CASE REPORT

Unusual Alveolar Pattern in Node Based Diffuse Large B-cell Lymphoma

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Abstract:

Diffuse Large B-cell Lymphoma (DLBCL) is the most common subtype of non-Hodgkin's lymphoma worldwide. We present a case of 45 year old male patient presenting with swelling in right side of the neck since 6 months. A cytological aspirate of the lymph node suggested possibility of malignancy and excision biopsy was advised. Histopathology revealed a well-developed alveolar pattern with nests of dyscohesive large round tumour cells separated by delicate fibrovascular septae. Tumour cells were positive for CD45, CD20 and BCL-6 and negative for CD3, CD 5, CD 10, BCL-2, Desmin, Chromogranin, Synaptophysin and S-100. Based on histopathology and immunohistochemical findings, final diagnosis of DLBCL, NOS was given. The case is presented to highlight an unusual morphological alveolar growth pattern in DLBCL.

Keywords: DLBCL, Lymph node, Alveolar Pattern

Introduction

Diffuse Large B-Cell Lymphoma (DLBCL) displays striking heterogeneity at the clinical, morphological and molecular genetics level [1]. This category was included in both the Revised European American Lymphoma (REAL) classification system and the World Health Organization (WHO) classifications of 2001 and 2008, [2] with the aim of lumping together all malignant lymphomas which were characterized by the large size of the neoplastic cells of B-cell derivation, having an aggressive clinical presentation and requiring highly effective chemotherapy regimens [3].

Herein, we report a case of DLBCL, NOS with an alveolar growth pattern in a 45-year-old male presenting with a cervical lymphadenopathy. This article emphasizes the potential differential diagnosis of tumour with alveolar pattern and the use of a combination of histological and immunohistochemical findings in establishing the definite diagnosis.

Case Report:

A 45-year-old male patient presented with the complaints of progressively increasing swelling in the right side of neck since 6 months and generalised weakness since 4 months. There was no history of fever, cough and any other constitutional symptoms. On palpation, the swelling was 4x3 cm, hard, immobile and tender. The overlying skin was unremarkable. A peripheral blood examination revealed pancytopenia. Biochemical analysis revealed indirect bilirubinaemia and raised LDH and uric acid levels. Rest of the parameters were within normal range. X-ray chest was normal, USG abdomen revealed hepatosplenomegaly. CT neck and MRI revealed multiple enlarged cervical lymph nodes (Fig. 1a, b, c). Bone marrow aspiration was done which showed extensive lymphoid infiltrate (Fig. 2a). Fine needle aspiration cytology of this lymph node showed polymorphous population of cells along with monomorphic large cells with open chromatin and prominent nucleoli, suspicious of malignancy (Fig. 2b). Excision biopsy of lymph node was advised.

The mass was homogeneous, greyish white, nodular measuring 4x3x2 cm. On microscopy, there was effacement of normal nodal architecture with diffuse infiltration by the large round cells. Tumour cells were arranged in alveolar pattern

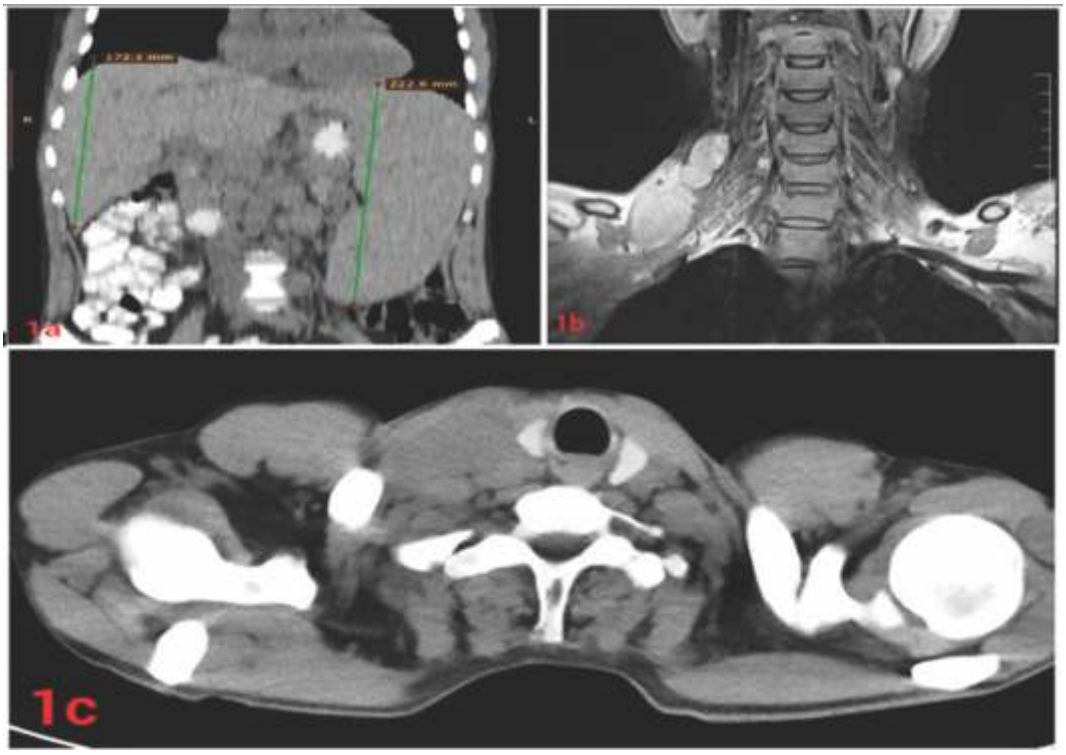

Fig. 1a: USG Abdomen/Pelvis showing Hepatosplenomegaly, Fig. 1b: T1 MRI of neck- Coronal Section - showing Cervical Lymphadenopathy, Fig. 1c: CT Scan - Axial View showing Cervical Lymphadenopathy

separated by fibrous septae with patchy areas of spotty necrosis. The fibrous septae were seen dividing the malignant cells into nests. Tumour cells were dyscohesive, large, round with scanty cytoplasm and hyperchromatic nuclei with prominent nucleoli (Fig. 2c, 2d).

Extranodal extension was seen. Reticulin stain was done which demonstrated fibrous septae dividing the proliferating tumour cells into nested pattern (Fig. 3a). Based on the morphology and characteristic alveolar pattern, differential diagnosis of malignant round cell tumor with alveolar pattern such as alveolar rhabdo-myosarcoma, malignant lymphoma, metastasis from seminoma, metastatic carcinoma from lung, malignant melanoma and paraganglioma were considered. Panel of Immunohistochemical (IHC) markers including Cluster Designation (CD) marker 45 (Fig. 3b), CD 20 (Fig. 3c), CD 3 (Fig. 3d), CD5, CD10, Pan CK (Fig. 4a), Desmin (Fig. 4b), Synaptophysin, Chromogranin (Fig. 4c) and S-100 (Fig. 4d) were done. USG inguinoscrotal region was advised, which did not reveal any tumour mass ruling out metastasis from seminoma.

Desmin and S-100 negativity ruled out alveolar rhabdomyosarcoma and malignant melanoma respectively. Paraganglioma was also ruled out as synaptophysin and chromogranin were negative. Metastasis from lung was ruled out as there were no supportive radiological findings and also Pan-CK was negative. CD 45 was positive, confirming the diagnosis of lymphoma. The tumour cells were positive for CD 20 and BCL-6 and negative for CD3, CD 5, CD 10 and BCL-2. So a final diagnosis of diffuse large B-cell Non-Hodgkin's lymphoma was made. Patient is treated with CHOP regimen and is on regular follow up since last four months.

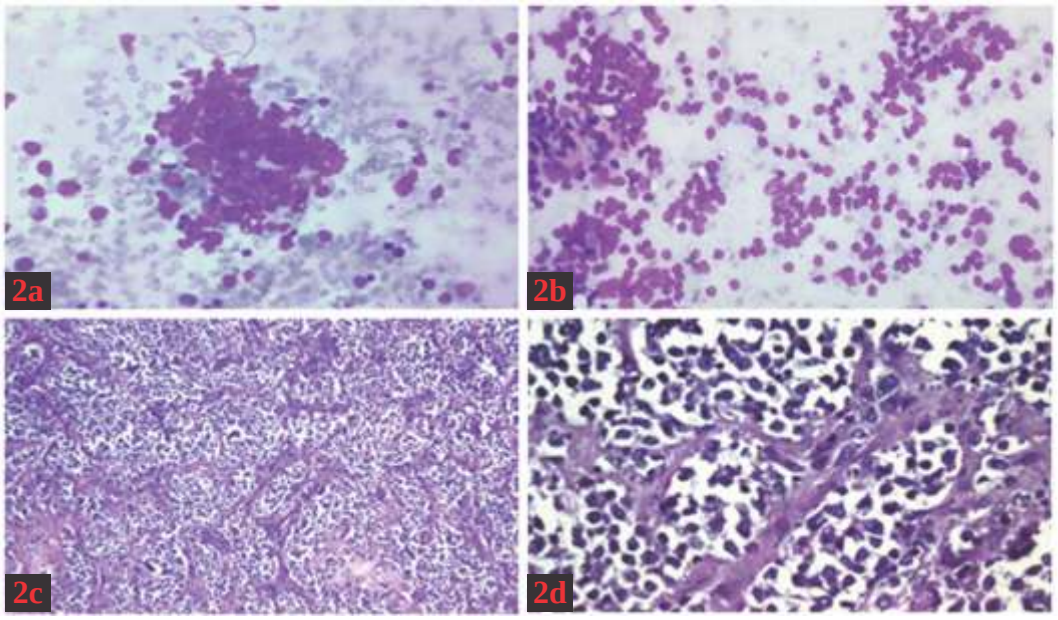

Fig. 2a: Bone Marrow Aspiration showing Extensive Lymphoid Infiltrate (Leishmann, x100) Fig. 2b: FNAC showing Polymorphous Population of Cells along with Monomorphic Large Cells with Open Chromatin and Prominent Nucleoli (Leishmann, x100) Fig. 2c: Histopathology showing Alveolar Arrangement of Tumour Cells (H&E, x100) Fig. 2d: Dyscohesive, Round, Large Tumour Cells with Scanty Cytoplasm and Hyperchromatic Nuclei with Prominent Nucleoli (H&E, x400)

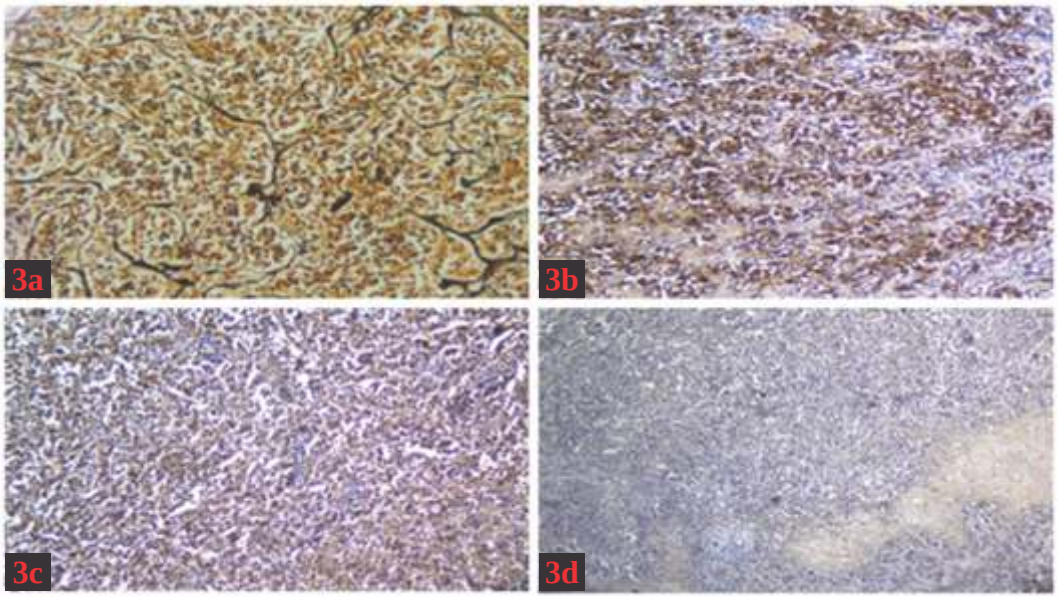

Fig. 3a: Reticulin Stain showing Fibrous Septae Dividing the Proliferating Tumour Cells into Nested Pattern, Fig. 3b: CD 45 showing Diffuse Cytoplasmic Positivity (IHC, X100), Fig. 3c: CD 20 showing Diffuse Cytoplasmic Positivity (IHC, X100), Fig. 3d: CD 3 showing Negativity In Tumour Cells (IHC, X100)

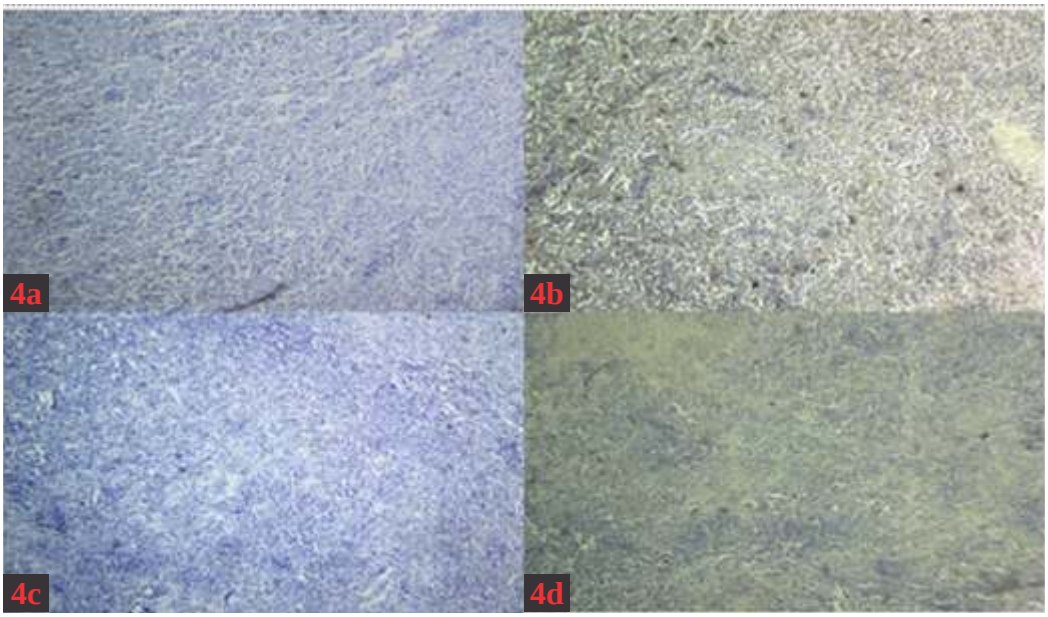

Fig. 4a: Negative IHC Staining of PAN CK (IHC, x100), Fig. 4b: Negative IHC Staining of Desmin (IHC, x100) Fig. 4c: Negative IHC Staining of Chromogranin (IHC, x100) Fig. 4d: Negative IHC Staining of S-100 (IHC, x100)

Discussion:

In the presented case, the alveolar pattern of arrangement was found which is not a typical presentation of B cell NHL. There is a single case of clear cell variant of diffuse large B cell lymphoma reported in the literature for its partial alveolar pattern of growth which mimicked metastatic carcinoma [4]. ALK-positive anaplastic large cell lymphoma can be presented in alveolar pattern [5]. The case is presented to highlight the alveolar growth pattern which arouses suspicion of varied differential diagnosis pathologically requiring utility of IHC for definite diagnosis. This is essential for deciding the modality of management of the patient. The incidence of B-cell lymphomas is 5.1% of all cancer cases and 2.7% of all cancer deaths occurring because of B-cell lymphomas [6]. It is the eighth most commonly diagnosed cancer in men and eleventh in women. 85% of all Non-Hodgkin's lymphomas are B-cell lymphomas. DLBCL is the most common B cell NHLs and constitutes about 30% to 50% cases. Elderly males mainly in the seventh decade are more commonly affected [7]. Patients usually present with a rapidly enlarging tumour mass at single or multiple nodal or extranodal sites. Lymph node demonstrates a diffuse proliferation of large lymphoid cells that have totally or partially effaced architecture. The perinodal tissue is often infiltrated. Broad or fine bands of sclerosis may be observed. Common morphological variants are centroblastic, immunoblastic and anaplastic. DLBCL are aggressive but potentially curable with multiagent chemotherapy. The CHOP regimen has been the mainstay of therapy. Our case was unusual due to characteristic alveolar pattern observed under the microscope. This led us to rule out the entire possible diagnosis involving alveolar pattern. Alveolar rhabdo-myosarcoma is generally seen in the age group of

10-25 years, microscopically shows small round or oval tumour cells separated in nests by connective tissue septae. Cytoplasm shows deep acidophilia and multinucleated giant cells [8] which was not seen in our case. Alveolar soft part sarcoma was not considered as they occur more commonly in young females and have larger tumour cells separated by thin walled vascular septae. These cells show mild pleomorphic, vesicular nuclei with prominent nucleoli. They are also desmin and actin positive [9]. The present case revealed few extracellular brownish pigments hence metastatic melanoma was considered. These were negative for Perl's Prussian Blue and Masson Fontana stain. S-100 was also negative which ruled out malignant melanoma. Considering the cervical region, paraganglioma was also considered as a differential diagnosis, however, absence of characteristic Zellballen pattern and spiculated nuclear chromatin, with negative synaptophysin and chromogranin ruled out the possibility. Negative Pan-CK IHC helped us to rule out metastatic deposits from small cell carcinoma of lung. Thus, the case also reinforces the importance of IHC in diagnosing Malignant round cell tumours.

Conclusion:

The case is presented to highlight the alveolar pattern seen in DLBCL type of Non-hodgkin lymphoma. Alveolar growth pattern may arouse suspicion of varied differential diagnosis ranging from metastatic carcinoma to lymphoma. IHC is a gold standard for definite diagnosis of these lesions.

References

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