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### **Pulmonary metastases in patients with recurrent, treatment-resistant meningioma: Prognosis and identification by (111) indium-octreotide imaging.**

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#### **Abstract**

**BACKGROUND:** Meningioma is the most common extra-axial primary intracranial tumor in adults that rarely metastasizes outside of the central nervous system (CNS). Among recognized sites of metastases, the lung is the most common, but the importance of lung metastases relative to prognosis is unknown. (111) Indium ((111) In)-octreotide scintigraphy (octreotide scanning) is a valuable imaging modality with which to evaluate intracranial meningiomas and their response to treatment with somatostatin analogues and has the potential to identify extracranial metastatic disease.

**METHODS:** In this retrospective multicenter study, adult patients treated for recurrent meningioma were identified. These patients underwent (111) In-octreotide positron emission tomography/computed tomography imaging (octreotide scintigraphy) and were found to have positive octreotide uptake in their lungs.

**RESULTS:** Six cases were identified with recurrent meningioma (after surgery, radiotherapy, and at least 1 chemotherapy agent) and pulmonary lesions by octreotide scintigraphy. Biopsy of a pulmonary lesion in 1 patient confirmed the diagnosis of metastatic meningioma. Patients with metastatic pulmonary involvement identified by (111) In-octreotide scintigraphy in this case series had an overall survival of 6 months, which is less than that reported from previously published series of patients with unknown systemic disease status.

**CONCLUSIONS:** (111) In-octreotide scintigraphy is useful for assessing both CNS disease and extracranial metastases. The presence of pulmonary metastases appears to negatively affect survival in patients with recurrent meningioma. The usefulness of (111) In-octreotide scintigraphy should be considered in staging patients with recurrent meningioma who are considered for further treatment. A prospective study to confirm this finding is warranted. Cancer 2011;. Published 2011 by the American Cancer Society.

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