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Contralateral Breast Diffuse Large B Cell Malignant Lymphoma With Previous MALT Lymphoma

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ABSTRACT

Background: Breast involvement during malignant lymphomas is a rare condition, whether in primary or secondary cases, whereas according to the literature, primary breast lymphomas represents merely less than 0.5% of the breast malignancies.

Case Presentation: The case was a 48 years-old patient referred to the clinic with contralateral breast diffuse large B cell malignant lymphoma. She had an operation for right breast mucosa-associated lymphoma tissue (MALT) lymphoma two-years earlier. The participant experienced surgical excision of the right breast mass and radiotherapy subsequently. Surprisingly, after two years she developed a mass on the left breast, for which we were not able to establish an evident relationship between the earlier MALT lymphoma and the second diffused B cell lymphoma.

Conclusion: Although, our report emphasizes on the undeniable role of the breast examination in prevention of catastrophic events, we are far from providing diagnostic approaches on breast MALT lymphoma, due to minimal case sizes and lack of adequate information and evidences.

Introduction

Breast involvement during malignant lymphomas is a rare condition, whether in primary or secondary cases. However, according to the literature, primary breast represents less than 0.5% of the breast malignancies.[1, 2] Among primary breast lymphomas, mucosa-associated lymphoid tissue (MALT) is a common subtype that affects almost one half of the victims.[3, 4] Mucosa-associated lymphoid tissue is the least developed tissue inside the breast that might be the leading cause of the MALT scarcity in the breast. Therefore, breast involved lymphomas result in 1.7% of the extranodal non-Hodgkin lymphomas.[1, 3, 5] The present report is on a 48 years-old patient with contralateral breast diffuse large B cell malignant lymphoma, who had an operation for right breast MALT lymphoma, two-years earlier.

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Case presentation

In July 2016, a 47-year-old woman underwent an excisional surgery (lumpectomy) for a slightly solid mass on the right upper quadrant of her right breast adjacent to the nipple. She was a non-smoker mother of six children with no history of any malignancy or chronic diseases, no history of using drugs, and no correlated familial history. Postoperative histopathological evaluations revealed dense monomorphous lymphoid infiltration of breast stroma with diffuse growth pattern, consisted of small to medium-sized lymphoid cells with rounded to slightly irregular nuclei. These features of the fibrofatty stroma were suggestive of a typical lymphoepithelial lesion and consistent with marginal zone lymphoma of mucosa-associated lymphoid tissue (MALT). As observed during the surgery and later confirmed by postoperative pathological studies, none of the lymph nodes were involved, and she had N0 regarding TNM scoring.

She had an eventless postoperative recovery and received radiotherapy, subsequently. Afterwards, during the follow-up period, she received ultrasonographic examinations of the breast and tests in lab, including complete blood count and blood proteins level.

In February 2019 and during the routine ultrasonographic evaluation of the breast, the patient presented with a breast mass which reported to be a heterogenous hypoechoic area with tiny cystic components and microcalcifications between 2-3 o'clock position on the left breast near the nipple, which was 45*39*19 mm in size. According to the radiologist's report, the mass had a breast imaging reporting and data system (BI-RADS) category of 4a.[6] Although, the tissue diagnosis report indicated a lower probability of malignancy (between 2-10%), given the suspicious origin of the lesion, the patient was suggested to have a core needle biopsy.

Four months later, core needle biopsy was performed with the sonography guidance fro the 1.5*1.0*0.2 cm mass which included dense infiltration of lymphocytes and lymphoid cells with nuclear atypia. Afterwards, the collected tissue was examined using microscope and the findings showed large irregular and vesicular nuclei for atypical cells, as well as conspicuous nucleoli and scant to moderate amount of clear to eosinophilic cytoplasm. Moreover, the atypical cells had positive reactions to CD20, CD43, LCA, BCL2, BCL6, and Ki67 in immunostaining test. However, there were no signs of irregular cells invasion to the epithelium. Considering the negative reaction of the cells to CD3, CD5, CD23, cyclin D1, CD21, CD10, and CK receptors, the overall diagnosis was diffuse large B cell type of malignant lymphoma. Laboratory tests provided no significant alteration in terms of CBC test components and blood protein electrophoresis, including albumin, Alpha, Beta, and Gamma.

Discussion

As a case report, a woman with resected right breast mass and diagnosed with breast mucosa-associated lymphoma tissue (MALT) lymphoma was introduced. The patient was also diagnosed with a contralateral breast mass two years later. To our knowledge, this is the first report of a case of breast MALT lymphoma with a contralateral diffused B-cell lymphoma, after first surgical excision and radiotherapy. Similar to our patient, the case described by Topalovski et al. (1999) suffered a contralateral breast MALT lymphoma recurrence two years after excisional treatment.[7] Thus, it appeared that the reported case here was consistent with the hematogenous pattern of metastases for breast MALT lymphoma, considering the affected organs and tissues. However, histopathological evaluation revealed a diffuse B cell lymphoma on left breast. Furthermore, it is suggested that right breast is commonly affected by the development of MALT lymphoma, as detected in our patient.

Since its introduction by Isaacson, there has been a very few cases of mucosa-associated lymphoid tissue lymphomas; so that it represents only 5% of the all Non-Hodgkin lymphomas, which develops from specific immune cells including, T cells and B cells developing in lymphoid tissue structures.[5, 8, 9] Although, the primary underlying etiology of the lymphomas, particularly in different organs (e.g. breast MALT lymphoma) is yet to be determined, it is known that immune system dysregulation and immunodeficiency are the culprits of lymphoma progress. In addition, MALT lymphomas are mainly believed to involve gastrointestinal tract tissue, while mucosa-associated lymphoid tissues are widely distributed along the alimentary tract, including Peyer patches, and vermiform appendix. Moreover, there is a relationship between them and chronic Helicobacter pylori infection.[10] However, in extra-gastrointestinal cases, the persistence of chronic inflammatory reactions can lead to immune system dysfunction, autoimmunity, and further development of the lymphomas subsequent to Hashimoto's thyroiditis.[11, 12] Despite the fact that reported case developed breast MALT lymphoma in her 40s, non-Hodgkin lymphomas including MALT lymphoma are primarily developed during the 6th decade of life as recommended by the literature. With due attention to overall prevalence of the primary or secondary breast lymphomas that is extremely low, it is a challenging issue to deal with etiologic characteristics and risk factors of breast MALT lymphoma in patients. However, considering the hypothesis regarding the effect of the sex hormones on the development of the lymphomas in breast tissue, it is assumed that the age of the disease presentation might be in correlation with the sex hormones activity.[13] However, the role of the sex hormones is still a topic of debate, following the controversial outcomes of the previous studies. On the other hand, simultaneous gastrointestinal tract involvement is a normal phenomenon in patients with breast MALT lymphoma, which also proves the probability of the secondary involvement of the breast tissue. However, the patient presented here had no manifestation of other organs' involvement and the lymphoma was detected only in breast tissue either at first presentation or after recurrence.

In general, the disease mimics the constitutional and flu-like symptoms with rare cases of development of the lymphadenopathy. However, the mass palpation during the physical examination was the noteworthiest finding before detailed workups. Similarly, the current case appeared in the clinic with a complaint of a mass on the right superolateral segment of the right breast. Furthermore, several imaging modalities were unable to provide an acceptable and reliable diagnosis of MALT

lymphoma. Thus, our patient underwent ultrasonographic evaluation of the breast tissue, as the single imaging procedure. However, new studies have suggested positron emission topography (PET) scan to provide a promising advancement after diagnosis of the disease via biopsy to assess the distant metastasis.[11,14]

Although, surgical excision of the mass and radiotherapy are the widely administered treatment techniques for breast MALT lymphoma, sometimes patients only receive radiotherapy as the sole treatment, which contributes to low relapse rate, particularly distant relapse.[15] Based on this, the patient underwent surgical excision of the right breast mass and radiotherapy subsequently. Surprisingly, two years later she developed a mass on the left breast for which we were not able to establish an evident relationship between firstly presented MALT lymphoma and the second diffused B cell lymphoma. However, as previously mentioned, hormonal activity is capable of imposing lymphoma formation; therefore, it can be hypothesized that the two malignancy processes were mainly separate events. Still, the both might be induced by same underlying factors.

Unfortunately, our case had neglected the importance of mammographic screening and the first mass was detected during breast palpation. This is a common case for other women in the region that makes them vulnerable to late diagnosis and metastasis. Although, our report may emphasized on the role of the breast examination in prevention of catastrophic events, we are far from providing diagnostic approaches on breast MALT lymphoma, due to minimal case sizes and the need for further studies.

Ethical Consideration

The patient signed the written inform consent.

Conflict of Interest

The authors have none to declare.

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