Metastatic melanoma simulating subdural hematoma

Case report


Departments of Radiology and Neurosurgery, Prince Henry Hospital, Little Bay, New South Wales, Australia

Metastatic melanoma tends to be found in subcortical white matter and this localization may produce clinical or radiological features that are unusual in metastatic disease. A case is described that closely simulated a subdural hematoma both clinically and radiologically.

KEY WORDS • cerebral metastasis • melanoma • subdural hematoma

Metastasis to the central nervous system occurs in approximately 50% of cases of malignant melanomas. The tumor may be found anywhere in the brain or spinal cord. However, there appears to be a distinct potentiality for melanoma metastases to localize in the subcortical white matter. The tumor may subsequently rupture onto the cortical surface, which may lead to clinical or radiological features that are unusual in metastatic disease.

Case Report

This 33-year-old woman presented with frontal headaches which had persisted since she hit her head against a garage door 3 weeks previously. The blow was not severe and consciousness was not impaired. One week before admission she developed clumsiness and weakness in the left arm.

Examination. At the time of admission, she was conscious and well oriented. The only positive findings were early papilledema and mild left hemiparesis. A radioisotope cerebral scan with technetium-99m pertechnetate demonstrated abnormal uptake in the right parietotemporal region, and electroencephalography revealed abnormal slow wave activity in the same region. Blood counts, electrolytes, urinalysis and a chest radiograph were normal.

Right common carotid angiography showed a 5-mm “square” shift of the pericallosal artery to the left side. There was also a crescent-shaped avascular space overlying the right temporal lobe (Fig. 1). This was demonstrated to better advantage in the oblique view. No neovascularity was identified. These studies and the history of recent head trauma led to a confident diagnosis of subdural hematoma.

Operation. At operation (Dr. A. Gonski) a reddish-black tumor was found lying over the temporal lobe surface and occupying the space noted on the angiograms. Frozen section confirmed a diagnosis of malignant melanoma, and right temporal lobectomy
was performed. Subsequent detailed histology of the specimen showed typical malignant melanoma.

Postoperative Course. Two weeks after surgery the patient suffered a grand mal seizure, followed by persistent dense left hemiparesis and expressive dysphasia. Repeat radioisotope scan showed several areas of abnormal uptake considered to be further metastases. A poor prognosis was anticipated and the patient was discharged to a hospital nearer her home.

Examination of the patient's skin and mucosal surfaces at no time revealed a primary tumor site. However, her husband eventually recalled a black, raised lump on her shoulder which had appeared about 6 months previously, had grown for a few weeks, and had ultimately disappeared.

Discussion

Metastatic cerebral tumors may be avascular or demonstrate varying degrees and types of neovascularity. While the tendency for neovascularity is greater in certain histological types of tumor, it is seldom possible to predict the primary site from the angiographic appearance.

The tendency of malignant melanoma to localize peripherally may produce certain clinical or radiological features that suggest the diagnosis. Rupture through the cortex of a vascular tumor may be followed by subarachnoid hemorrhage (SAH). Madonick and Savitsky found that 49% of 56 cerebral melanomas developed SAH, while SAH occurred in only two of 56 cases of metastases from other sites. Similarly, contact with the leptomeninges allows development of arterial supply from meningeal vessels. In the series of Wolpert, et al., two of seven vascular metastatic melanomas showed meningeal arterial supply. A similar case, seen in this department, was misdiagnosed as a meningioma because of meningeal arterial supply and homogenous tumor blush.

The present case demonstrates a further manifestation of the unusual behavior of metastatic melanoma. The tumor spreading over the cortex produced an avascular space that simulated a subdural hematoma at angiography. The absence of a detectable primary site suggests that this was a primary melanoma of meningeal origin; such tumors do occur but are extremely rare. However, a much more likely explanation is that the shoulder lesion that regressed was the primary tumor. Regression of primary melanoma in the presence of metastases has been well documented.

References


Address reprint requests to: F. John Palmer, M.B., Ch.B., Department of Diagnostic Radiology, The Prince Henry Hospital, Anzac Parade, Little Bay, New South Wales 2036, Australia.