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Neoplasm

Breast carcinoma metastasis and meningioma. A case report

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Abstract

Background: The simultaneous occurrence of meningioma and breast cancer with or without brain metastasis is an unusual but well-known event. However, contiguous occurrence of meningioma and brain cancer metastasis is a less rare evidence and we are aware of only one previously published case in the literature.

Case Description: A 72-year-old woman presented with headache, nausea and vomiting, and diminished mentation and memory. Seven years ago, she had had simple mastectomy at another hospital. Histopathologic examination had been reported as breast carcinoma. The patient had not gone to the controls and was unaware of the diagnosis. Cranial MRI examination of the patient showed two extraaxial masses. Histopathologic examination of the lesion at the frontal convexity, which was reported as en plaque meningioma radiologically, revealed meningioma but the other tumor at the sylvian fossa resembling the other meningioma was reported as breast carcinoma metastasis at histopathologic examination.

Conclusions: Although meningiomas have well-known radiological features, the other pathologies like breast metastasis may simulate them. A possible hormonal relationship between breast cancer and meningioma has not been clarified. We are not sure that this has played a role in dissociation of both tumor cells in our case.

Keywords: Breast cancer; Meningioma; Metastasis; Estrogen; Progesteron

1. Introduction

The simultaneous occurrence of meningioma and breast cancer with or without brain metastasis is an unusual but well-known event [8,9]. Breast cancers have also rarely been reported to metastasize into meningiomas (tumor-to-tumor phenomenon) [1,3,4,14,15]. However, contiguous occurrence of meningioma and breast cancer metastasis is a less rare evidence and we are aware of only one previously published case in the literature [8]. In this article, the authors report a rare case of breast cancer metastasis closely neighboring an intracranial meningioma.

2. Case report

2.1. Clinical course

A 71-year-old woman presented with headache, nausea and vomiting, and diminished mentation. Seven years ago, she had had simple mastectomy for a breast carcinoma at another institute. Pathological diagnosis was an infiltrative ductal breast carcinoma. The patient refused further radiotherapy and chemotherapy.

A right mastectomy incision scar was observed on her physical examination. On neurological examination, she had disorientation for time and place. Neuro-ophthalmological examination revealed bilateral papilledema. Other neurological and physical findings were normal.

Cranial CT without contrast enhancement reported bifrontal and right sylvian mass lesions compressing the frontal lobes causing massive edema. Contrast-enhanced cranial CT showed homogenous enhancement of the tumors. The sylvian part was more markedly enhanced (Fig. 1A).

Abbreviations: CT, computed tomography; MRI, magnetic resonance image.

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Cranial MRI of the patient showed two different extraaxial mass patterns (Fig. 1B). The first lesion was located at the bifrontal convexities and the primary diagnosis was an en plaque meningioma. The tumor at the left sylvian fissure was also thought to be a meningioma primarily, but metastatic carcinoma was also included in the differential diagnosis. The two tumors seemed to be connected with a dural extension. There were no other enhancing leptomeningeal or parenchymal lesions.

Cerebral angiography did not show any vascularization unlike expected in meningiomas. There was posterior displacement of the distal branches of the anterior cerebral artery (Fig. 2A-B).

The patient underwent bifrontal and right peritoneal craniotomy. The tumor at the sylvian fissure was hemorrhagic and soft, whereas those in the bifrontal localization were grayish and firm. During surgery, both tumors were found to be connected to each other along their dural extensions and with a thick arachnoidal band (Fig. 3). Anterior part of the superior sagittal sinus was invaded and occluded by the tumor invasion, which was ligated and removed. Perioperative diagnosis was meningioma and gross total removal of both tumors was done. Postoperative course was uneventful.

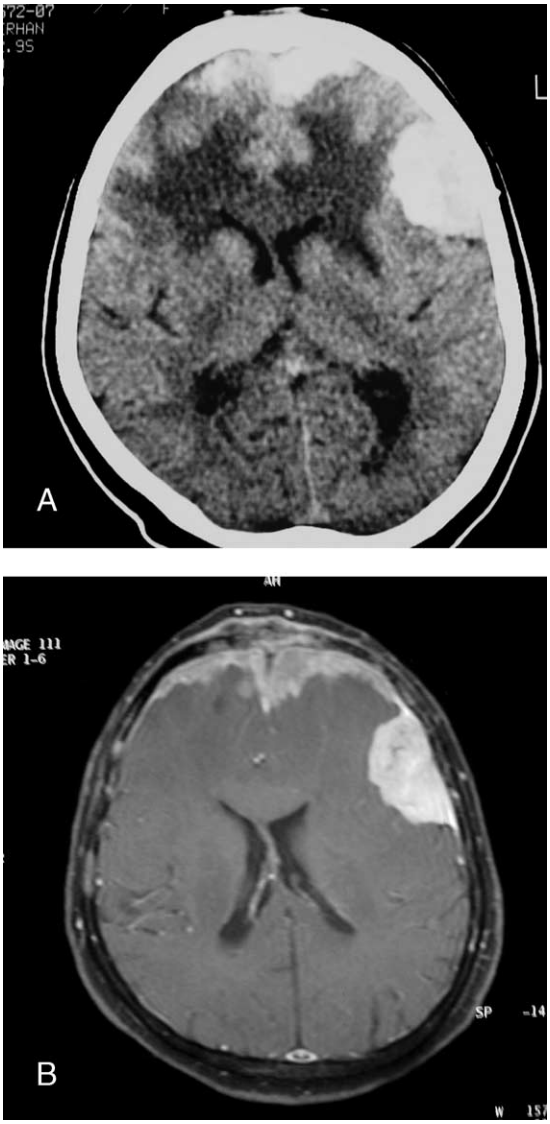

Fig. 1. A: Contrast-enhanced CT image demonstrating bilateral frontal mass and left sylvian mass with surrounding edema. B: Contrast-enhanced T1 magnetic resonance axial image reported as en plaque frontal meningioma and left sylvian meningioma connected with dural tail.

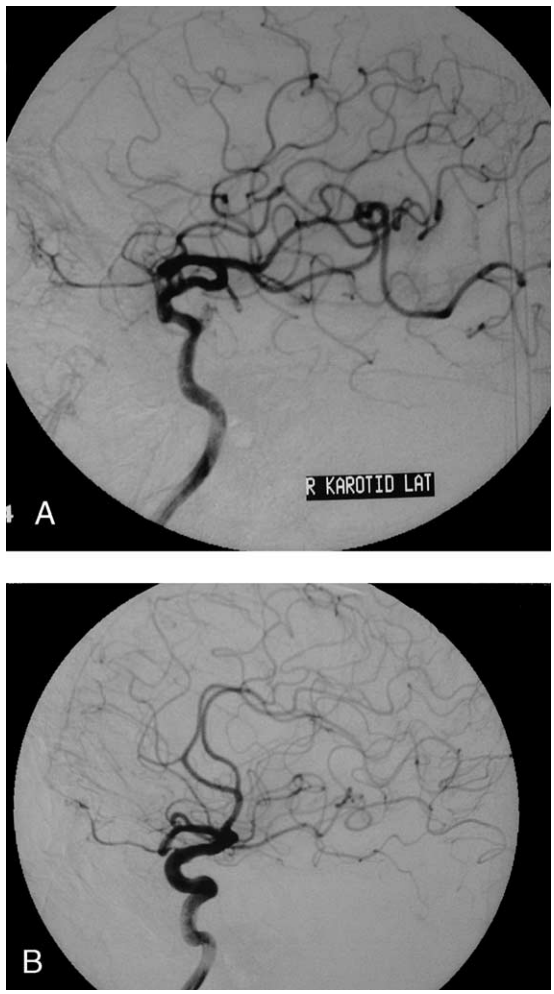

Fig. 2. Right lateral (A) and left lateral internal carotid artery injections (B). Note slight posterior displacement of the distal branches of both anterior cerebral arteries.

3. Histological examination

Pathology report included two different histopathologic diagnoses. The tumor at the sylvian fissure was reported as breast carcinoma metastasis and the bifrontal tumor as meningothelial meningioma.

The breast carcinoma metastasis was composed of tubular, cribriform, and papillary structures, made up of epithelial cells in a sclerotic and fibrotic stroma (Fig. 4). This tumor was strongly stained with pancytokeratin (Nova, LP34), GCDFP-15 (Neo, 23A3), estrogen (Nova 6F11) and progesterone (Nova 1A6) receptors, E-cadherin (Dako, NCH38), and c-erb B2 (Dako).