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Pulmonary Metastasis From Breast Cancer With an 18-Year Disease-Free Interval: Implication of the Role of Surgery

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The appearance of pulmonary metastasis more than 15 years after primary treatment for breast cancer is rare. We herein report the case of a breast cancer patient with solitary pulmonary metastasis, after an 18-year disease-free period, treated with resection. A 66-year-old Japanese woman was found to exhibit an abnormal shadow on a chest X-ray. She had undergone a left mastectomy for breast cancer 18 years previously. The nodule was suspected to be either metastatic or primary lung cancer, and thus thoracoscopic surgery was performed. The histologic diagnosis was metastasis from breast cancer. Pulmonary resection in breast cancer recurrence is an important diagnostic tool that allows for a differential diagnosis with primary lung cancer. The clinical implication of surgery for a solitary pulmonary metastasis from breast cancer is discussed in this report.

Key words: Breast cancer – Solitary pulmonary metastasis – Disease-free interval

Pulmonary metastasis is a common feature in patients with breast cancer; however, the appearance of pulmonary metastasis more than 15 years after primary treatment for breast cancer is rare.[1] We report the case of a breast cancer patient with solitary pulmonary metastasis, after an 18-year disease-free period, treated with resection. Metastatic breast cancer is a systemic disease, and the resection of lung metastasis in patients with breast cancer is controversial.[2–6] The clinical implication of surgery for a solitary pulmonary metastasis from breast cancer is also discussed in this report.

Case Report

A 66-year-old Japanese woman was found to exhibit an abnormal shadow on a chest X-ray. She had undergone a left modified radical mastectomy for breast cancer 18 years previously. (The history of clinical information was incomplete due to absence

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Fig. 1 CT of the chest showing a mass of 15-mm diameter with a well-defined and irregular margin in S8 of the left lung.

of specific follow-up. Routine biochemistry and hematology was normal, including tumor markers CEA and CA 15.3.) The chest computed tomography (CT) demonstrated a nodule of 15-mm diameter with a well-defined and irregular margin in S8 of the left lung (Fig. 1)—without enlargement of mediastinal lymph nodes. The nodule was suspected to be either metastatic or primary lung cancer, and thus thoracoscopic surgery was performed. The intraoperative frozen sectional diagnosis was metastasis from breast cancer. At final histology, the tumor was demonstrated to be metastasis from breast cancer, and immunohistochemical stains revealed that the tumor was positive for estrogen receptor and progesterone receptor, and negative for HER-2 (Fig. 2). The patient received adjuvant hormone therapy. She has been alive for 32 months without loco-regional or systemic recurrence of the tumor after surgery.

Discussion

There are few reported cases of cancer recurrence after more than 15 years of disease-free survival following loco-regional treatment of breast cancer. Here we report a relatively rare case of lung metastasis from breast cancer after an 18-year disease-free interval. Metastatic breast cancer is a heterogeneous disease that has a variety of different clinical scenarios, ranging from solitary metastatic lesions to diffuse and multiple organ involvement.[2] A positive relationship between hormone receptors and a prolonged disease-free interval has been described.[3–7] In our case, hormone receptors were positive. Furthermore, a long disease-free interval seems to be of prognostic relevance concerning resected patients. According to several clinical studies, surgical resection of pulmonary metastases should be an option of treatment in selected patients with pulmonary metastases of breast cancer (45% 5-year survival rate in patients with a single metastasis and a disease-free interval >36 months).[5–7] The resection of pulmonary metastases in patients with breast cancer is controversial, with no consensus about this treatment option among clinicians or researchers. However, our case and previous studies suggest that a surgical approach to lung metastasis from breast cancer may prolong survival in certain subgroups of patients to a greater extent than systemic therapy alone, although this finding applies to a limited, highly selective population.[3–7]

The possibility of metastasis from breast cancer or primary lung cancer cannot be differentiated only on the basis of radiologic findings or disease-free survival.[5,7] Although a solitary pulmonary nodule in breast cancer patients remains a surgical challenge, after breast cancer surgery it is certain that surgery is the best treatment for a solitary pulmonary nodule when there is some doubt about the diagnosis of primary lung cancer.[7] Video-assisted thoracoscopic surgery is a good procedure for confirmation of pathologic diagnosis and appropriate surgical treatment.[7]

In conclusion, we report a rare case of lung metastasis in a patient with breast cancer after a disease-free interval of more than 15 years. Pulmonary resection in breast cancer recurrence is an important diagnostic tool that allows for differential diagnosis with primary lung cancers and benign lesions. The current and previous cases indicate that in a very limited number of patients, including cases with long disease-free intervals and solitary metastases, the

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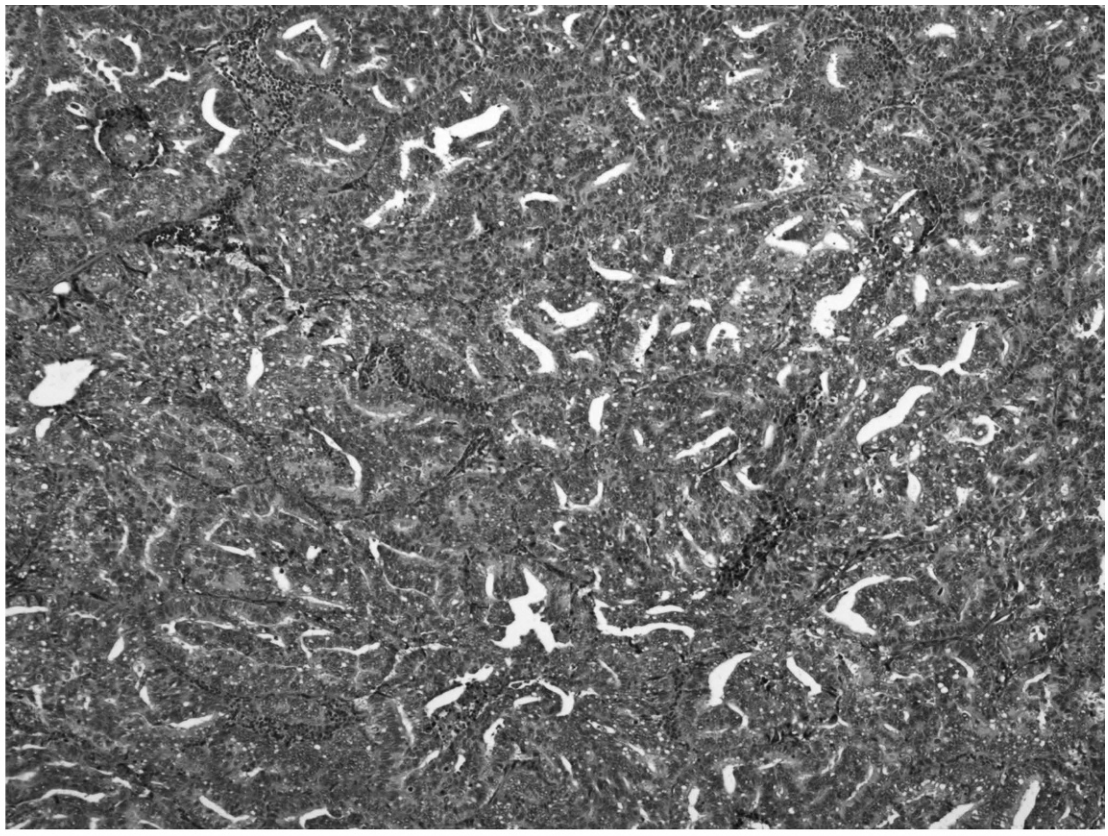
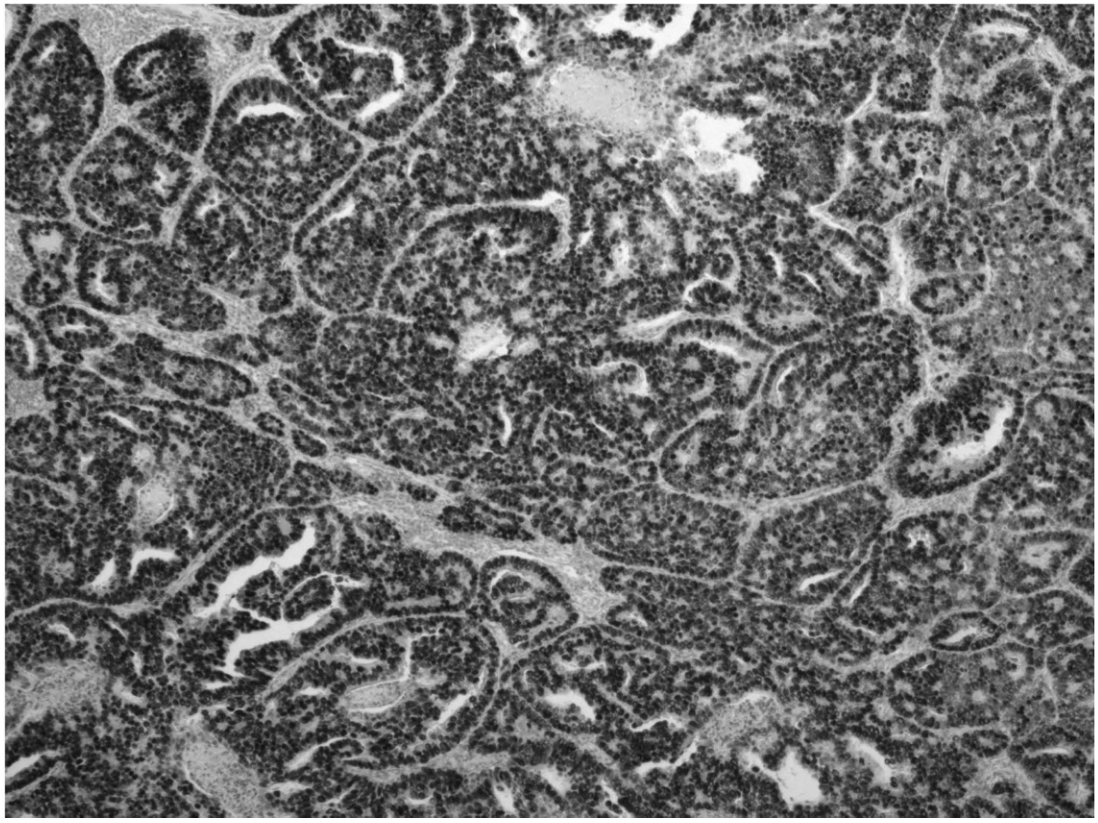
Fig. 2 (A) Histopathologic findings showing that the tumor was a metastasis from breast cancer (Hematoxylin and Eosin stain); and (B) immunohistochemical stains revealing that the tumor was positive for estrogen receptor.

a.



b.



surgical approach to lung metastasis of breast cancer should be the treatment of choice whenever possible; however, further analyses of a large number of cases are warranted to evaluate the clinical significance of this approach.

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