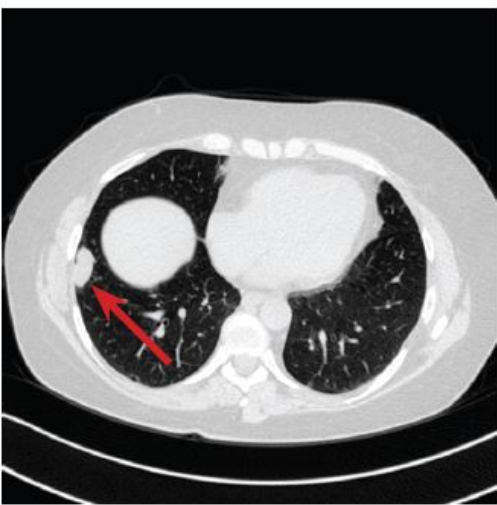


Introduction

Metastatic meningioma (MM) is a rare neurosurgical entity, and synchronous presentation of primary and metastatic tumors in a grade I lesion is less common still. The prevalence of MM has been reported as 0.1% for WHO grade I lesions and up to 1-10% overall, with 5% observed in atypical cases and 30% in anaplastic cases. We report an incidentally-diagnosed synchronous pulmonary metastasis from an asymptomatic grade I primary intracranial meningioma.

Methods

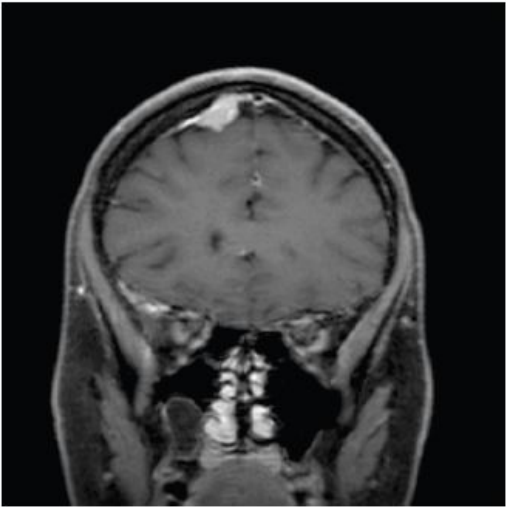
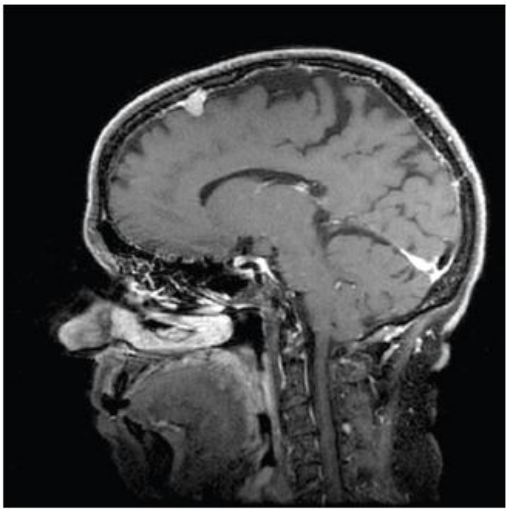
Retrospective chart review; literature review.



Non-contrast axial chest CT, demonstrating pulmonary mass

Results

A fifty-six-year-old woman was incidentally found to have three pulmonary lesions. Surgical pathology demonstrated S100- and EMA-positive low-grade neoplastic spindle cells, consistent with MM. Imaging of the neuraxis demonstrated a 1.5cm right frontal parafalcine lobulated enhancing dural mass. A right frontal craniotomy was performed, and intraoperatively the tumor was observed to invade through the dura and into the overlying calvarium, with parasitization of a large parasagittal vein. Gross total resection was achieved, and final pathology was consistent with a WHO grade I meningothelial and psammomatous meningioma.

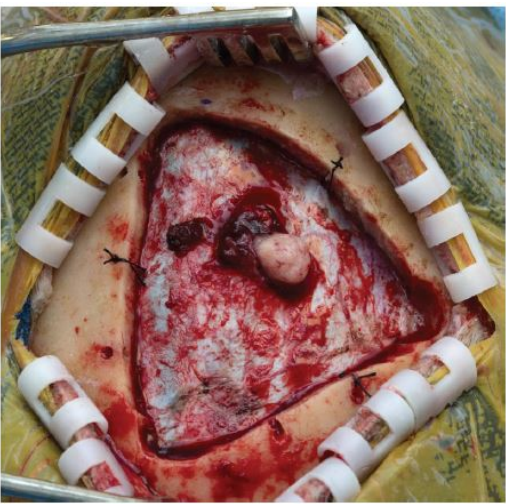


Saggital and coronal gadolinium-enhanced T1-weighted MRI of the brain showing a 1.5cmright frontal parafalcine lobulated enhancing dural mass

Conclusions

Meningiomas are the most common primary extra-axial central nervous system tumors, yet metastasis is exceedingly rare and poorly documented. Characterization of MM is required to provide appropriate prognostic and therapeutic counseling.

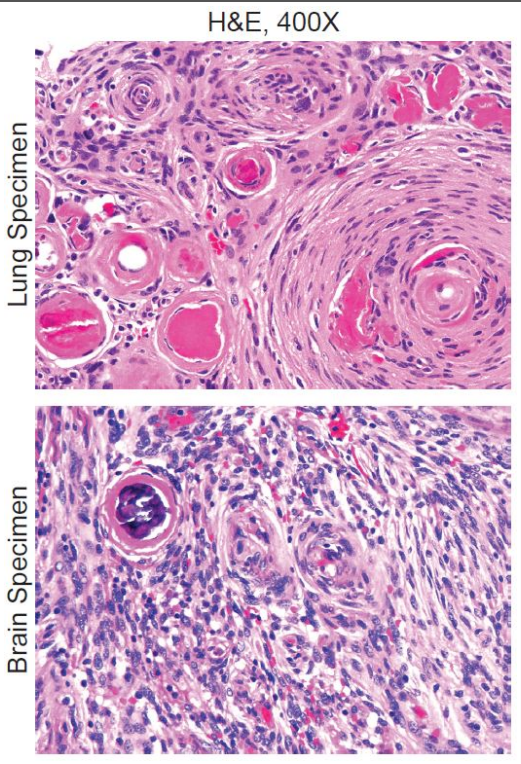
Given the highly-aggressive intraoperative findings observed in the present case—including local invasion of the dura, bone, and vasculature, and the presence of multiple distant metastases—we believe that the current diagnostic scheme may not completely capture the true metastatic potential of grade I meningioma. Further study is also required to establish whether early metastasis is a risk for recurrence at the primary site, which would indicate more aggressive follow-up and treatment, even in WHO grade I lesions.



Dual invasion; vein parasitization

Learning Objectives

By the conclusion of this session, participants should be able to: 1) Describe the epidemiology and typical clinical presentation of metastatic meningioma, 2) Discuss the natural history, imaging, and pathologic findings in metastatic meningioma, 2) Explain why current WHO grading may not fully characterize the behavior of these tumors.



References

Enam SA, Abdulrauf S, Mehta B, Malik GM, Mahmood A: Metastasis in meningioma. *Acta neurochirurgica* 138:1172-1177; discussion 1177-1178, 1996

Forest F, Berremila SA, Gyenes C, Ginguene C, Kassir R, Sulaiman A, et al: Metastatic meningiomas: an unusual clinical and pathological diagnosis with highly variable outcome. *Journal of neuro-oncology* 120:411-421, 2014