER 7-11,2017

Scalp invasion by atypical or anaplastic meningioma is a risk factor for development of systemic metastasis

Russell Maxwell; Tomas Garzon-Muvdi MD MS; Andrew Luksik BA; Remi Aria Kessler; Jon D. Weingart MD; Alessandro Olivi MD; Chetan Bettegowda MD, PhD; Rafael Jesus Tamargo MD; Henry Brem MD; Michael Lim MD

Introduction

Atypical and anaplastic meningiomas (AAM) are rare and comprise approximately 5% of all meningiomas. Extracranial metastases in meningioma patients occur in 0.1% of all cases but these lesions are difficult to treat and may be a poor prognostic factor.

Methods

We performed a retrospective chart review between 1990-2016 of patients who had surgical resection of AAM. In a cohort of 149 patients, 6 had metastatic lesions that were histologically confirmed to be meningioma. We compared baseline characteristics between patients with and without metastasis and performed a multivariate Cox regression analysis to assess risk factors for the development of systemic metastasis.

Results

Six patients had histologically confirmed meningioma metastasis. Nine out of the 143 patients without metastasis had scalp invasion, whereas 4 out of the 6 patients with metastasis had scalp invasion. Patients with metastasis had a median age of 62.5±20, patients without metastasis had a median age of 59±15 years. Gender distribution was very similar, 50% of patients in each group were female. Eighty-five percent of patients with metastatic disease were white and 65% of patients without metastatic disease were white. 77% of patients without metastatic disease had WHO-II tumors, whereas 50% of patients with metastatic disease had WHO-II tumors. In multivariate analysis including age, tumor grade, size, location, extent of resection, sex, and scalp invasion, the only significant predictor of metastasis was scalp invasion (OR=39.67;95%CI=3.74-421.12;p=0.0023). Median overall survival (OS) with metastasis was 126 months, median OS without metastasis was 158 months. Having metastatic disease was not significantly associated with worse OS (p=0.33).

Conclusions

Metastasis development from AAM is a rare but serious event. Because scalp invasion is a strongly associated predictive factor for development of systemic metastasis in patients with AAM, it is necessary to consider strategies to prevent and to be vigilant of the development of scalp invasion.

Learning Objectives

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

1)Understand risk factors that are associated with metastasis from intracranial WHO II and III meningiomas

2)Understand the impact of the development of systemic metastasis in the survival of patients with atypical or anaplastic meningiomas

3)Understand potential strategies to prevent scalp invasion.

[Default Poster]