



Cerebral Metastasis by Pulmonary Neoplasia Mimicking an Intracerebral Hemorrhage

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Abstract

Hemorrhagic Brain Metastases (BM) from lung cancer manifest as multiple lesions with large edema and irregular shape. The presence of hemorrhagic and non-hemorrhagic lesions in patients with multiple metastases is rare. Our case reports that a 61-year-old woman was admitted to the emergency department with a behavioral disorder, emotional lability, and fatigue of months' duration, accompanied by sudden-onset vomiting, associated with hemicranial headache. The patient was diagnosed with a suspected hemorrhagic brain metastasis due to lung carcinoma. She was diagnosed with a suspected hemorrhagic brain metastasis due to lung carcinoma, and she was undergoing sequential chemotherapy and radiotherapy as an alternative regimen. The present case emphasizes the need to consider hemorrhagic metastasis as a differential diagnosis in patients presenting with solitary intracerebral hemorrhage whose location is uncommon.

Keywords: Brain metastasis; Intracerebral hemorrhage; Lung cancer

Introduction

Brain metastases occur in approximately 30% of patients with metastatic Non-Small Cell Lung Cancer (NSCLC) and confer significant morbidity and poor survival in these patients [1-3]. Ten percent of metastatic patients have brain metastases identified at the time of lung cancer diagnosis, and 14% to 19% of patients with metastatic (NSCLC) develop brain metastases later in the course of their disease.

Hemorrhagic brain metastases from lung cancer manifest as multiple lesions with significant edema and irregular shape. The presence of hemorrhagic and non-hemorrhagic lesions in patients with multiple metastases is rare. We present a patient with multiple intracerebral hemorrhagic lesions whose cause was established as lung cancer metastasis.

Case Presentation

A 68-year-old female patient with a history of smoking was admitted to the emergency department for a 2-month clinical picture with a behavioral disorder of emotional lability between aggression, fatigue, irritability, and depressed mood without improvement with antidepressant therapy. She presented with early and sudden onset of vomiting-associated hemicranial headache. It does not refer to signs of blurred vision, diplopia, seizures, impaired consciousness, motor or sensory deficit, or significant loss of body weight. There was no history of hypertension or family history of cerebral hemorrhage. At admission, her blood pressure was 130/90 mmHg Fc, 84 bpm, Temp: 37.2°C and neurological examination was normal. Laboratory results were without changes. In view of the persistence of headache after therapy, it is decided to perform a CT Brain Skull. During transport, she presents with a generalized partial seizure with the need to ensure airway and anticonvulsant therapy with clinical response and hemodynamic stabilization. Computed tomography showed expansive infra and supratentorial hemorrhagic lesions on the right occipito parietal topography with areas of focal vasogenic edema and slight left deviation of the median structures of possible secondary etiology (Figure 1). After diuretic, anticonvulsant, and corticoid therapy to reduce vasogenic edema, the patient's general condition and state of consciousness improved significantly.

Enhancement of cranioencephalic magnetic resonance imaging that revealed "multiple intra-axial brain lesions spanning both the cerebral and cerebellar hemispheres in more than twenty" and "the multiplicity of lesions, their signal enhancement, and the fact that some have hemosiderin deposition, especially the right occipital lesion, translating likely metastatic deposits (Figure 2)".

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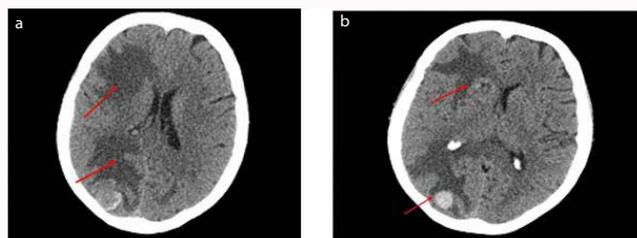


Figure 1: TC-CE. Expansive infra and supratentorial hemorrhagic lesions on the right occipitoparietal topography with areas of focal vasogenic edema and slight left deviation of the median structures.

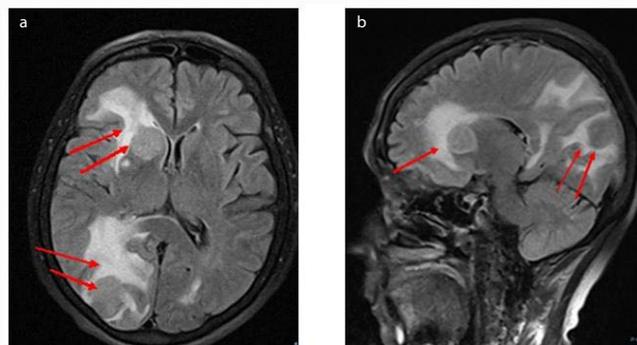


Figure 2: MRI- CE Multiple intra-axial brain lesions spanning both the cerebral and cerebellar hemispheres in more than lesions twenty, especially the right occipital lesion, translating likely metastatic deposits.

Before this result, I start a CT-TAP staging study that showed the “lobular right lung lobe, large nodular lesion suggestive of a primary lesion about 8.2 cm × 4.2 cm axially. The lesion has extensive contact with the adjacent parietal pleura, allowing invasion of the chest wall with erosion of the cortical bone of the 3rd rib that demonstrates some irregularities. On the right are areas of interlobular septal thickening suggestive of carcinomatous lymphangitis in the upper lobe” (Figure 3). We recommended biopsy and fiber bronchoscopy, which presented an anatomopathological result of bronchial mucosa with infiltration (80%) by malignant neoplasia of cells compatible with small cell carcinoma.

The patient was initially submitted to corticosteroid therapy until an initial 35 Gy brain radiotherapy was evaluated and administered for 14 days with an improvement of headache symptoms and changes associated with emotional lability. She was referred to oncological pneumology for the initiation of chemotherapy and then to chemotherapy with cisplatin and etoposide accompanied by simultaneous radiotherapy, but she eventually died at 4 months after treatment.

Discussion

The most common causes of hemorrhagic cerebral metastasis include melanoma, choriocarcinoma, renal cell carcinoma, and bronchogenic carcinoma [4]. The presence of multiple hemorrhagic lesions starting from a single primary pulmonary lesion is rare. Due to the presence of multiple abnormal bilateral nodules in the brain and cerebellum, we considered the hemorrhage to be caused by brain metastases from the lung starting point. Brain metastasis morbidity is higher in lung carcinoma patients vs. BM patients with melanoma, breast cancer, and renal cell carcinoma [5]. Brain metastasis is found in 10% to 25% of lung cancer patients after the initial diagnosis, and 40% to 50% of lung cancer metastasizes in the brain during the course

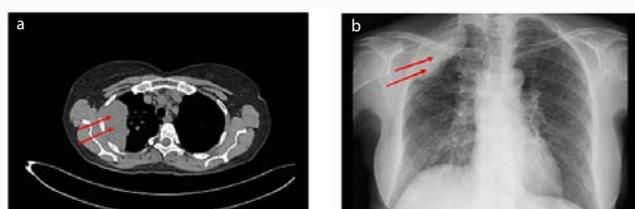


Figure 3: Chest X-Ray. Hypertransparency in the apical zone of the right lung. CT-TAP: Lobular right lung lobe, large nodular lesion suggestive of a primary lesion about 8.2 cm × 4.2 cm axially.

of the disease [6]. The most common clinical symptom of Brain Metastasis (BM) at initial diagnosis was headache (25.2%), followed by motor dysfunction (20.5%), dizziness (5.8%), and seizure (3.5%). Brain lesions were asymptomatic at the time of the initial diagnosis of MC (50.8%), as these symptoms are easily confused with intracranial hypertension, the diagnosis of (MC) may be forgotten [7]. Of all hemorrhagic metastases, however, lung and breast cancers are the most common etiologies due to their higher overall prevalence [8]. Previous studies have shown that hemorrhagic metastases contain significantly higher levels of Vascular Endothelial Growth Factor (VEGF) and Metalloproteinases (MMP). When these neoplasms were compared with non-hemorrhagic tumors [9,10]. The median survival of these untreated BM patients is 1 to 2 months and maybe extended to 6 months with radiotherapy and standard chemotherapy.

Conclusion

Our reported case emphasizes the need to consider hemorrhagic metastasis as a differential diagnosis in patients with multiple or single intracerebral hemorrhages from a primitive solitary focus accompanied by atypical symptoms of emotional lability, mainly when the patient's general condition cannot be explained by hypertensive intracerebral hemorrhage. Therefore, early diagnosis and active treatment are vital to improving prognosis and survival.

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