



## LETTER TO THE EDITOR

# Primary breast lymphoma

Dear Editor:

Breast lymphoma has been subdivided into primary and secondary types based on the criteria described by Wiseman and Liao [1]. Primary breast lymphoma (PBL) is defined as involvement of the breast localized to one or both breasts with or without regional lymph nodes involvement, whereas secondary breast lymphoma refers to systemic lymph nodes and/or other extranodal organ involvement as well as involvement of one or both breasts. PBL is rare and accounts for less than 1% of all patients with non-Hodgkin's lymphomas and about 0.1% of all patients with breast neoplasms [2].

A 63-year-old female complained of a palpable, painless mass in her right breast for 2 weeks. Physical examination revealed an elastic hard and mobile round mass in the right breast. Mammography showed a 4.9 cm × 4.1 cm oval, hyperdense mass with smooth borders at the upper outer quadrant of the right breast. Ultrasonography revealed a lobulated mass of 4 cm × 2.5 cm with clear margin and mixed hypo-echoic echotexture. Core needle biopsy revealed non-Hodgkin's lymphoma, diffuse, large B cell type. Immunohistochemical studies showed positive LCA and CD20. A whole-body <sup>18</sup>F-fluorodeoxyglucose positron emission tomography/computed tomography (<sup>18</sup>F-FDG-PET/CT) showed a heterogeneously hyperdense and intensely FDG-avid mass in the right breast with maximum standard uptake value (SUV) of 14.4–24.2. There was no abnormal accumulation at any other site. The patient was diagnosed as being at clinical stage I lymphoma. After chemotherapy with six cycles of Mabthera and CHOP (cyclophosphamide, hydroxyl daunorubicin, oncovin, prednisone), the tumor disappeared and there was no relapse after 6 months of follow-up.

Most cases of PBL manifest as painless palpable masses that may mimic carcinoma in 80–100% of patients. Others showed a mass with local inflammation with or without palpable lymph nodes [3]. Mammography of PBL presents as solid masses or diffuse infiltrative type. A hyperdense or isodense noncalcified solitary lobular mass is the most

common finding [4]. The margins of the masses are most commonly irregular or indistinct. Ultrasonography of PBL has various appearances ranging from well defined to indistinct, focal to diffuse, and hypo- to hyperechoic [4]. It most commonly occurs as a solitary hypo-echoic irregular mass with indistinct margins and hypervascularity on Doppler imaging. PBL usually demonstrates rapid early enhancement and washout or plateau kinetics in magnetic resonance imaging (MRI) [4]. These features are characteristic of malignancy.

Diagnosis of PBL can be made with needle core biopsy. FDG-PET/CT plays a role in the staging, follow-up and treatment response of patients with lymphoma. Breast lymphomatous involvement is characterized by increased FDG uptake. The degrees of FDG uptake distinguish aggressive non-Hodgkin's lymphoma from indolent non-Hodgkin's lymphoma [2]. An SUV > 10 suggested more aggressive disease. Decrement of the SUV of the tumor may represent a good response to the therapy.

There is still no universal standard treatment of PBL. Most studies agree that the combination of limited surgery, anthracycline-based systemic chemotherapy, and radiotherapy are the best therapeutic options in patients with PBL [5]. Radical mastectomy may postpone the initiation of systemic chemotherapy and lead to poorer survival. Therefore, it should be avoided [5].

## References

- [1] Wiseman C, Liao KT. Primary lymphoma of the breast. *Cancer* 1972;29:1705–12.
- [2] Nguyen NC, Hueser CN, Kaushik A, Farghaly HR, Osman MM. F-18 fluorodeoxyglucose positron emission tomography and/or computed tomography findings of an unusual breast lymphoma case and concurrent cervical cancer: a case report. *J Med Case Reports* 2010;4:282.
- [3] Seker M, Bilici A, Ustaalioglu BO, Yilmaz B, Ozturk B, Unal A, et al. Clinicopathologic features of the nine patients with primary diffuse large B cell lymphoma of the breast. *Arch Gynecol Obstet* 2011;284:405–9.

- [4] Meerkotter D, Rubin G, Joske F, Angunawela P, Khalafallah A. Primary breast lymphoma: a rare entity. *Radiol Case* 2011;5:1–9.
- [5] Yhim HY, Kang HJ, Choi YH, Kim SJ, Kim WS, Chae YS, et al. Clinical outcomes and prognostic factors in patients with breast diffuse large B cell lymphoma; Consortium for Improving Survival of Lymphoma (CISL) study. *BMC Cancer* 2010;10:321.

En-Hua Huang  
*Department of Radiology,  
Kaohsiung Armed Forces General Hospital,  
Kaohsiung, Taiwan*

Sheng-Fung Lin  
*Division of Hema-Oncology,  
Department of Internal Medicine, Kaohsiung Medical  
University Hospital, Kaohsiung, Taiwan*

*Faculty of Medicine, College of Medicine, Kaohsiung  
Medical University, Kaohsiung, Taiwan*

Hsin-Ling Yin  
*Department of Pathology, Kaohsiung Medical University  
Hospital, Kaohsiung, Taiwan*

Jui-Sheng Hsu\*  
*Department of Medical Imaging, Kaohsiung Medical  
University Hospital, Kaohsiung, Taiwan*  
*Graduate Institute of Medicine College of Medicine,  
Kaohsiung Medical University, Kaohsiung, Taiwan*

\*Corresponding author. 100, Tz-You First Road, Kaohsiung  
807, Taiwan.

*E-mail address: [e3124@ms16.hinet.net](mailto:e3124@ms16.hinet.net)*