Plasmablastic lymphoma with aberrant expression of CD3 and CD4

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Running title: T cell antigen expression in PBL

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Key words: Plasmablastic lymphoma, T cell antigen

Key Clinical Message:

Aberrant T cell antigens expression in B cell lymphomas is a rare but potentially deceptive phenomenon that may lead to misdiagnoses as T- or NK-cell lymphomas.

Case Description:

A 59-year-old HIV-negative man presented with abdominal pain. The CT scan found extensive retroperitoneal lymphadenopathy including a large pelvic mass. A core biopsy showed relatively cohesive sheets of large, atypical cells with round/oval to irregular pale nuclei, multiple nucleoli, and abundant amphophilic cytoplasm (A, x400). Mitotic figures, apoptosis, and focal necrosis were present. Immunostaining showed the cells were positive for CD3 (cytoplasmic, B, x400), CD4 (C, x400), CD138 (D, x400), MUM1 (E, x400), MYC (F, x400), OCT2, and Kappa light chain (G, x400). CD79a and PAX5 (H, x400) were weakly positive in a subset of cells. CD2, CD5, CD7, CD8, CD10, CD20, CD30, CD45, CD56, AE1/AE3, S100, ALK1, and HHV8 were not expressed. EBV (I, x400) was diffusely positive. FISH was positive for *MYC* rearrangement. Analysis of *IG* H/K and *TR* G/B rearrangements showed *IG* rearrangement. Bone marrow was not involved. These results support the diagnosis of plasmablastic lymphoma (PBL). PBL is a rare neoplasm with a plasmablastic morphology and immunophenotype and may aberrantly express T cell-associated markers. Expression of both CD3 and CD4 is exceedingly rare.(1, 2) As common B-cell immunomarkers are

usually negative in PBL, expression of T-cell markers may lead to misclassification of this lymphoma as a T cell or NK cell lymphomas.

Author Contribution:

Both authors participated in initial diagnosis, writing the manuscript, and creating the images. Both authors have read and approved of the final draft.

Ethical Statement:

The case presented here was seen in our institute (University Health Network, University of Toronto) in consultation with another institute where the patient had originally been seen and treated. We believe that it would potentially be difficult to find the appropriate clinical team in the outside hospital to obtain consent from the patient. We completely understand that having consent from all the patients who are participating in any sort of studies is critical; however, in this case, we only present a few histological and immunological images with a brief description of the pathology with no reference to any information from the patient from whom the pathology specimen was obtained. This report, nonetheless, has been performed according to the declaration of Helsinki.

Conflict of Interest:

None of the authors have any conflict of interest to disclose.

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