The Results of Occult Breast Carcinoma Treated with Axillary Node Dissection Only: Five Cases Reports

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Herein, we report five cases of occult breast cancer treated with axillary node dissection only, without breast surgery or whole breast radiotherapy. The patients complained of a large, hard mass in the axillary area, although no breast masses were palpable. Biopsy of the axillary mass was performed in each case, and histological examination showed a metastatic carcinoma. No malignant findings were observed by mammography or ultrasonography. Magnetic resonance imaging and systemic examinations revealed no extramammary primary lesions. All patients underwent axillary lymph node dissection without breast surgery, and were administered adjuvant chemotherapy but not whole breast radiation therapy. The median follow-up period was 56 months (range, 15–241 months). The patients were all alive with no evidence of disease at the end of the follow-up period.

Key Words: Axilla, Breast, Lymph node excision, Unknown primary neoplasms

INTRODUCTION

Occult breast cancer (OBC) involves an isolated axillary adenocarcinoma without a detectable tumor in the breast, and is discovered either on physical examination or breast imaging [1]. The frequency of patients with OBC who present with enlarged axillary lymph nodes only is very low, comprising approximately 0.3% to 1% of all breast cancer cases [2]. Despite advances in diagnostic imaging that can identify a greater number of primary tumors, numerous incidences continue to occur in which imaging studies fail to locate the primary tumor site. Traditionally, OBC has been treated with surgical axillary node dissection and breast surgery and/or whole breast radiation therapy (RT) [3]. However, we treated five patients with OBC by axillary node dissection without breast surgery or whole breast RT. Here we report the clinical outcomes of those five cases.

CASE REPORT

Between January 1991 and December 2013, 2,120 patients who were diagnosed with breast cancer underwent breast surgery at our center. We retrospectively reviewed the medical records to locate cases presenting as an axillary mass. We found five patients who presented with breast carcinoma as an axillary lymph node metastasis with no clinical or imaging evidence of a primary tumor. Patients who were found to have a primary breast lesion on final pathologic results were excluded.

All patients were evaluated via physical examination, mammography, and ultrasonography. Four underwent breast magnetic resonance imaging (MRI) and three underwent positron emission tomography-computed tomography (PET-CT). Radiologists applied the Breast Image Reporting and Data System (BI-RADS) to describe the breast imaging results. All patients’ imaging results are described in Table 1. All patients underwent breast ultrasonography and mammography, four patients underwent breast MRI. However, the fifth patient could not undergo an MRI because her operation year was 1991. Breast radiographs and PET-CT images did not show any malignant signs in the breasts, lungs, liver, ovaries, or upper gastrointestinal tract (Figure 1). The patients who had not undergone MRI or PET-CT underwent conventional chest and abdominal CT, and the results showed no signs of malignancy in the thoracic or in the abdominal organs.

Preoperative diagnosis of the axillary lymph nodes was made with fine needle aspiration biopsy, core biopsy, and excision biopsy, and the preoperative results showed metastatic carcinomas. All patients were treated with axillary lymph node dissection without breast surgery or whole breast RT.
Occult Breast Carcinoma Treated with Axillary Node Dissection Only

Table 1. Result of preoperative breast image using Breast Image Reporting and Data System

<table>
<thead>
<tr>
<th>Case</th>
<th>MMG</th>
<th>USG</th>
<th>MRI</th>
<th>PET-CT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>C2</td>
<td>C3</td>
<td>C3</td>
<td>Negative</td>
</tr>
<tr>
<td>2</td>
<td>C1</td>
<td>C1</td>
<td>C1</td>
<td>Negative</td>
</tr>
<tr>
<td>3</td>
<td>C1</td>
<td>C1</td>
<td>C1</td>
<td>Negative</td>
</tr>
<tr>
<td>4</td>
<td>C1</td>
<td>C1</td>
<td>C1</td>
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</tr>
<tr>
<td>5</td>
<td>C1</td>
<td>C1</td>
<td>NA</td>
<td>NA</td>
</tr>
</tbody>
</table>

MMG = mammography; USG = ultrasonography; MRI = magnetic resonance image; PET-CT = positron emission tomography-computed tomography; NA = not available.

Table 2. Operative methods and pathologic results

<table>
<thead>
<tr>
<th>Case</th>
<th>Operation</th>
<th>Pathology (no. of metastatic LN/harvested LN)</th>
<th>TNM</th>
<th>ER</th>
<th>PR</th>
<th>HER2</th>
<th>FISH</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Lt breast Ex</td>
<td>Fibroadenoma</td>
<td>T0N3M0</td>
<td>-</td>
<td>-</td>
<td>1+</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Lt ALND</td>
<td>Metastatic ca., primary in breast (5/38)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lt IMLND</td>
<td>Metastatic ca., primary in breast (1/1)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Lt ALND</td>
<td>Metastatic ca., primary in breast (2/45)</td>
<td>T0N1M0</td>
<td>-</td>
<td>-</td>
<td>3+</td>
<td>NA</td>
</tr>
<tr>
<td>3</td>
<td>Lt ALND</td>
<td>Metastatic ca., primary in breast (2/29)</td>
<td>T0N1M0</td>
<td>-</td>
<td>-</td>
<td>1+</td>
<td>-</td>
</tr>
<tr>
<td>4</td>
<td>Lt ALND</td>
<td>Metastatic ca., primary in breast (1/19)</td>
<td>T0N1M0</td>
<td>-</td>
<td>-</td>
<td>3+</td>
<td>NA</td>
</tr>
<tr>
<td>5</td>
<td>Rt ALND</td>
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<td>T0N3M0</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
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</tr>
</tbody>
</table>

LN = lymph node; ER = estrogen receptor; PR = progesterone receptor; HER2 = human epidermal growth factor receptor 2; FISH = fluorescence in situ hybridization; Lt = left; Ex = excisional biopsy; ALND = axillary lymph node dissection; IMLND = internal mammary lymph node dissection; NA = not available; Rt = right.

The patients’ ages ranged from 44 to 62 years, with a mean age of 52.4 ± 8.1 years. Four patients presented with a painless palpable mass at the axillar area; one was found to have axillary lymph node enlargement on a PET-CT scan during an evaluation for rectal cancer.

All patients underwent level I and II axillary lymph node dissection. One patient, with a suspicious hot spot discovered by PET-CT in the internal mammary lymph node, had that suspicious node excised. The pathologic results are described in Table 2; microscopic features revealed metastatic breast carcinoma (Figure 2). A BI-RADS category...

Figure 1. (A) Ultrasonography shows a 1.9 cm, oval shaped hypoechoic lymph node (LN) in the left axilla. (B) Mammography shows no radiologic sign of malignancy. (C) Maximum intensity projection (MIP) image of contrast-enhanced magnetic resonance imaging (MRI) shows no evidence of suspicious lesions in both the breasts. (D) Fat-saturated T1-weighted MRI image shows a 1.9 cm, enlarged LN in the left axilla. (E, F) Positron emission tomography-computed tomography shows an enlarged, intensely hypermetabolic LN in the left axilla.
3 lesion of the breast was discovered on ultrasound and MRI in one patient; however, this was diagnosed as a fibroadenoma after excisional biopsy.

All patients received adjuvant chemotherapy. One patient with internal mammary lymph node metastasis received RT to that area, but the other four patients did not receive RT at any site. The median follow-up period was 56 months (range, 15–241 months); the patients did not show any signs of intra-breast tumor recurrence or distant metastasis. They were alive and remained free of disease by the end of the follow-up period.

**DISCUSSION**

OBC is an isolated axillary adenocarcinoma with no detectable tumor in the breast by either physical examination or breast imaging [1]. Halsted first reported three patients with clinically normal breasts and metastatic axillary lymph nodes in 1907 [4]. When metastatic tumors are detected in the axillary lymph nodes, 90% of the primary lesions of origin are breast tumors; other possible primary lesions include melanoma, lung cancer, thyroid cancer, gastrointestinal adenocarcinoma, and ovarian carcinoma. Nowadays, 18-fluorodeoxyglucose PET-CT along with documentation of family history and physical examination are utilized to screen for and detect primary lesions [5]. Histological examination of the axillary lymph nodes is critical for diagnosis; the primary lesion can be diagnosed as breast cancer if estrogen receptor expression is detected by immunohistochemical staining [6]. When breast cancer is diagnosed in the axillary lymph nodes, bilateral mammography, breast ultrasonography, and MRI are performed to determine whether there are suspicious malignant lesions in the primary location. The sensitivities of breast MRI, ultrasonography, mammography, and PET-CT for the primary tumor are 89% to 96%, 73% to 80%, 52% to 78%, and 90%, respectively [7-9].

Breast primary tumors that are undetected by imaging are found in approximately 20% to 33% of cases after mastectomy for OBC. Traditional treatment of OBC has included radical or modified radical mastectomy [4]. However, Wang et al. [10] showed that there was no difference in relapse rate between conservative treatment (11.1%) and mastectomy (11.9%), and reported that two out of 13 patients who did
not receive local treatment relapsed within the breast [11]. Woo et al. [12] reported that the survival rate is dependent on the treatment method after dividing patients into three treatment groups: mastectomy, breast-conserving surgery, and no surgery with/without RT. The follow-up period was 71.5 months. As a single center result, there were no significant differences in 5-year overall survival rates between the breast-conserving surgery, mastectomy, and no surgery with/without RT groups (72.0% vs. 74.0% vs. 87.5%, respectively; $p = 0.47$) or in their 5-year disease-free survival rates (70.6% vs. 66.7% vs. 90.9%, respectively; $p = 0.36$). Of 11 patients who did not undergo breast surgery, one patient did not receive RT and two patients relapsed within the breast. Barton et al. [13] reported that the no surgery patient group showed better local recurrence-free survival and relapse-free survival if they received RT in the conserved breast compared to the patients who did not receive RT, but there was no difference in overall survival.

Chemotherapy or antihormonal therapy is recommended as adjuvant systemic therapy for OBC according to the standard treatment procedure for node-positive breast cancers. In this study, all patients received adjuvant chemotherapy after surgery.

Treatment of OBC has shifted away from mastectomy and towards preserving the breast, as breast lesions can be detected early owing to advanced imaging modalities. Micrometastases can also be controlled with advances in adjuvant therapy.

In conclusion, we reported five nonmastectomy cases of OBC in which no relapses within the breast were detected despite the lack of whole breast RT, even after long-term follow-up: we also provided a literature review. We propose considering the omission of breast treatments in such cases if MRI and PET-CT show no evidence of a primary lesion in the breast.

CONFLICT OF INTEREST

The authors declare that they have no competing interests.

REFERENCES


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