CD 30 Positive Large B Cell Lymphoma, Mimicking Metastatic Carcinoma: A Case Report

Nila Kurniasari[a,b,c], Ridholia [a,b,c], Leonita Agustin [a,b], Ami Ashariyati [b], Ugroseno Yudho Bintoro [b,d], Putu Niken Ayu Amrita [b,d], Merlyna Savitri [b,d]

Corresponding author: nila-k@fk.unair.ac.id
[a]Department of Anatomical Pathology, Faculty of Medicine, Universitas Airlangga, Indonesia
[b]Dr. Soetomo General Academic Hospital, Surabaya, Indonesia
[c]Universitas Airlangga Hospital, Surabaya, Indonesia
[d]Department of Internal Medicine, Univeristas Airlangga, Indonesia

Abstract

Non Hodgkin Lymphoma, either the B or T cell can infiltrate the sinusoids region. The T cell lymphoma, especially for Anaplastic Large Cell Lymphoma usually shows the sinusoidal pattern, but this feature are rare for B cell lymphoma. We present a 63-year-old female, who came in with a mayor complaint of mass in the axillar region for 2 months. The lymphnode ultrasound revealed multiple suspicious lymphadenopathes in the right upper jugular, both axilla and inguinal region sized 0.5 cm to 3 cm. HE staining from the axillar mass biopsy showed sinusoidal growth pattern, composed of large atypical cells, round to oval nuclei, pleomorphic, and prominent nucleoli, with some large bizzare cells mimicking hallmark cells, and we proposed it as metastatic carcinoma with a differential diagnosis of Anaplastic Large Cell Lymphoma, but the immunohistochemical staining showed uncommon feature of Non Hodgkin lymphoma B cell with pleomorphic nuclei and CD 30 expression.

Keywords : Diffuse large B cell lymphoma, Metastatic carcinoma, CD 30, Cancer cells ;

1. Introduction

The neoplasm known as diffuse large B-cell lymphoma (DLBCL) is characterized by medium- to large-sized B lymphoid cells with nuclei that are twice as large as those of normal lymphocytes, larger than those of normal macrophages, or both (Swerdlow et al., 2017). This pattern has been characterized as an uncommon morphologic form of diffuse large B-cell lymphoma that can selectively and predominately infiltrate lymph node sinuses. Its lack of characterization is probably due to its rarity. Even less common are sinusoidal large B-cell lymphomas that express CD30. According to our knowledge, only three of these cases have been briefly reported in a recent study; each of the three patients had a history of follicular lymphoma before developing CD30-positive large B-cell lymphoma (Alsabeh et al., 1997). The sinusoidal and cohesive development pattern of these tumors should be used to differentiate them from metastatic carcinoma; from anaplastic large cell lymphoma of T-cell origin with ALK positivity; from the sinusoidal growth pattern of other LBCLs that are ALK-negative, CD30 may be positive, and they may express pan-B-cell antigens; and from other immunoblastic appearing or plasmablastic lymphomas that are ALK-negative (Swerdlow et al., 2017).

2. Case Description

A 63-year-old female, the patient's primary complaint was a lump in the axilla for two months. The thorax X-ray was unremarkable, with no mass in the mediastinum. The ultrasound of upper and lower abdomen also showed no abnormality. The lymphnode ultrasound revealed multiple suspicious lymphadenopathes in the right upper jugular, both axilla and inguinal region sized 0.5 cm to 3 cm.

HE staining from the axillar mass biopsy showed sinusoidal growth pattern, composed of large atypical cells, round to oval nuclei, pleomorphic, and prominent nucleoli, with some large bizzare cells mimicking hallmark cells, and we proposed it as metastatic carcinoma with a differential diagnosis of Anaplastic Large Cell Lymphoma (Figure 1).

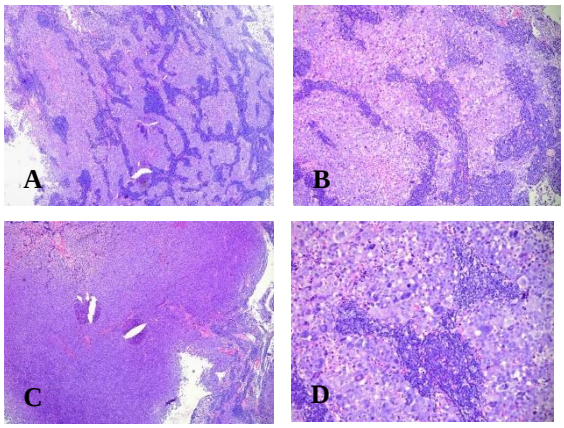
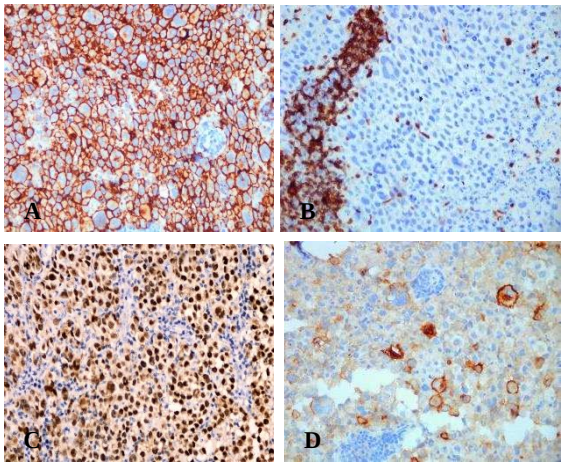


Fig. 1. HE staining showed sinusoidal pattern (A& B) with some diffuse area (C). The large bizzare cells mimicking epithelial cells or hallmark cells was appreciated (D).

On immunohistochemical staining, all cells showed strong positivity with CD45 and negative for cytokeratin. CD 20 was diffusely positive, Pax-5 was strongly positive, CD 30 was also strongly positive in some of the cells. This tumor also showed high index proliferation of Ki-67 (60%). Staining for CD3, ALK-1 and CD 138 was negative (Figure 2).



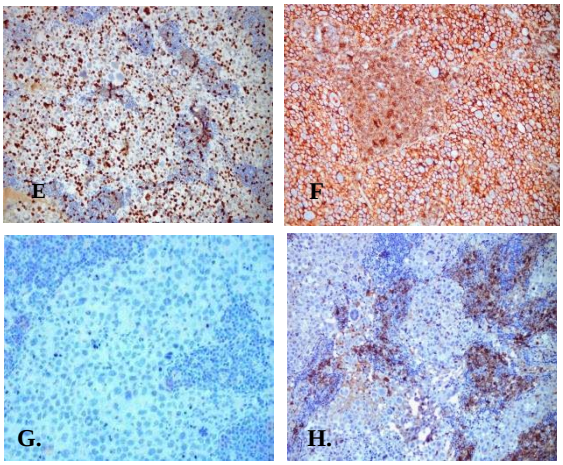


Fig. 2. The immunohistochemical findings of the tumor A: The lymphoma cells expressing CD 20 diffusely; B: Negativity for CD3; C: Strong expression of Pax-5; D: Strong expression of CD 30 in some of tumor cells; E: Ki-67 staining shows a high proliferation index; F: Positivity for CD45; G, H: Negativity of Cytokeratin and CD138.

Treatment of R-CHOP21 for 6 cycles was given to the patient. Evaluation by CT scan at the end of sixth cycle showed complete response. Monitoring 3-monthly to 24 months was planned and in the 6-month period, the patient was still in remission.

3. Discussion

The most frequent kind of lymphoma, diffuse large B cell lymphoma (DLBCL), accounts for roughly 25–30% of cases and includes a variety of disease entities. The majority of cases are however still categorized as DLBCL, not otherwise indicated (NOS). DLBCL-NOS is a diverse group in terms of appearance, clinical presentation, biology, and therapeutic response. DLBCL can be divided into subgroups depending on their cytologic characteristics (such as centroblastic, immunoblastic, or anaplastic morphology), the major location of involvement (nodal or extranodal), and the clinical context in which they are present (e.g., normal or compromised immunity) (Swerdlow et al., 2017).

The characterized anaplastic variant of DLBCL has large to extremely large cells with bizarre pleomorphic nuclei that may resemble, at least in part, Hodgkin/Reed-Sternberg cells, and may resemble the neoplastic cells of anaplastic large cell lymphoma. The cells may imitate undifferentiated carcinoma and exhibit a sinusoidal and/or cohesive growth pattern. The anaplastic variant and anaplastic large cell lymphoma have no biological or clinical relationship, which is frequently derived from cytotoxic T cells, and distinct from ALK-positive large B-cell lymphoma, which lacks CD20 and CD30 expression (Swerdlow et al., 2017).

Ki-1 (CD30)-positive large cell lymphoma, which was the original term for anaplastic large cell lymphoma (ALCL), has been acknowledged as a clinicopathologic entity (Morris et al., 1994). Stein et al. first identified ALCL as a tumor made up of giant pleomorphic lymphoid cells with the CD30 antigen and a tendency to infiltrate lymph node sinuses. Even while T/null lymphomas made up the majority of these tumors, some instances had B-cell origins. It has recently been discovered that ALCL can have a wide range of cytologic characteristics. In addition, a subpopulation of ALCL that has the chromosomal anomaly t(2;5)(p23; q35) overexpresses anaplastic lymphoma kinase (ALK)-1 and is linked to younger patient ages and improved prognoses. Contrary to ALCL of T/null lineage, the majority of CD30-positive large B-cell lymphomas lack t(2;5)(p23;q35), test negative for ALK-1, and exhibit clinical behavior that is worse than ALCL and more

resemblant to diffuse large B-cell lymphomas. Therefore, in the updated European-American classification of lymphoid neoplasm and the recently proposed World Health Organization classification systems, CD30-positive large B-cell lymphoma has been eliminated from the ALCL category. (Lai et al., 2000).

Our case showed a sinusoidal pattern of large atypical cells, round to oval nuclei, pleomorphic, and prominent nucleoli, with some large bizzare cells mimicking hallmark cells. This pattern can be found in other malignancies such as metastatic carcinoma, Anaplastic Large Cell Lymphoma (ALCL), ALK positive Diffuse Large B Cell Lymphoma (DLBCL), Anaplastic DLBCL and Plasmablastic Lymphoma (PBL).

Metastatic carcinoma will be positive in cytokeratin staining and other staining that is consistent with the source of primary tumor such as TTF-1, Napsin A for lung Adenocarcinoma, and P40, CK5/6 for Squamous cell lung carcinoma (Inamura, 2018). GCDFP-15 and mammaglobin can be useful for diagnosis of metastatic breast cancer (Zaha, 2014). This patient showed no nodules in the lung and breast on radiological examination.

Our case showed a negative result for cytokeratine and positive result for CD45, that excluded the epithelial origin, whereas the diffuse and strong positivity of CD 20 and pax-5 confirmed its B cell lineage. CD 30 was positive in some of the neoplastic cells, membrane and golgi pattern. This finding is in line with that of Lai et al. (2000), who found that 8 out of 11 CD-30 positive large B cell lymphoma cases had a predominance of cells with cytologic characteristics resembling those of the classic type of anaplastic large cell lymphoma, while only 3 of the cases had a sinusoidal pattern and 2 had EBER positivity. By virtue of their B-cell lineage, consistent CD45 expression, and lack of ALK-1 expression, the constant finding for ALK-positive ALCL was lacking despite the general histologic similarities with ALCL (Lai et al., 2000). The results of immunohistichemical staining aresummarized in Table 1, compared to other lymphomas.

Table 1. Summary of immunohistochemical staining compared to other lymphomas

Immunohistochemistry	DLCBL	ALCL	PBL	Our Case
CD 30	(-/+)	(+)	(+/-)	(+)
CD 3	(-)	(-/+)	(-)	(-)
CD 20	(+)	(-)	(-/+) weak	(+)
ALK	(-)	(+) nuclear & cytoplasm	(-)	(-)
CD 45	(+)	(+) variably	(-/+) weak	(+)
CD 138	(-)	(-)	(+)	(-)
Cytokeratin	(-)	(-)	(-)	(-)
Pax-5	(+)	(-)	(-/+) focal	(+)

DLBCL: Diffuse Large B Cell Lymphoma; ALCL: Anaplastic Large Cell Lymphoma; PBL: Plasmablastic Lymphoma

A study by Slack et al. (2014) stated that CD30 expression predicts significantly better progression-free survival within GCB DLBCL, but not non-GCB DLBCL, and this was independent of the IPI. In R-CHOP treated GCB-DLBCL, CD30 immunohistochemistry may be helpful as a prognostic marker since it is linked to a tendency for a better outcome (Slack, Steidl and Sehn, 2014; Swerdlow et al., 2017). According to a different research, DLBCL patients that express of CD30 treated with CHOP or R-CHOP, particularly those

with high intermediate/high-risk IPI, had a worse result. Patients with DLBCL who express CD30 are more likely to have B symptoms, involvement of the bone marrow, non-germinal center B-cell-like (Non-GCB) DLBCL, BCL-2, and Ki-67 overexpression (Hao et al., 2015).

Our patient presented with a good IPI score (score 2), and she underwent 6 cycles of chemotherapy with R-CHOP and showed complete remission. The survival of the patient is still in our observation.

Finally, the small prevalence of CD30 expression in patients with DLBCL justifies research into innovative treatment approaches, such as the use of brentuximab vedotin in addition to conventional frontline medications or as an alternate therapy in cases of recurrence or resistance (Slack, Steidl and Sehn, 2014).

4. Conclusion

We presented a case 63-year-old female of axillar lymphadenopathy that showed a morphological feature of sinusoidal lymphoma which mimicked metastatic carcinoma and ALCL. The immunohistochemical studies revealed that it belonged to the B-cell lineage, expressed CD-30, and concluded as CD 30-positive anaplastic diffuse large B-cell lymphoma NOS.

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