

CASE REPORT

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Primary Breast Lymphoma Successfully Treated with Combination Therapy Including Local Radiation Therapy: A Report of Two Cases

Yoshiyuki Suzuki,^{***} Jun Ito,^{*} Masatoshi Hasegawa,^{**}
Susumu Katano,^{*} Junichi Saito,^{*} and Hideaki Ito^{***}

Recently, a combination of local irradiation and chemotherapy has been suggested as a standardized treatment for localized lymphoma. However, it has been difficult to establish a standard treatment for localized primary breast lymphoma simply because of its rarity. We report two cases of primary breast lymphoma successfully treated with a combination therapy including local radiation therapy. A 46-year-old woman with stage I primary breast lymphoma was irradiated with 30 Gy to the involved breast by 4 MV X-rays and 9 Gy to the involved field by electron beam after tumorectomy. Then three cycles of CHOP therapy were performed. She has been well and has shown no evidence of disease for 58 months. A 72-year-old woman with stage II primary breast lymphoma was treated with three cycles of CHOP therapy followed by irradiation with 40 Gy per breast by 4 MV X-rays. She is well and has been disease-free for 49 months. We suggest that a combination of local irradiation and short course of chemotherapy can be useful in the treatment of primary breast lymphoma.

Key words: breast, malignant lymphoma, radiation therapy, tangential irradiation, chemotherapy

INTRODUCTION

PRIMARY BREAST LYMPHOMA (PBL) is a relatively rare disease. It represents 0.7% of non-Hodgkin's lymphomas¹ and 0.12-0.53% of primary breast malignancies.^{1,2} Though the fact of its rarity has precluded the establishment of a standard treatment, surgical treatment tends to be performed when the diagnosis is benign breast tumor. *Abbondanzo et al.* reported that PBL, the majority of which are treated with surgery and chemotherapy, has a poor prognosis.³ However, patients successfully treated by a combination of chemotherapy and radiation therapy have been increasing recently, and this approach has been proposed as a standardized treatment modality for PBL.⁴ This report describes two cases of PBL successfully treated with combination therapy including local radiation therapy.

CASE REPORTS

Case 1

A 46-year-old woman noticed a lump in her left breast. A benign tumor was suspected by ultrasonic examination (Fig. 1), and tumorectomy was performed. The tumor size was 2.8×2.6 cm. Histologically, the tumor cells showed a diffuse growth pattern, and the neoplastic infiltrate demonstrated an admixture of medium- to large-sized cells with round nuclei (Fig. 2). Immunohistochemically, the neoplastic cells reacted with antibodies LCA (CD45RB) and L26 (CD20), but not with UCHL-1 (CD45RO), BCL-2 protein, or cytokeratin (DAKO, A/S, Glostrup, Denmark). According to the REAL classification, a diagnosis of diffuse large B-cell lymphoma was made.⁵ No other lesion was found by Gallium scintigraphy or CT of the abdomen and chest. Clinical stage was IA by the Ann Arbor classification.

After tumorectomy, she was given 30 Gy of tangential irradiation to the left breast by 4 MV X-rays and 9 Gy to the involved field by a 12 MeV electron beam. She was then treated with three cycles of CHOP therapy (600 mg of cyclophosphamide on day 1, 50 mg of adriamycin on day 1, 1.5 mg of vincristine on day 1, and 50 mg of prednisolone daily on days 1 to 5). Since then she has

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^{*}Department of Radiology, Maebashi Red Cross Hospital

^{**}Department of Radiology and Radiation Oncology, Gunma University School of Medicine

^{***}Department of Pathology, Maebashi Red Cross Hospital

Reprint requests to Yoshiyuki Suzuki, M.D., Department of Radiology and Radiation Oncology, Gunma University School of Medicine, 3-39-22 Showa-machi, Maebashi 371-8511, JAPAN.



Fig. 1. Ultrasonic examination shows a breast tumor with smooth edge and homogeneously low internal echo.

been well and has shown no evidence of disease (NED) for 58 months.

Case 2

A 72-year-old woman noticed a lump in her right breast. The tumor size was 3.0×2.8 cm, and then continued to grow rapidly to over 8 cm. Needle biopsy was performed, and histological examination revealed tumor cells with a diffuse growth pattern associated with extensive necrosis, and the majority had large round nuclei (Fig. 3). Immunohistochemically, the neoplastic cells reacted with antibodies LCA (CD45RB) and L26 (CD20), but not with UCHL-1 (CD45RO), BCL-2 protein, or cytokeratin (DAKO, A/S, Glostrup, Denmark). A diagnosis of diffuse large B-cell lymphoma was made, based on the REAL classification. Clinical stage was IIA because of the involvement of the para-sternal lymph node (Figs. 4, 5).

This patient's initial treatment consisted of three cycles of CHOP therapy (800 mg of cyclophosphamide on day 1, 50 mg of adriamycin on day 1, 1.5 mg of vincristine on

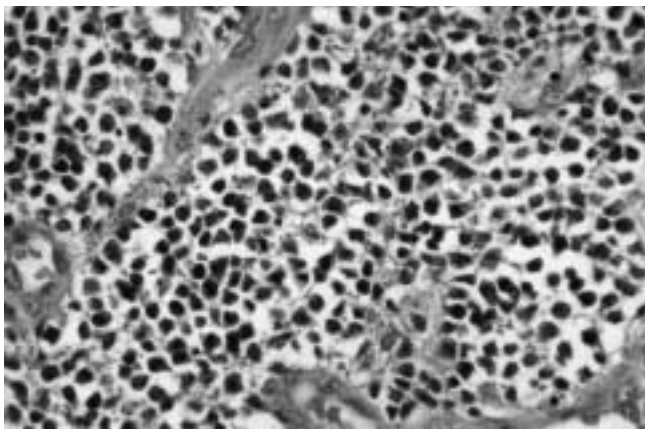


Fig. 2. Neoplastic infiltrates composed of medium- to large-sized cells with round nuclei (H. & E., original magnification ×200).

day 1, and 50 mg of prednisolone daily on days 1 to 5). This regimen was followed by tangential irradiation at 40 Gy to the right breast by 4 MV X-rays. Since then she has been well and has shown NED for 49 months.

DISCUSSION

The treatment strategy for malignant lymphoma should be focused on the primary site, as its nature is peculiar to the primary site. Brogi *et al.* reported that PBL appears to behave similarly to lymphomas of similar histologic types and stages presenting at other sites, that mastectomy is clearly not indicated, and that wide local excision is unlikely to be necessary since the tumors are highly sensitive to both radiation and systemic chemotherapy.⁶ Thus, radiation therapy is well indicated for this disease. Recently, some cases of successfully treated PBL have been reported, and a combination of local irradiation and chemotherapy has been proposed as a standardized treatment for PBL,^{4,7} as is the case for other sites of lymphomas. We used tangential irradiation for the present cases, a similar strategy to that used for breast-conserving therapy in breast cancer.⁸ The field of tangential irradiation involves the whole breast only in patients with stage I disease (our case 1), and involves the para-sternal lymph nodes in patients with stage II disease (our case 2). As for dosage, we used the totals of 30 Gy by 4 MV X-ray and 9 Gy per 3 fractions of electron beam therapy for case 1, and a total of 40 Gy by 4 MV X-ray for case 2. These dosages were almost equal to those used for other sites of malignant lymphomas.⁹

Kim *et al.* reported that a short course of chemotherapy followed by local radiation therapy is a safer approach for stage IAE, and the combination of chemotherapy and local radiation therapy should be considered for stage IIAE disease.⁷ Both patients in this study were treated with chemotherapy and radiation therapy. However, treatment strategy should probably be designed according to histological subtype and

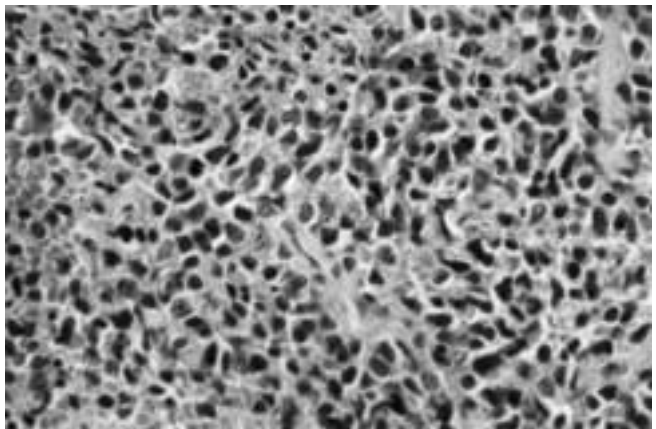


Fig. 3. The majority of the tumor cells had large round nuclei (H. & E., original magnification ×200).

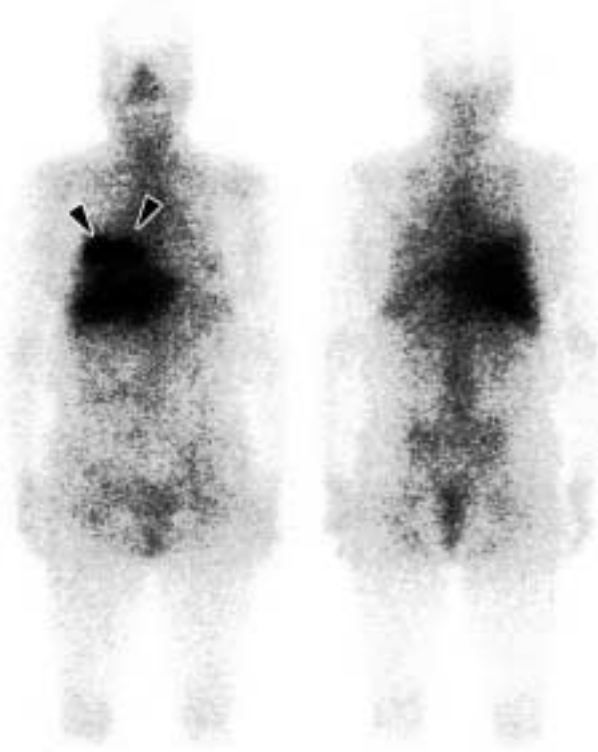


Fig. 4. Gallium scintigraphy shows two hot spots (arrowheads). These correspond to the right breast tumor and swollen parasternal lymph node.

progression of disease.^{1,10} Mattia *et al.* reported that chemotherapy is not necessary for low-grade lymphomas such as MALT-lymphoma.¹¹ On the other hand, a relatively high relapse rate was reported in stage I disease of malignant lymphomas despite the use of chemotherapy.¹² In addition, in patients with intermediate- or high-grade lymphoma, combined modality has been shown to yield a higher survival rate than radiation therapy alone,¹³ and a strategy consisting of three cycles of CHOP followed by involved-field radiation therapy is reportedly superior to eight cycles of CHOP alone.⁹ We performed CHOP therapy before or after radiation therapy because our cases were aggressive malignant lymphomas. As for the optimal quantity of anti-cancer drugs as well as the number of treatment cycles, this can not be easily decided and will depend on the outcome of further investigations.

Although the follow-up periods for our patients are still not so long, they have been alive and disease-free for 58 and 49 months. We suggest that the combination of local irradiation and short-course chemotherapy, as used in this study, can be useful in the treatment of PBL.

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Fig. 5. Chest CT scan shows a tumor in the right breast.

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