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Lymphocyte-predominant Hodgkin's Lymphoma: A Case Report of a Unique Large Tumor that Involving Breast and Axillary Tissue

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Abstract Lymphocyte-predominant Hodgkin's lymphoma (LPHL) that involving the breast and axillary tissue is very rare. We report a case of this subtype of Hodgkin's lymphoma (HL) in right breast mass of a 48-year-old man, who presented with a 20 years history of this breast painless mass; but over the past year there has been an increase in the size of the mass, with pain but no discharge. Pathology report after immunohistochemistry (IHC) confirmed the LPHL.

Keywords: *Hodgkin's lymphoma, Lymphocyte-predominant Hodgkin's lymphoma, LPHL*

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1. Introduction

Hodgkin's lymphoma (HL) is a malignancy that derives from differing stages of B-cells differentiation, and divides into two different subtypes: classic Hodgkin's lymphoma (cHL) and Lymphocyte-predominant Hodgkin's lymphoma (LPHL) [1,2]. Between these two subtypes of HL, LPHL is the rarest one and accounting for approximately 3% to 10% (On average, about ~5%) of all HL cases [1-7]. The incidence of LPHL is highest in the third and fourth decade of life, with a tendency towards the older ages and is more common in males [1-4]. Because of the very rare condition of this HL subtype, there is limited evidence about it and its treatment outcomes; so, we considered to share our experience to improve the existing knowledge base.

2. Case Presentation

A 48-year-old man was admitted on 14 June 2016 with chief complaint of right breast mass since 20 years ago. The size of the mass had increased since last year with pain but with no discharge. The mass was non-mobile with approximate size of 10x10x5cm. Past medical history, drug history and family history were unremarkable. Vital signs and physical examination were unremarkable except for non-tender, non-mobile, 10x10x5cm mass adjacent to right nipple with no lymphadenopathy. Clinical impressions were carcinoma, fibroadenoma, cyst, fat necrosis, lipoma, duct ectasia and tuberculosis (abscess). Ultrasound examination on 28 May of the breasts and axillae showed normal size and parenchymal echo in both breasts. Both axillae were without pathologic lesion. In right side between breast and axillary tissue at least two solid hypoecho heterogenous masses with approximate size of 70-90mm and 40-50mm and two cystic masses with diameters of 30-35mm and 20-30mm were present. MRI or CT scan was recommended. The patient underwent debulking surgery on 18 June 2016. The specimen consisted of several pieces of tan/brown fibrofatty tissue measuring 16x13x8cm with overlying skin measuring 9x4x0.4cm. Cut section revealed mass measuring 8cm in diameter. Pathology report after immunohistochemistry (IHC) was compatible with Hodgkin lymphoma, lymphocyte-predominant subtype (Non classic, Figure 1). IHC with EMA (Figure 2), CD20 and CD45 were positive in tumor cells. CD15 (Figure 3), CD30 and CK were negative. Written consent form was obtained. No further follow-up was available for the pathologist.

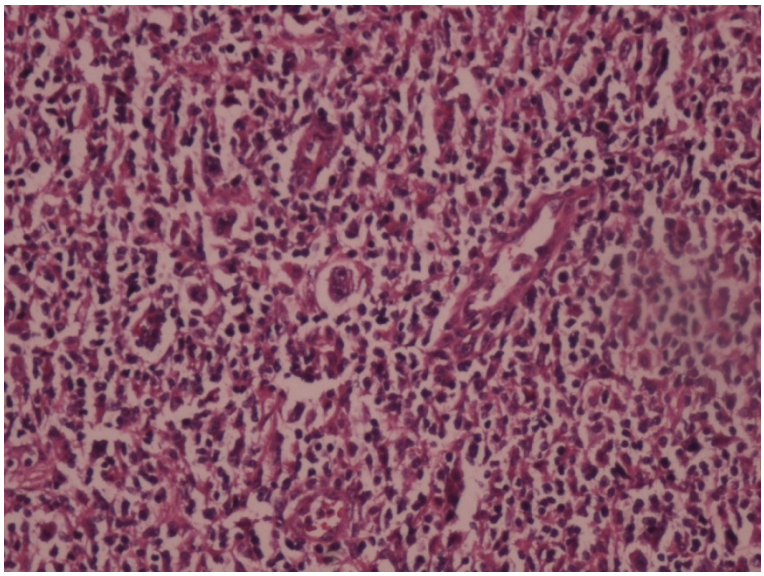

Figure 1. Hodgkin's lymphoma. Reed-Sternberg cells in the background of lymphocytes. Hematoxylin-Eosin staining X200 magnification

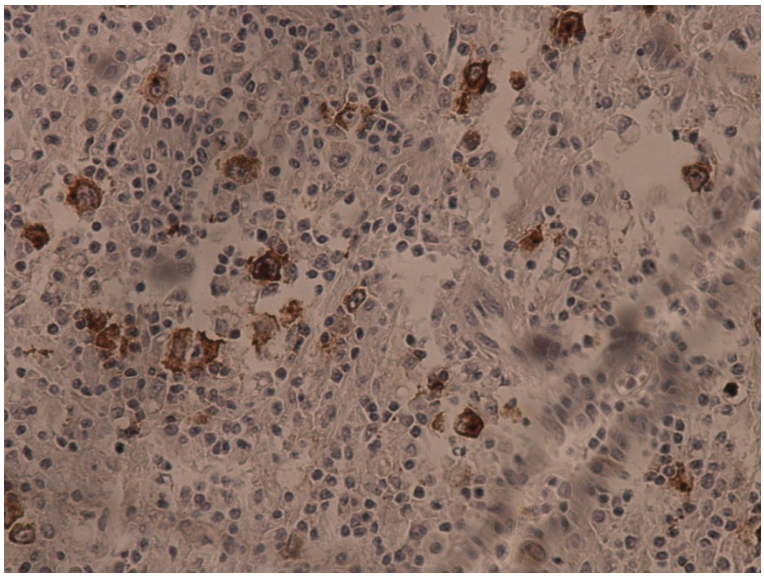

Figure 2. EMA positive tumor cells. Immunohistochemistry staining X200 magnification

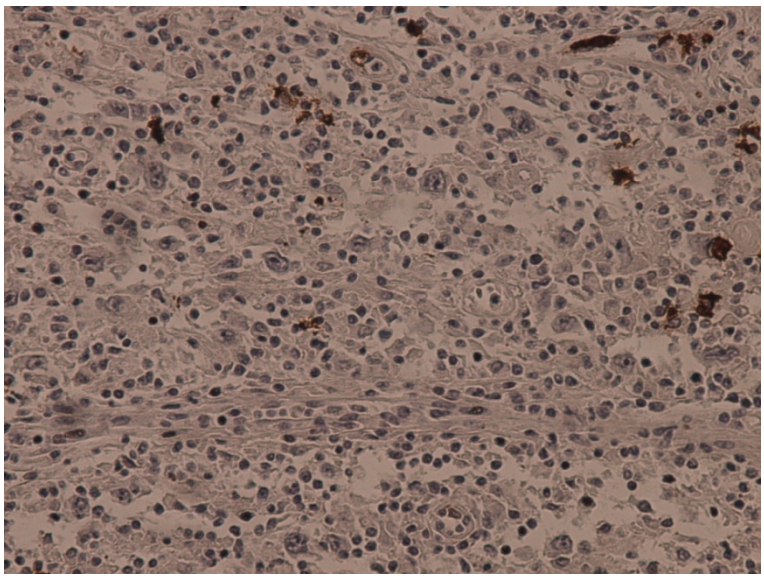

Figure 3. CD15 negative tumor cells in the background of lymphocytes and a few stained neutrophils (positive internal control). Immunohistochemistry staining X200 magnification

3. Discussion

Breast is an uncommon site that affected by different malignancies. Lymphomas of this organ presents as painless palpable round and oval or irregular masses which may involve axillary lymph nodes or not. These lesions may also have a definite margin, or they may not have this feature [8].

Lymphomas that involving the breast and axillary tissue are rare, and account for less than 0.5% of all breast malignancies (Two percent of extra-nodal lymphomas and less than one percent of all non-Hodgkin's lymphomas), while Hodgkin's lymphoma of the breast with axillary tissue involvement is even rarer [8-11]. HL in the breast usually represents metastatic disease [11]. In the majority of cases, HL involves the breast or chest wall first; then spreads to the axillary nodes and causes lymphadenopathy or disseminates the lymphoma after a short period of time [12].

Based on Revised European-American Lymphoma (REAL) in 1994 and World Health Organization (WHO) in 2001 and 2008 classifications, LPHL is a distinct subtype of HL; that its unique clinical and histopathologic features, distinguishes it from cHL [1,2]. At present, our knowledge about LPHL is very limited and because of its rarity, collecting data to understand the etiology of the disease is difficult [1].

Most of our knowledge about LPHL was obtained from reviews and trials of HL and its subgroups that were reported previously. In most of them, the incidence of LPHL is highest in 30–40 years ages with a median age of 34 and as our case, greater male patients' predominance (70%–80%) [1-4]. The CD20 and CD45 (leucocyte common antigen) B-cells marker are usually expressed by Lymphocytic and Histiocytic (L&H) or popcorn of LPHL cells (That derives from pre-apoptotic B-cells) and the CD15 and CD30, which are the characteristic markers of Reed–Sternberg (RS) cells of cHL (That derives from antigen-selected B-cells), are not [2-7].

In addition to MRI, CT scan and ultrasound exams that we used to diagnose LPHL in our case; mammography is also an appropriate way to diagnose breast and axillary tissue malignancies, rarely shows no abnormalities [8].

Principally because of the rare entity of LPHL, treatment for it has not been standardized; and the response rates and overall survival times, may be higher in patients with limited stage of disease compared to those with advanced stage [3].

Osuji et al have compiled the available treatment options for different types of Hodgkin's lymphoma, including LPHL, which includes chemotherapy alone, radiotherapy alone, radiotherapy with chemotherapy, and surgery (lumpectomy, partial mastectomy, modified radical mastectomy) with or without radiotherapy and/or chemotherapy. They also recommended the combination of radiotherapy and chemotherapy as gold standard [13].

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