

Metastasis in axillary and supraclavicular lymph nodes has been frequently observed in patients with breast cancer. The clinical staging and therapeutic principle determined according to the situation of lymph node metastasis are clear. One patient with infiltrating ductal carcinoma of the left breast was reported to undergo modified radical mastectomy. One and a half years later, lymphadenectomy was observed in area II, III, IV, V and VI of the left neck; therefore, cervical lymphadenectomy was performed under cervical plexus anesthesia, indicating lymph node metastatic adenocarcinoma (21/26). The patient took 10 mg tamoxifen twice per day for five years after lymphadenectomy and the review showed negative results in liver, lungs, mediastinum, neck and contralateral breast. This suggested that although breast cancer complicated with retrograde cervical lymph node metastases is rare, timely surgery is required even if the patient is in a good general condition, to avoid „delayed therapy” due to misjudgment of illness simply according to disease staging.

Key words: breast cancer, cervical lymph node metastases.

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Treatment and prognosis for retrograde cervical lymph node metastases in breast cancer

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Introduction

Metastasis in axillary and supraclavicular lymph nodes has been frequently observed in patients with breast cancer. The clinical staging and therapeutic principle determined according to the situation of lymph node metastasis are clear. However, retrograde cervical lymph node metastases in area II, III, IV, V and VI of the neck are relatively rare; thus thorough reports regarding its clinical staging and therapeutic principle are missing. In this study, a patient with retrograde cervical lymph node metastasis after modified radical mastectomy in breast cancer was treated with the second cervical lymph node dissection. After surgery, endocrine therapy was performed. There was no disease recurrence in follow-up of 5 years, with good prognosis. The case report is as follows.

Case report

The female patient was 36 years old with left breast masses. Physical examination showed a hard and moveable lump in the size of 4 × 4 cm located at three o'clock direction in the upper quadrant outside the left breast with a distance of 3 cm to the nipple, complicated with multiple moveable, unfused and enlarged lymph nodes with maximum size of 1 × 1 cm in the left axilla. B ultrasound revealed a lump of 1.8 × 6.0 cm. Low echoes with strong punctate echoes were detected. Therefore, the patient was diagnosed with breast cancer. The lump was first excised under general anesthesia and confirmed as malignant cancer, and then modified radical mastectomy of the left breast was conducted. During the surgery, a number of enlarged axillary lymph nodes in group I and II were removed; the pectoralis major was opened at two finger widths below the collarbone to cut off one lymph node in group III for detection. Postoperative pathological report: infiltrating ductal carcinoma of the left breast, axillary lymph node metastasis 31/38, subclavian lymph node metastasis. Cancer emboli were found in vessels under the nipple; immunohistochemistry (IHC) showed: ER(+), PR(+), Her-2(+/-). Pathological staging was T2N2M0. The patient received one cycle of postoperative CMF (cyclophosphamide, methotrexate, fluorouracil) chemotherapy and radiotherapy was applied to the chest wall + left clavicle ueno, DT 50 Gy/25f, followed by another five cycles of CMF chemotherapy. One and a half years after the surgery, lymphadenectomy was observed in the left neck of the patient. Physical examination: enlargement of lymph nodes was discovered along with left sternocleidomastoid shallow surface, deep surface and supraclavicular fossa; the enlarged lymph nodes were hard, partly fused but still with boundaries. B ultrasound detected low echo-nodules with varying sizes in subcutaneous tissue, which closely correlated with internal jugular veins; their borders were clear but the cortical-medulla boundary and

lymphatic door were not clear; blood flow in the artery was with low resistance. Lymph node biopsy strongly suggested metastatic adenocarcinoma. Therefore, cervical lymphadenectomy was performed under cervical plexus anesthesia. Lymph nodes with maximum size of 2 × 2.5 cm were removed from shallow and deep layers in area II, III, IV, V and VI. It was reported as lymph node metastatic adenocarcinoma (21/26) after surgery, and cancer emboli were found in vessels. Due to funding difficulties, a 10 mg oral citric acid hydrochloric acid tamoxifen tablet was taken twice per day for more five years. Now the patient lives a normal life without positive results in the examinations of neck ultrasound, chest CT and liver CT.

Discussion

This case of left breast cancer was discovered with lymph node metastasis in area II, III, IV, V and VI of the left neck, which is very rare. In addition, the patient survived well after cervical lymphadenectomy, indicating that the neck lymph node dissection was timely and effective for cervical lymph node metastases in breast cancer.

Breast cancer patients with supraclavicular lymph node metastasis account for 8% when they are diagnosed, which has been reported previously [1], while 3–8.7% of patients complicated with axillary lymph node metastasis develop supraclavicular lymph node metastases within five years after surgery [2–4]. Most first relapses occurred in the supraclavicular fossa, followed by the regions beside the sternum, among the pectorals and in the axilla. The survival rate of patients with supraclavicular lymph node metastasis at five years was approximately 20–33.6% [5, 6]. Others reported that patients without supraclavicular lymph node metastasis underwent resection, among whom 13% of patients were found with recessive metastasis, demonstrating that supraclavicular lymph node metastasis frequently occurred in breast cancer and operative relapse, but its occurrence is a sign of advanced stage. Previously swelling of the supraclavicular lymph nodes was considered as retrograde metastasis, because supraclavicular lymph nodes belong to the deep cervical group, and additionally their lymphatic output tubes and subclavian lymphatic output tubes converge into thoracic or right lymphatic ducts which flow into veins. Recently it has been discovered that output tubes of internal mammary lymph nodes and subclavian lymph nodes as well as upper lymph vessels in the breast converge into the supraclavicular lymph nodes; therefore, the lymph node metastasis has been identified as N₃ instead of distant metastasis, but it belongs to the late clinical stage [5, 7].

The patient in this case was not only characterized by swelling of supraclavicular lymph nodes, but also showed enlarged lymph nodes and metastasis in area II, III, IV, V and VI of the left neck, which is very rare. Retrograde metastasis of cervical lymph nodes should be first taken into account to analyze its occurrence. From the consideration of time, one metastatic supraclavicular lymph node was found during the first surgery, suggesting that further lymph nodes beyond this one might be affected; until the surgery, the tumor retrograded to the neck only along

with lymphatic vessels instead of the thoracic duct or other place within more than one year. In consideration of cause, we could not exclude the possibility that postoperative radiotherapy led to retrograde metastasis along with lymphatic vessels. Although the evidence was missing, radiotherapy might result in the blockage of lymph vessels that export into the thoracic duct. Therefore, performing postoperative radiotherapy timely in the surgical and clavicle area plays a significant role in preventing systemic metastasis in breast cancer.

From the view of tumor treatment, the patient had already developed cervical lymph node metastasis. Although the stage of lymph node metastasis remained unclear, it was certainly out of the range of N₃; whether it could be defined as M1 was not determined [7]. The prognosis was worrying, but the cervical lymphadenectomy under cervical plexus anesthesia led to a surprising result. The patient did not receive any chemotherapy, but only took 10 mg tamoxifen twice per day for five years after lymphadenectomy and the review showed negative results in liver, lungs, mediastinum, neck and contralateral breast. This is probably because the patient only spent limited money on surgery due to her financial problem. This case demonstrated that even though the patient with breast cancer developed rare cervical lymph node metastasis, she still could benefit from lymphadenectomy if there was no metastasis in liver, lung, bone, mediastinum and brain. Considering the treatment experience of this case, we proposed to classify the retrograde cervical lymph node metastasis in breast cancer as locally advanced cancer, which was similar to supraclavicular lymph node metastasis. So the lymph node dissection should be performed as soon as possible, to avoid the hematogenous metastasis of tumor cells through the thoracic duct or right lymphatic duct and loss of optimal surgical opportunity. In this study, further radiotherapy and chemotherapy after lymph node dissection were not conducted, which was due to economic reasons, and not from our original intention. It was believed that only single lymph node dissection could not guarantee complete elimination of tumor cells. So the treatment experience of axillary and supraclavicular lymph node metastasis should be referred, and the second standardized chemotherapy and local radiotherapy must be performed, with endocrine therapy for estrogen receptor positive cases in immunohistochemistry [8, 9] and monoclonal antibody therapy with trastuzumab for Her-2 positive cases. Only a comprehensive therapy strategy can minimize the tumor recurrence risk to the lowest level. This case also indicated that although breast cancer complicated with cervical lymph node metastasis is rare in the late stage, it requires further clarification of stages and research into mechanisms. Surgery should be performed timely even if the patient is in a good general condition, to avoid „delayed therapy” due to misjudgment of illness simply according to disease staging.

The authors declare no conflict of interest.

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