Case Report

Primary Breast T-Cell Lymphoma

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Submission: 05-07-2020,
Decision: 10-09-2020,
Acceptance: 16-09-2020,
Web Publication: 02-03-2021.

Abstract

Primary breast lymphoma is an uncommon neoplasm. The vast majority of breast lymphomas are B-cell type; only in a few cases, the tumor cells show a T-phenotype. Because the imaging findings are nonspecific, the diagnosis is made by histology. A 42-year-old woman presented with chief complaints of exertional dyspnea, dry cough, postnasal discharge, and right breast mass during the last month. The patient underwent an excisional biopsy, and a diagnosis of T-cell lymphoma was made. The patient received chemotherapy. After the end of chemotherapy, radiotherapy was done. Primary breast T-cell lymphoma presents as a nonspecific mass on mammography, and as a result, it can be confuse with breast carcinoma. Proper diagnosis and subsequent appropriate treatment lead to excellent prognosis. Chemotherapy is the treatment of choice. Radical surgery should be avoided.

Keywords: *Breast, malignant lymphoma, T-cell type*

Introduction

Malignant lymphoma of the mammary gland is an uncommon entity, and it may be as a primary or secondary neoplasm. Primary breast lymphoma accounts for 0.04%–0.74% of breast cancers and 0.7% of all extranodal non-Hodgkin's lymphoma.[1] It is mainly seen in women and for unknown reasons is more common in the right breast. Generally, T-cell lymphoma is very rare compared with B-cell type, and it is estimated that in Western societies, 12–15% of non-Hodgkin's lymphomas are T-cell type.[2] Here, we report on a case of primary breast T-cell lymphoma (PBTL) in a 42 year-old woman.

Case Report

A 42-year-old woman presented to a city hospital in February 2019 with the chief complaints of a painful, palpable mass in the right breast. Sonography revealed a hyperecho, well-defined mass with microcystic changes but without vascularity. The patient underwent excisional biopsy and the pathologic results were fibroadenoma. Eight months later, in October 2019, she admitted at our hospital with chief complaints of dyspnea, occasional cough, and postnasal discharge. Her dyspnea was augmented in the supine position. She denied any history of fever, weight loss, night sweats, or other symptoms. There was no history of breast cancer as well as lymphoma in the family. Her social history included a 15-year work at gold factory, and she was dealing with radium. General physical examination revealed an oriented conscious and afebrile lady. There was no evidence of cyanosis, digital clubbing, or peripheral edema. On auscultation, breath sounds were reduced at the base of the right lung, and there were crackles at the base of the left side. Peripheral lymphadenopathies were not detected and liver and spleen were impalpable. There was no evidence of retraction or discharge from the nipple. A nontender mass measuring 1 cm × 2 cm in the subareolar area of the left breast was detected. Contralateral breast was unremarkable except for scar from previous surgery. Abdominal and inguinal evaluation was normal. A mammography revealed two foci of densities measuring 20 and 7 mm in the lateral and medial parts of the left breast, respectively (breast imaging reporting and data system [BI-RADS] category 0). Further, a partially dense mass was recognized in the posterior part

Access this article online

Quick Response Code:

Website: www.mjdrdypv.org

DOI: 10.4103/mjdrdypu.mjdrdypu_374_20

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How to cite this article: Binesh F, Yazdi MF, Kamal P, Mirhosseini S, Shahcheraghi SH. Primary breast T-cell lymphoma. Med J DY Patil Vidyapeeth 2021;14:706-8.

of the right breast (the size was not otherwise specified). Laboratory data including the total white cell count and lactate dehydrogenase (LDH) were normal. Owing to patient dyspnea, a chest X-ray was performed which showed right pleural effusion. A pleural fluid tap was done and fluid analysis was as follows: glucose = 92, LDH = 397, protein = 3.4, albumin = 2.6, white blood cell = 960, red blood cells = 1120, PMN = 5%, and lymph = 95%. Acid-fast stain and culture were negative. Computed tomography (CT) showed severe right pleural effusion with passive collapse of the right lower and middle lobes. Mild pericardial effusion was visible. There were a few hyperdense soft tissues in the both breasts [Figure 1]. CT scan of the abdomen was unremarkable. The patient was transferred to the surgical ward and underwent video-assisted thoracoscopic surgery (VAST) and decortication of the pleura with right breast mass excision. The specimens sent to the pathology ward, and microscopic examination of the hematoxylin and eosin-stained slides showed breast parenchyma which was infiltrated by a tumor consisting of round small-to-mediumsized cells [Figure 2]. We encountered a tumor made of round blue cells; hence, to reach a definitive diagnosis, a panel of immunohistochemistry (IHC) stains was requested. The tumor cells were pan-cytokeratin and CD20 negative and diffusely positive for CD3, CD2, CD5, bcl2, and CD45 [Figure 3]. According to these results, the patient was diagnosed with primary T-cell lymphoma (PTBL), unspecified. The microscopic slide related to the pleural biopsy was compatible with lymphomatous involvement. After oncologist counseling, the patient transferred to the oncology ward and treated with cyclophosphamide, doxorubicin, vincristine, and prednisolone [CHOP] regimen, and then, she received radiation therapy. Now, she is well without evidence of relapse.

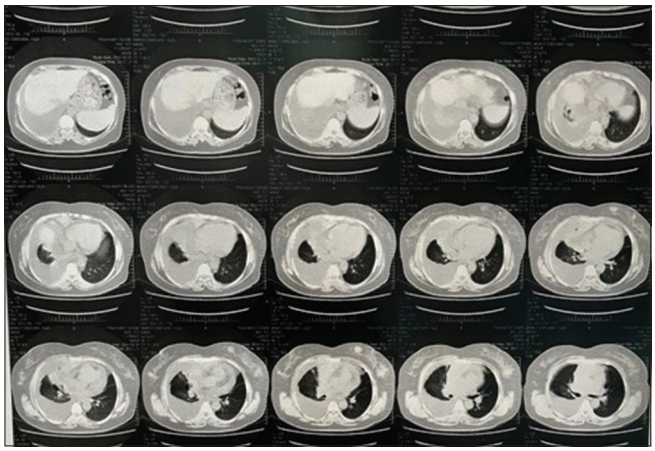

Figure 1: Computed tomography showing severe right pleural effusions with passive collapse of the right lower and middle lobes. Mild pericardial effusion is visible. There are a few hyperdense soft tissues in the both breasts

Discussion

Primary breast lymphoma is a heterogeneous tumor that can only be diagnosed after exclusion of other small round cell tumors. Overall, the disease has been reported between the ages of 17 and 95 years; however, this age range in Western countries is 52 and 65 years.[3] Our patient was 42 years old. The characteristic feature of this disease is the presence of a mobile, nontender, and enlarging mass in the breast.[4] It was true about the presented case. For unknown reasons, breast lymphoma is more common in the right breast, as in the current patient. Skin discoloration, nipple retraction, and bloody discharge are unusual findings in breast lymphoma.[5] It was true about the presented case. The etiology of PTBL is unknown. However, the present case worked at a gold factory, and she was dealing with radium. We believe that radium has been effective in causing this disease. The most common types of breast lymphomas are reported as B-cell type, and T-cell phenotype is actually rare.[6] Wiseman and Liao in 1972 set a standard criterion for differentiating primary and secondary breast lymphomas.[7] These criterion includes the following: "(i) adequate pathological specimens; (ii) mammary tissue and lymphomatous infiltration in close association; (iii) no evidence of lymphomatous infiltrate with other lymphoma focus at the time of diagnosis, except for compromised ipsilateral axillary lymph node; (iv) no prior diagnosis of extramammary lymphoma." In the case of our patient, this criterion applied. As a result, a diagnosis of PTBL was confirmed. In 13–50% of cases, ipsilateral axillary lymph nodes are enlarged.[8] It was not true in the current patient. Radiological images of breast lymphoma often represent a mass with a well-defined margin without calcification. The radiologic differential diagnosis of breast lymphoma includes breast carcinoma, fibroadenoma, and metastatic tumors. Primary breast lymphoma does not have a specific mammographic finding, and sometimes, it is first detected by ultrasonography.[9] On the other hand, results of one study showed that mammographic findings in breast lymphoma are completely different from breast carcinoma.[10] Generally, information about ultrasound and magnetic resonance findings of PBL is limited.[10] About the patient in question, a mammography revealed two foci of

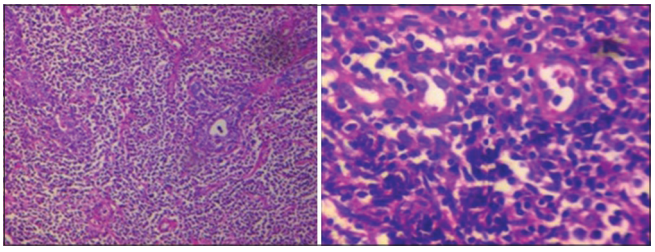

Figure 2: Sections showing breast parenchyma which is infiltrated by a tumor consisted of round small-to-mediumsized lymphoid cells (left panel ×10, right panel ×40)

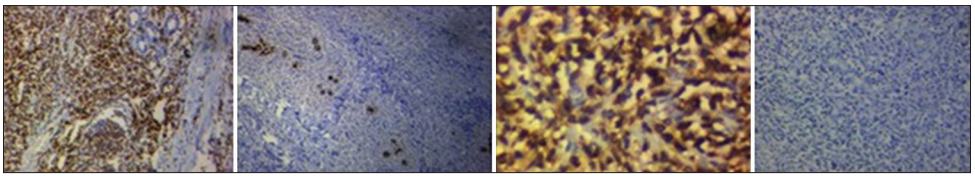

Figure 3: The tumor cells are diffusely positive for CD45, negative for panCK, diffusely positive for CD3, and negative for CD20 (IHC stains)

densities measuring 20 and 7 mm in the lateral and medial parts of the left breast, respectively (BI-RADS category 0). It is very difficult to diagnose breast lymphoma before a biopsy and the diagnosis is based on microscopic and ancillary techniques.[11] To achieve a correct diagnosis, it is essential to send an adequate tissue sample for histological and IHC examination. About how to approach a patient with breast lymphoma, it is recommended that when a patient presents with a lump in the breast, fine-needle aspiration or core needle biopsy should be performed first. However, in the case of the patient who referred with an abnormal finding in imaging studies such as abnormal calcification, a guided biopsy is mandatory. Because respiratory problems were prominent in the current patient, the surgeon decided to do VAST and decortication of the pleura with right breast mass excision.

Treatment includes surgery, chemotherapy, and radiotherapy; of course, surgery has a diagnostic role. As PBTL is a radiosensitive malignant tumor, rendering of 40 Gy to the breast and lymph nodes can prevent local recurrence. Our case treated with CHOP regimen, and then, she received radiation therapy. Radical surgery should be avoided.[12] Little is known about the course and progression of PBTL. The course of the disease is variable but often aggressive. It is shown that stage, international prognostic index, and LDH level are important agents in patient's survival.[13,14]

Conclusion

Because of rarity of PBTL and similar clinical manifestation with breast carcinoma, it is hard to distinguish these two entities; therefore, histologic examination in addition to ancillary techniques have a critical role.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given her consent for her images and other clinical information to be reported in the journal. The patient understand that name and initials will not be published and due efforts will be made to conceal identity, but anonymity cannot be guaranteed.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

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