A malignant lymphoma of the breast may present as a primary or secondary tumor. Both tumor types are rare and there are no morphological criteria to differentiate between them. The majority of primary breast lymphomas are diffuse large B-cell lymphomas and a minor proportion reflect a Burkitt lymphoma, an extranodal marginal zone B-cell lymphoma of mucosa-associated lymphoid tissue (MALT) type, a follicular lymphoma, a lymphoblastic lymphoma of either B or T type, and in extremely rare cases, T-cell lymphomas of variable subtypes as described by the current WHO classification. A primary breast MALT lymphoma is very rare (1, 2). We report the mammographic, sonographic images and pathological findings of a low-grade lymphoma of mucosa-associated lymphoid tissue with multifocal transformation into a large cell lymphoma.

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Case Report

A 37-year-old woman presented with a painless palpable mass in the inner portion of the left breast. The patient incidentally detected the mass three weeks prior to the clinical visit. The patient was taking no medication and had no history of trauma or a previous biopsy. A physical examination revealed a large firm, and fixed mass in the left inner breast. Mammograms showed a large, isodense mass in the lower inner quadrant of the left breast and an enlarged lymph node in the axilla. A sonogram demonstrated a 5 cm sized, oval, circumscribed, and heterogeneously hypoechoic mass with posterior acoustic enhancement. A surgical biopsy was performed, and the pathology revealed a MALT lymphoma.
an enlarged lymph node in the left axilla (Fig. 1A, B). A sonogram showed a 5 cm sized, oval, circumscribed, and heterogeneously hypoechoic mass with posterior acoustic enhancement at the 9 o’clock direction of the left breast and an enlarged lymph node in the left axilla (Fig. 1C, D). We classified the lesion as BI-RADS category 4b and recommended performing a core-needle biopsy (3). However, surgical excision was performed without a preoperative pathological diagnosis. Based on a frozen specimen, the diagnosis was an invasive lobular carcinoma, and a left radical mastectomy was performed. An histopathological examination revealed diffuse infiltration of the small and large lymphoid tumor cells in and around the breast ducts (Fig. 1E), and the results of immunohistochemical staining were LCA (+), CD79a (+), CD20 (+) and CD3 (−), indicating a B-cell origin of the tumor cells (Fig. 1F). The final diagnosis was a low-grade lymphoma of mucosa-associated lymphoid tissue, with multifocal transformation into a large B-cell lymphoma. A bone marrow biopsy, abdomen CT, chest CT and bone scan showed no evidence of a distant metastasis. Chemotherapy, including CHOP, was administered successfully for six cycles.

Fig. 1. A 37-year-old woman with a palpable mass in the left breast. 
A, B. A Craniocaudal [A] and mediolateral oblique view [B] of a mammogram shows a large, isodense mass [arrows] in the lower inner quadrant of the left breast and an enlarged dense lymph node [arrowhead] in the left axilla.
C, D. An ultrasonogram shows an oval shaped circumscribed margin, and heterogeneous hypoechoic mass in the left breast [C] and an enlarged lymph node in the left axilla [D].
Discussion

A primary malignant lymphoma of the breast is a rare disease, representing 0.04% to 0.53% of all primary malignancies of the breast and 2.2% of extranodal malignant lymphomas (4). Among the types of breast lymphomas, MALT lymphomas constitute a variable subgroup with frequencies ranging from 0% to 44%, as reported in the clinical literature (5).

A MALT lymphoma or extranodal marginal zone B-cell lymphoma of mucosa-associated lymphoid tissue type is an extranodal lymphoma comprised of morphologically heterogeneous small B-cells including marginal zone cells, monocytoid B cells, small lymphocytes and scattered immunoblasts. The lymphoepithelial lesions are pathognomonic for a MALT lymphoma (1, 2).

As seen on a mammogram, a MALT lymphoma reveals diffuse involvement or masses with irregular, partially defined, or well-defined margins. As seen on a sonogram, a wide spectrum of appearances ranging from well-defined to poorly defined, focal to diffuse, and hypoechoic to hyperechoic lesions have been described (6).

In this case, a mammogram revealed a lesion with an irregular margined isodense mass without internal calcification. A sonogram showed an oval, circumscribed, and heterogeneously hypoechoic mass with posterior acoustic enhancement.

A Palpable mass with an indistinct margin as seen on a mammogram and hypoechogenicity as seen on a sonogram is suggestive of a malignant lesion. An oval and circumscribed margin of a mass seen on a sonogram is suggestive of a benign lesion. Thus, we classified this mass as BI-RADS category 4b and considered a ductal carcinoma in situ, a lymphoma, an invasive ductal carcinoma, and a metastasis as possible malignant lesions and a fibroadenoma as a possible benign lesion.

A malignant non-Hodgkin’s lymphoma of the breast including a MALT lymphoma may clinically mimic a carcinoma, and it is difficult to differentiate one lesion from the other by a physical examination and image findings (2). A core needle biopsy is a useful diagnostic tool to distinguish between these types of masses. However, the pathological diagnosis of a MALT lymphoma would not have been possible if the whole tumor was not examined. Therefore, surgical resection of the tumor is also an optional local therapy (2, 7). The systemic treatment of malignant non-Hodgkin’s lymphoma of the breast including the MALT lymphoma is chemotherapy including the CHOP regimen (8). The 5-year survival rate of a non-Hodgkin’s lymphoma including a MALT lymphoma in the breast has been reported as 37.6%. Younger patients tend to have a poorer prognosis, and the survival rate improves with increasing age.

Regarding the tumor size, it has been reported that the survival rate is poor when the maximum tumor diameter was larger than 5 cm (9).

In conclusion, since a MALT lymphoma in the breast...
is extremely rare and is diverse in images, it is difficult to differentiate this type of lesion from other malignant masses.

References