

Occipital lobe metastases

The relative frequency of brain metastases in various anatomical regions of the brain showed that malignant melanoma tends to metastasize to the frontal and temporal lobes, breast carcinoma to the cerebellum and the basal ganglia, [Large-cell lung carcinoma](#) to the [occipital lobe](#) and squamous cell carcinoma of the lung to the cerebellum. Metastases of small cell carcinoma of the lung were found equally distributed in all regions of the brain. Our study supports the results of several experimental investigations, suggesting the possibility that specific cell surface properties of metastasizing tumour cells and particular properties of the vascular endothelium of the target organs of metastases are responsible for the location of metastases. The results of this study suggest that there are substantial differences in regard to these properties even within one target organ ¹⁾.

The nuanced impact of the treatment of brain metastases is highlighted in the scenario of metastases involving bilateral occipital lobes, which pose heightened risk to vision loss with or without intervention ²⁾.

As patients with metastatic brain metastases have a poor prognosis, ³⁾ understanding risk of visual deterioration is vital in considering treatment.

Case reports

A 61-year-old man who had had a tumor shadow in the right middle lung field identified at a medical examination 5 weeks previously had suddenly experienced a disturbance of consciousness. Head computed tomography and computed tomography angiography revealed a right occipital subcortical hemorrhage with abnormal vessels, suggesting a ruptured AVM. Magnetic resonance imaging with gadolinium-based contrast agents did not show any other lesions. Cerebral angiography revealed a Spetzler-Martin grade III AVM in the right occipital lobe. Endovascular feeder embolization and subsequent removal of the AVM were performed. Histopathological examination of the resected mass showed a small cell carcinoma that had metastasized to the AVM. The tumor cells had infiltrated to the vessel walls of the feeders, which might have elicited the bleeding.

Conclusion: Although rare, clinicians should recognize that undifferentiated carcinomas can metastasize to AVMs and cause bleeding. Because the preoperative diagnosis can be difficult, even using the latest imaging modalities, careful examination of the resected specimen is required to reveal such pathological conditions ⁴⁾.

A 70-year-old woman was admitted to our hospital for a 1-month history of headache and pain in her lower extremities.

Diagnosis: Brain and lumbar vertebral magnetic resonance imaging showed an intracranial space-occupying lesion in the right occipital region and spinal canal stenosis. Pulmonary computed tomography showed an irregular mass in the right upper lobe of the lung. The postoperative histological examination demonstrated adenocarcinoma metastases to meningioma.

Intervention: The patient underwent right occipital craniotomy for tumor removal and lumbar spinal canal decompression.

Outcomes: There were no initial abnormal conditions after the operation. However, the patient died suddenly 7 days after surgery.

Lessons: Tumor-to-meningioma metastases is a rare but important phenomenon. According to previous reports, it is associated with rapid onset of symptoms and a poor prognosis. Histological examination is of great importance in diagnosis. The history and process of malignant carcinoma should be closely monitored ⁵⁾.

Gallagher RJ, Liverman CS, Arnold PM. Papillary thyroid adenocarcinoma with occipital lobe metastases 48 years after original diagnosis: case report. *Acta Oncol.* 2014 Jan;53(1):154-7. doi: 10.3109/0284186X.2013.787166. Epub 2013 Apr 18. PMID: 23594202.

Patients with symptomatic bilateral occipital lobe metastases may experience visual improvement following intervention, especially if symptoms stem from compression or edema. Those without visual symptoms are at risk of developing new visual deficits during treatment, which should be included in the decision-making process and when counseling patients. Visual deficits improved after surgery in the majority of patients, with no cases of immediate visual deterioration ⁶⁾.

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