



Primary Thyroid Diffuse Large B-Cell Lymphoma with Spindle Cell Morphology: A Case Report

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Abstract

A Diffuse Large B-Cell Lymphoma (DLBCL) with spindle cell components is extremely rare and often misdiagnosed as a carcinoma or sarcoma. Here, we present a case of primary DLBCL with a spindle cell morphology arising in the thyroid, for which needle cytology was unsuccessful for obtaining a preoperative diagnosis. An 82-year-old female was examined for a rapid enlarging mass in the anterior neck area and computed tomography scanning showed a tumor that was 40 mm in size, without cyst or calcification. A left partial thyroidectomy was performed, followed by histological examinations revealed. Microscopy findings of the resected thyroid tumor revealed a diffuse or epithelioid pattern of round and polygonal cells mixed with the fascicles of spindle cells. In immunohistochemical results, all types of tumor cells showed positive staining for CD45, CD20, CD79a, CD10, and bcl-2, and were negative for CKAE1/AE3, TTF-1, MUN-1, CD3, CD5, bcl-2, IRTA-1, cyclin D1, c-myc, and EBER. Furthermore, a lymphocyte marker (CD45), B-cell markers (CD20 and CD79a). A lymphoma with spindle cell morphology is quite uncommon, and this variant can be difficult to diagnose. The present findings emphasized that pathologists remain aware of a possible lymphoma for a differential diagnosis of tumors with spindle cell components.

Keywords: Malignant lymphoma; Thyroid; Spindle cell morphology

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Introduction

Diffuse Large B-Cell Lymphoma (DLBCL) is the most common type of non-Hodgkin lymphoma, and constitutes 25% to 30% in associated case, while those with spindle cell features are extremely rare [1]. The tumors showing a spindle cell morphology and identified as a type of primary thyroid sarcoma are most commonly classified as sarcoma, angiosarcoma, malignant hemangioendothelioma, malignant fibrous histiocytoma, leiomyosarcoma, fibrosarcoma, Ewing sarcoma, or liposarcoma is reported, as an identified types of primary thyroid sarcoma [2]. However, it is difficult to discriminate between a DLBCL with spindle cell morphology and each type of sarcoma. We experienced a case of DLBCL with spindle cell morphology shown to be a DLBCL with spindle cell morphology findings, which were obtained with an immunohistochemical examination.

Case Presentation

An 82-year-old female noticed swelling in the anterior neck area twenty days before the initial consultation. The patient presented came to our hospital and a rapidly enlarging tumor mass was noted, as well as difficulties with eating and in breathing. Computed Tomography (CT) scanning showed a 40 mm-sized tumor of the left lobe without cyst or calcification (Figure 1A). Although located adjacent to the trachea, there seemed to be no invasion of the lumen, while swelling of the pre-tracheal lymph node was found and she was admitted.

Upon admission, the IL-2 receptor was not measured, while after resection that was 227.0 U/ml. Systemic examination findings showed no neoplastic cell invasion. A fine needle aspiration smear of the tumor revealed small clusters of follicular epithelial cells with mild nuclear atypia including delicate chromatin and irregular nuclear grooves, while no spindle-shaped cells or intranuclear inclusion were seen. We could not exclude a malignant tumor, and the patient underwent a left partial thyroidectomy. The resected thyroid tumor measured 40 mm × 30 mm × 20 mm and was white to gray in color, solid, mass (Figure 1B). Microscopic examination results showed a diffuse or epithelioid pattern of round and polygonal cells mixed with the fascicles of spindle cells. All tumor cells were irregularly shaped with vesicular and hyper chromatic nuclei, while a few demonstrated membrane-bound nucleoli. Spindle-shaped cells comprised approximately 10% of all tumor

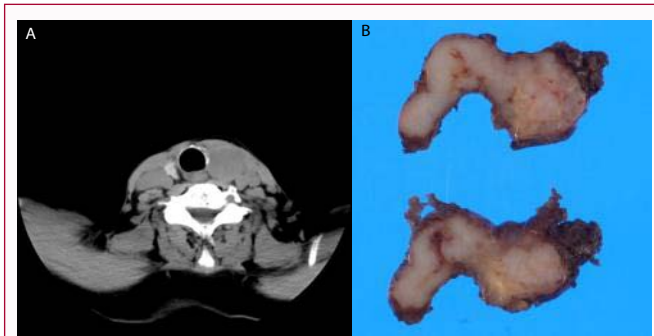


Figure 1: (A) Enhanced CT findings showing a large tumor, 40 mm in diameter, in the left lobe of the thyroid. There was broad contact with the trachea, though it appeared unlikely to have invaded the lumen. (B) Macroscopic appearance of resected thyroid, 40 mm × 30 mm × 20 mm in size, seen as a solid and well-circumscribed mass, white to gray in color. Bar 3 cm.

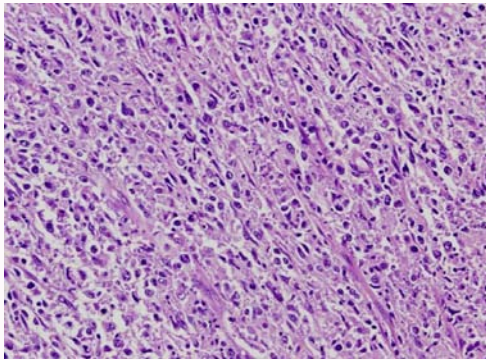


Figure 2: Microscopic appearance of tumor. A diffuse or epithelioid pattern of round and polygonal cells mixed with the fascicles of spindle cells.

cells and most of those had nuclear atypia (Figure 2). Tumor cells occupied most of the resected specimen. The tumor was nearly fully surrounded by thin fibrous tissue and no tumor cells invasion beyond the capsule was found.

Immunohistochemical results showed that, all morphological types of tumor cells had positive staining for CD45, CD20 (Figure 3A), CD79a, CD10, and bcl-2, while they were negative for CKAE1/AE3, TTF-1, MUN-1, CD3, CD5, bcl-2, IRTA-1, cyclin D1, c-myc and EBER. Furthermore, α -Smooth Muscle Actin (SMA) immunostaining was present in the vascular wall and spindle cells (Figure 3B).

Discussion

The spectrum of DLBCL is extremely broad and includes several variants [1,3], though these with spindle cell morphology are extremely rare [1,3]. As for the DLBCL variant arising in the thyroid noted in present patient, there have been no other reports presented to date. In more than half of reported cases, the initial diagnosis was sarcoma or sarcomatoid carcinoma [4]. In the present case, a preoperative diagnosis based on aspiration cytology could not be obtained. Immunohistochemical staining of surgical specimens confirmed the pathological diagnosis.

Due to its microscopic morphology, especially when occurring in the skin, this type is easy to misdiagnose as spindle cell sarcoma, or inflammatory pseudotumor [5]. Also follicular dendritic cell sarcoma has been reported to a mimic diffuse large cell lymphoma [6]. For such cases, immunohistochemical examination results are

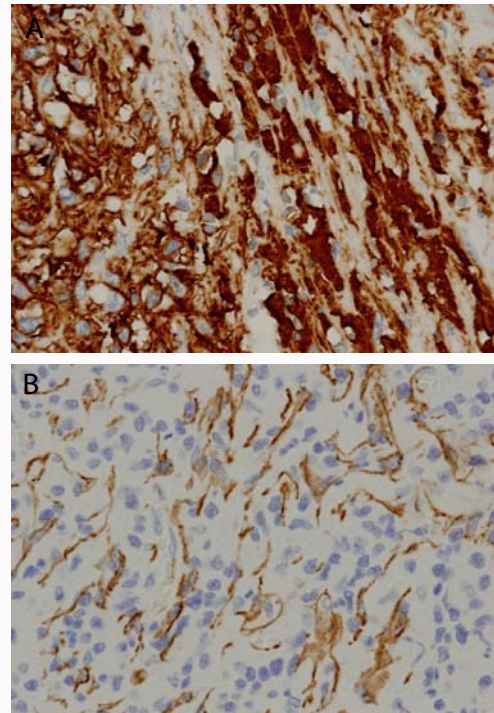


Figure 3: (A) Immunohistochemical expression of CD20. (B) SMA expression of spindle-shaped cells.

quite useful for differential diagnosis.

Cases of primary DLBCL with a spindle cell morphology arising in the some locations, of which most were found arising from the soft tissue, mucosa, or skin [4,5,7,8]. While such a tumor arising from an essential organ is extremely rare. To the best of our knowledge, in other cases with a primary DLBCL with a spindle cell morphology arising from essential organs, the location has been limited to the liver and uterine cervix [4,9]. Another study noted that primary DLBCL with a spindle cell morphology arising from the liver represented 0.4% of extranodal non-Hodgkin lymphoma and 0.016% of all non-Hodgkin lymphoma cases [10], while only two cases of primary DLBCL with a spindle cell morphology arising from the uterine cervix have been reported [11,12]. According to previous related investigations [10-12], clinical, biological, and radiological features of a DLBCL with spindle cell morphology were non-specific, and diagnosis should be made based on biopsy results along with histological and immunohistochemical findings, because of potential of an initial misdiagnosis of various types of sarcoma or sarcomatoid sarcoma. Unfortunately, a biopsy was not performed in the present case. In addition, it is difficult to make a diagnosis of DLBCL with spindle cell morphology using spindle-shaped cells obtained with a fine needle aspiration cytology procedure [12]. In the present case, no spindle-shaped cells were seen and fine needle aspiration cytology was unsuccessful.

It is currently considered that the spindle formation probably results from an aberration in the cytoskeleton, and Nozawa et al. [3] reported that SMA expression may be associated with the spindle morphology of lymphoma cells. On the other hand, a lymphoma with spindle morphology has been reported to be associated with an exuberant mesenchymal reaction [13], which predominantly occurs in the peripheral portion of the tumor and shows spindle cells lacking nuclear atypia. In the present case, spindle-shaped tumor

cells with nuclear atypia were present and shown to be positive for SMA. Although the exact mechanism of the spindle-shaped changes in lymphoma cell remains unknown, the presence of SMA-positive cells suggests an aberration in the cytoskeleton of spindle-shaped cells of a DLBCL.

Conclusion

We present here the first known case of primary DLBCL with spindle cell morphology. Pathological diagnosis based on needle biopsy or needle aspiration cytology findings was very difficult due to not only inadequate materials obtained but also rarity and morphological inconsistency. Histological results of this morphological variant can be difficult to interpret and immunohistochemical results are very useful for differential diagnosis. Crucially important aspects for pathologists are awareness that a lymphoma can show a spindle cell morphology and inclusion of malignant lymphoma as a differential diagnosis when clinical information indicates a non-specific thyroid tumor.

References

- Chan JK, R Buchanan R, Fletcher CD. Sarcomatoid variant of anaplastic large-cell Ki-1 lymphoma. *Am J Surg Pathol.* 1990;14(10):983-8.
- Surov A, Gottschling S, Wienke A, Meyer HJ, Spielmann RP, Dralle H. Primary thyroid sarcoma: A systematic review. *Anticancer Res.* 2015;35(10):5185-91.
- Nozawa Y, Wang J, Weiss LM, Kikuchi S, Hakozaki H, Abe M. Diffuse large B-cell lymphoma with spindle cell features. *Histopathology.* 2001;38(2):177-8.
- Hayashi H, Ohtani H, Ueda T, Yamaguchi J, Izawa K, Hayashida T, et al. Primary hepatic lymphoma with spindle cell components: A case report. *Virchows Arch.* 2006;449(5):591-6.
- Wang J, Sun NC, Nozawa Y, Arber DA, Chu P, Chang KL, et al. Histological and immunohistochemical characterization of extranodal diffuse large-cell lymphomas with prominent spindle cell features. *Histopathology.* 2001;39(5):476-81.
- Fonseca R, Tefferi A, Strickler JG. Follicular dendritic cell sarcoma mimicking diffuse large cell lymphoma: A case report. *Am J Hematol.* 1997;55(3):148-55.
- Cerroni L, El-Shabrawi-Caelen L, Fink-Puches R, LeBoit PE, Kerl H. Cutaneous spindle-cell B-cell lymphoma: A morphologic variant of cutaneous large B-cell lymphoma. *Am J Dermatopathol.* 2000;22(4):299-304.
- Fung CH, Antar S, Yonan T, Lo JW. Actin-positive spindle cell lymphoma. *Arch Pathol Lab Med.* 1993;117(10):1053-5.
- Li Y, Cui W, Woodroof JM, Zhang D. Extranodal B cell lymphoma with prominent spindle cell features arising in uterus and in maxillary sinus: Report of two cases and literature review. *Ann Clin Lab Sci.* 2016;46(2):213-8.
- Freeman C, Berg JW, Cutler SJ. Occurrence and prognosis of extranodal lymphomas. *Cancer.* 1972;29(1):252-60.
- Yu L, Yan LL, Yang SJ. Sarcomatoid variant of ALK- anaplastic large cell lymphoma involving multiple lymph nodes and both lungs with production of proinflammatory cytokines: Report of a case and review of literature. *Int J Clin Exp Pathol.* 2014;7(8):4806-16.
- Bhatia A, Saikia UN, Kumar Y, Dey P. Fine needle aspiration cytology of spindle cell variant of diffuse large B-cell lymphoma: A diagnostic dilemma. *Cytopathology.* 2008;19(3):197-9.
- Lanham GR, Weiss SW, Enzinger FM. Malignant lymphoma. A study of 75 cases presenting in soft tissue. *Am J Surg Pathol.* 1989;13(1):1-10.