

Unusual Intracerebral Hemorrhage as a Postoperative Complication of A Metastatic Tumor

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Abstract

Described here is an unusual complication after diagnostic biopsy for brain metastasis.

We admitted a 39-year-old male patient with history of recent onset seizure. MRI revealed multiple lesion. Workup to diagnosis of metastasis was negative. He underwent a lesionectomy. Histological examination identified metastatic adenocarcinoma. After the surgery hemorrhage in corpus callosum deteriorated his neurological status.

Brain metastases represent a significant source of morbidity and mortality in patients with systemic cancer. Among adults, the highest incidence is observed in the fifth to seventh decades of life^[1]. The most common sources of brain metastases in this patient group are cancers of the lung, breast, and skin, in descending order^[2]. As many as 10% to 15% of patients with a clinical diagnosis of metastasis may, in fact, have nonmetastatic lesions such as abscesses or primary tumors^[3]. So in patients without known primary site of tumor, sampling can provide tissue for confirming the diagnosis of metastasis. In other hands post operative hemorrhage has been known as a complication of surgery.

CASE PRESENTATION

The patient is a 39-year old male without serious previous disease or family history of cancer. In November 2007, he had an episode of generalized seizure resulting in hospitalization. His physical examination was normal. A magnetic resonance imaging (MRI) scan of the brain with and without contrast revealed multiple lesions in temporal and right parietal lobe and corpus callosum with enhancement, presumably representing metastatic brain lesions (Figure 1). The metastasis workup, including chest-XRay, computed tomographic (CT) scans of the thorax, abdomen, and pelvis, did not reveal any tumor. Lab exam was in normal value and no bleeding tendency in the hematological examination was found. The PET was not accessible to us.

In December 2007, the patient was admitted in our hospital for diagnostic biopsy. The new brain CT scan was performed

that revealed a new lesion in the right subfrontal area (fig 2).

Figure 1

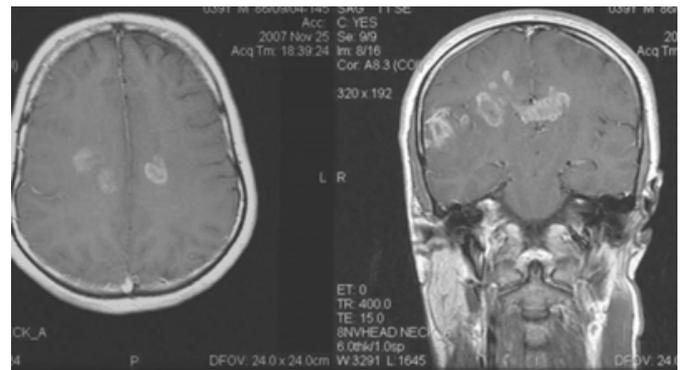


Fig 1: multiple lesion in right parietal lobe and corpus callosum

Figure 2

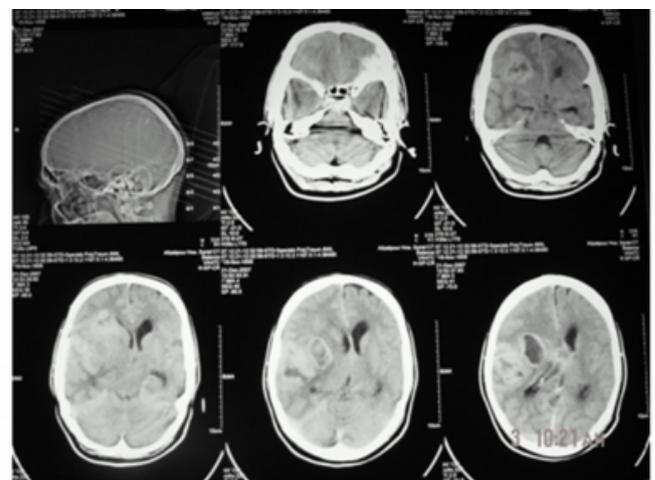


Fig 2: Ct scan without contrast showed new lesion in Rt frontal lobe

Based on a new CT scan, right frontal craniotomy was performed and the lesion was excised completely through a subfrontal approach. The tumor was soft, yellowish gray and fairly well demarcated from the surrounding brain. There was no significant hypervascularity of the tumor. The tumor was totally removed, and little cerebral tissue was sacrificed. Tissue was obtained and sent to laboratory for frozen section. The result was adenocarcinoma. The patient's initial postoperative course was uneventful. He awoke without neurological deficit. He spoke well. There was no bleeding tendency in the hematological examination and the patient was normotensive during post operative period. Twelve hours later, the patient became comatose with decerebrate rigidity. An emergency CT scan revealed symmetrical hemorrhage within both parietal lobes that originated from corpus callosum metastasis (fig3). The neurological status of patients deteriorated rapidly and 2 hour later he was in deep coma with nonreactive pupil. At last, the patient died 3 days later.

Figure 3

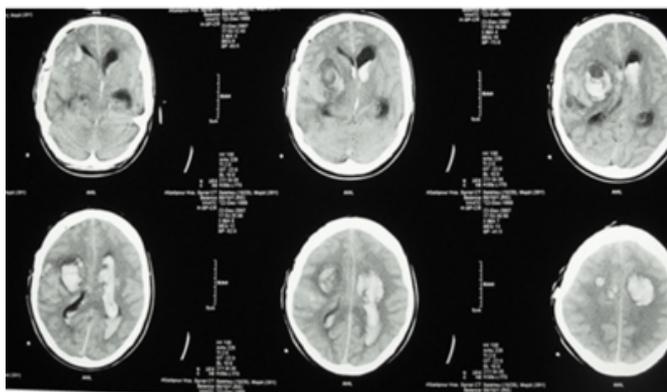


Fig 3: bilateral intracerebral hemorrhage with intraventricular hemorrhage

DISCUSSION

If most cancers are identified early enough, while still localized, cures are the rule rather than the exception. However, once the tumor has metastasized, death, with rare exceptions (e.g. germ cell tumors, leukemias, and lymphomas), is inevitable[2]. For such patients, no matter how vigorous the treatment, survival is short. The strongest independent prognostic factors were performance status,

response to steroids, systemic tumor activity and serum lactate dehydrogenase. Age, number of brain metastases and primary tumor were – although significant– of less importance[4]. Surgery has a significant role in the management of brain metastases and will likely continue to have a prominent role despite the advent of stereotactic radiosurgery. Surgical resection of multiple metastases is also debatable and the only evidence so far supporting this option is based on retrospective studies. There is no debate about surgery for life threatening lesions or for diagnosis – for these two reasons, surgery will always have a role[5]. And in our case, lack of diagnosis after routine evaluation, open surgery for diagnostic biopsy was inevitable. Operative mortality rates of 25 and 38 percent were reported for two large series performed prior to 1960[6]. But recent reports indicate that the current overall 30-day mortality for metastatic brain surgery varies from 2 to 6 percent[7]. Bremer and colleagues reported intracerebral hemorrhage at the site of operation in 41% of patients with metastatic melanoma[8]. The post operative hemorrhage not an unusual complication of metastatic tumor surgery but we could not find post operative corpus callosum hemorrhage with symmetrical fashion.

References

1. Klos, K. and B. O'Neill, Brain metastases. *Neurologist*, 2004. 10(1): p. 31-46.
2. Gavrilovic, I. and J. Posner, Brain metastases: epidemiology and pathophysiology. *Journal of Neuro-Oncology*, 2005. 75(1): p. 5-14.
3. Koç, O., et al., Role of diffusion weighted MR in the discrimination diagnosis of the cystic and/or necrotic head and neck lesions. *European Journal of Radiology*, 2007. 62(2): p. 205-213.
4. Kaal, E., M. Taphoorn, and C. Vecht, Symptomatic management and imaging of brain metastases. *Journal of Neuro-Oncology*, 2005. 75(1): p. 15-20.
5. Modha, A., S. Shepard, and P. Gutin, Surgery of brain metastases-Is there still a place for it? *Journal of Neuro-Oncology*, 2005. 75(1): p. 21-29.
6. SIMIONESCU, M., Metastatic tumors of the brain: a follow-up study of 195 patients with neurosurgical considerations. *J Neurosurg*, 1960. 17: p. 361-73.
7. Patchell, R., et al., A randomized trial of surgery in the treatment of single metastases to the brain. *New Engl J Med*, 1990. 322: p. 494-500.
8. Bremer, A., C. West, and M. Didolkar, An evaluation of the surgical management of melanoma of the brain. *J Surg Oncol*, 1978. 10(3): p. 211-9.

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