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Case Report

Primary diffuse large B-cell lymphoma of the ethmoid sinus

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Abstract: Malignant lymphoma of the ethmoid sinus is very rare. A case of diffuse large B-cell lymphoma (DLBCL) of the left ethmoid sinus is presented here. A 79-year-old Japanese man was consulted to our hospital because of head ache and disturbance of left eye movement. Nasal endoscopy revealed a tumor, and imaging modalities including CT and MRI detected a tumor in the left ethmoid sinus. The tumor was invasive into left eye and left nose. A biopsy was performed via the nasal cavity. The biopsy revealed a diffuse proliferation of atypical lymphocytes. The atypical lymphocytes were large and had enlarged hyperchromatic nuclei. Mitotic figures were scattered. Hodgkin's cells were absent. Follicular structures were not seen. Immunohistochemically, the tumor cells were negative for cytokeratins (AE1/2, polyclonal, KL-1, and CAM5.2, Dako) and epithelial membrane antigen, CD3, CD15, CD30, CD45RO, and TdT. In contrast, the tumor cells were positive for CD20, CD45, CD79α, and p53. KI-67 labeling was 100%. Light chain restriction was present; there were numerous λ-chain-positive cells, while κ-chain-positive cells were scant. The pathological diagnosis was DLBCL of the left ethmoid sinus. Imaging of the whole body revealed no tumors and lymphadenopathy other than the ethmoid DLBCL. The patient was treated with chemoradiation, and is now alive 3 months after the presentation. In conclusion, a very rare case of DLBCL of the ethmoid sinus was reported.

Keywords: Diffuse large B-cell lymphoma, ethmoid sinus, CD20, CD45, CD79α, and p53. KI-67

Introduction

Malignant lymphoma of the ethmoid sinus is very rare [1, 2]. A case of diffuse large B-cell lymphoma (DLBCL) of the left ethmoid sinus is presented here.

Case report

A 79-year-old Japanese man was consulted to our hospital because of head ache and disturbance of left eye movement. Nasal endoscopy revealed a tumor, and imaging modalities including CT and MRI detected a tumor in the left ethmoid sinus (**Figure 1**). The tumor was invasive into left eye and left nose. A biopsy was performed via the nasal cavity. The biopsy revealed a diffuse proliferation of atypical lymphocytes (**Figure 2**). The atypical lymphocytes were large and had enlarged hyperchromatic nuclei (**Figure 3**). Mitotic figures were scattered. Hodgkin's cells were absent. Follicular structures were not seen. An immunohistochemical study

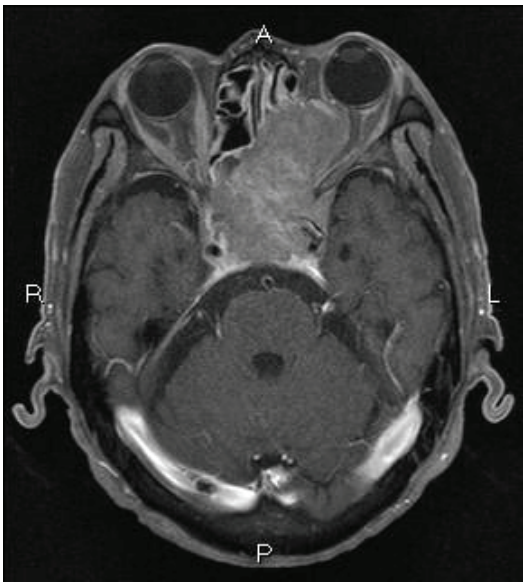

Figure 1. CT findings. The left ethmoid sinus is filled with tumor. The tumor is invasive into right ethmoid sinus, left eye, and left nasal cavity.

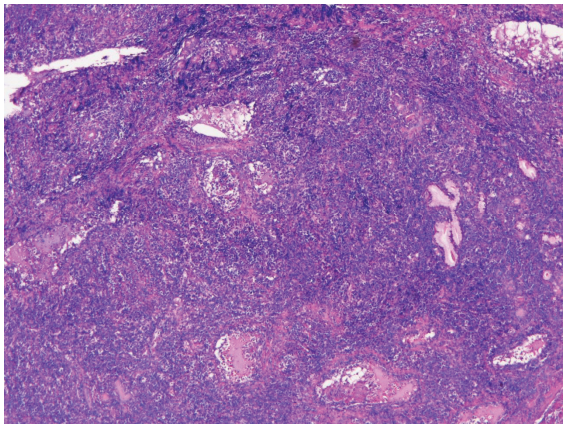

Figure 2. Low power view of the histology. There is diffuse proliferation of atypical lymphocytes. HE, x 40.

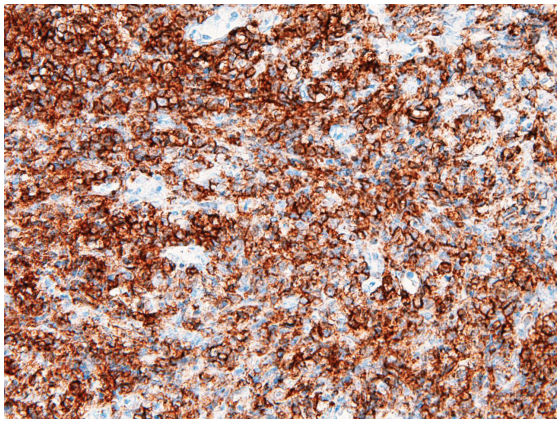

Figure 4. Tumor cells express a B-cell marker (CD20). CD20 immunostaining, x 200.

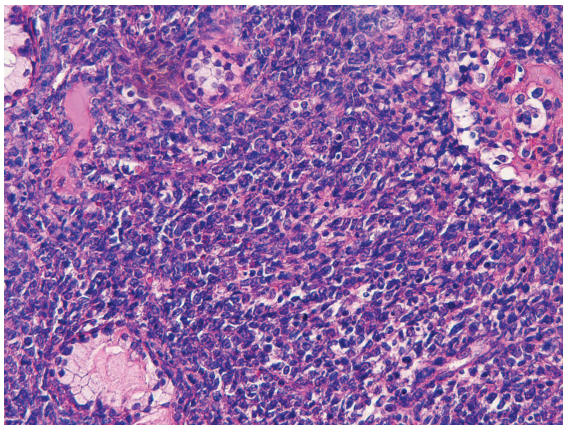

Figure 3. High power view. The tumor cells are large, and had nuclear atypia. Nasal or paranasal glands are scattered. HE, x 200.

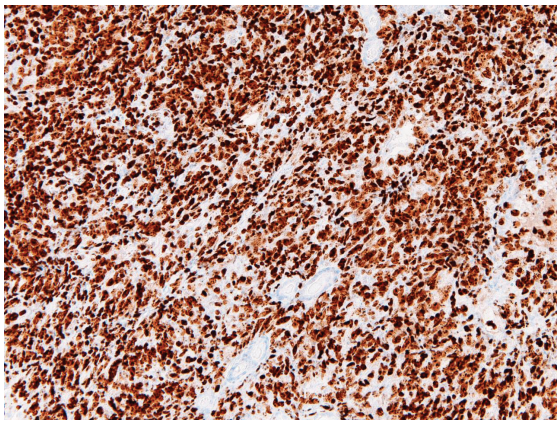

Figure 5. The Ki-67 labeling of tumor cells are 100%. Ki-67 (MIB-1) immunostaining, X 200.

was performed with the use of Dako's Envision method (Dako, Glustrup, Denmark), as previously reported [3-5]. The tumor cells were negative for cytokeratins (AE1/2, polyclonal, KL-1, and CAM5.2, Dako) and epithelial membrane antigen, CD3, CD15, CD30, CD45RO, and TdT. In contrast, the tumor cells were positive for CD20 (**Figure 4**), CD45, CD79α, and p53. KI-67 labeling was 100% (**Figure 5**). Light chain restriction was present; there were numerous λ-chain-positive cells, while κ-chain-positive cells were scant. The pathological diagnosis was DLBCL of the left ethmoid sinus. Imaging of the whole body revealed no tumors and lymphadenopathy other than the ethmoid DLBCL. The patient was treated with chemoradiation, and is now alive 3 months after the presentation.

Discussion

Primary lymphoma of the ethmoid sinus is very rare; to the author's knowledge only two cases of ethmoid sinus lymphoma were reported [1, 2]. One is T-cell rich B-cell lymphoma [1] and another is non-Hodgkin's lymphoma of unknown cell type [2]. The present case was primary lymphoma because no other tumors and lymphadenopathy were recognized in the body. The present tumor was positive for B-cell markers and negative for T-cell markers. The tumor cells were large, and were distributed diffusely. Hodgkin's cells were absent, and tumor cells were

negative for a precursor lymphocyte antigen TdT. Light chain restriction was present. The Ki-67 labeling was 100% and p53 antioncogene product was positive, indicating the malignant nature of the tumor. Therefore, the present case was DLBCL, according to the criteria of WHO [6].

Malignant lymphoma of the nasal and paranasal cavities was very rare. In a large series, no lymphoma was found in 78 patients with malignant tumors of the nasal cavity and paranasal sinus; the most common was squamous cell carcinoma (n=25), undifferentiated carcinoma (n=14), minor salivary glands carcinoma (n=31), olfactory neuroblastoma (n=8), and transitional cell carcinoma (n=1) [7]. In addition, another large study of nasal and paranasal sinus malignancy demonstrated that there were no cases of malignant lymphoma of the 220 patients [8]. Therefore, primary lymphoma of the ethmoid sinus appears very rare. In summary, a very rare case of DLBCL of the ethmoid sinus was reported here.

Conflict of interest

The author has no conflict of interest.

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