

# Non-Hodgkin's Plasmablastic Lymphoma as Initial Presentation of Human Immunodeficiency Virus

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## Abstract

Plasmablastic lymphoma (PBL) is a subtype of non-Hodgkin's lymphoma that manifests in patients with the diagnosis of human immunodeficiency virus (HIV), more prominently in the head, neck, and oral mucosal region. The diagnosis of this rare lymphoma serves as a concomitant diagnosis of acquired immunodeficiency syndrome. The case is of a 33-year-old previously healthy male, with an unknown diagnosis of HIV with a painful right mandibular mass. He was subsequently diagnosed with PBL and HIV. This case of PBL illustrates the importance of linking a rare and potentially life-threatening diagnosis as a possible first manifestation of HIV.

## Keywords

plasmablastic lymphoma, HIV, non-Hodgkin lymphoma, case reports, AIDS

## Introduction

Plasmablastic lymphoma (PBL) is a non-Hodgkin variant of diffuse large B-cell lymphoma (DLBCL) that predominantly occurs in immunocompromised patients, with 80% of those cases diagnosed in AIDS patients.<sup>1</sup> Initial clinical presentation is that of a painful, intraoral proliferative, exophytic mass with associated lymphadenopathy in the submandibular and/or cervical region.<sup>1</sup> Despite the efficacy of antiretroviral therapy in improving survival in AIDS patients, opportunistic infections and AIDS-associated malignancies remain the major cause of mortality.<sup>2</sup> Natural progression of PBL involves an oral, rapidly growing mass to extra-oral dissemination leading to death in 6 months.<sup>2,3</sup> The true prevalence of oromucosal PBL likely is unknown due to missed diagnoses; however, some studies report a 1.66% prevalence in immunocompetent patients and 7.3% in patients with HIV-positive status. The median age at presentation is 38 years, with a male predominance of 7:1, and the median CD4+ count was 178 cells/mm.<sup>3</sup> PBL presented on average 5 years after diagnosis of HIV.<sup>4</sup> Histopathological images of the biopsy revealed atypical, plasmablastic lymphocytes that were positive for EBV (Epstein-Barr virus). Standard treatment regimen includes chemotherapy and surgery; however, in our case, the patient is in remission after 6 months of aggressive chemotherapy with complete resolution of the mass.

## Case Presentation

A 33-year-old previously healthy Latinx male presented to our hospital with the complaint of right jaw pain and swelling. He was previously seen by his dentist for a presumed dental infection and prescribed oral antibiotics for a possible abscess. The patient also underwent right molar extraction after completing several rounds of antibiotics with no improvement in his symptoms. Worsening of his pain and swelling then prompted an emergency department visit where the patient was noted to have a soft tissue mass that extended posteriorly, as shown in Figure 1. Initial laboratory values are shown in Table 1. XR orthopantomogram as shown in Figure 2. Diagnosis of PBL was confirmed via biopsy, as shown in Figure 3. He was subsequently tested for

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**Figure 1.** Intraoral proliferative mass with overlying erythema and ulceration in the right lower mandible extending along the posterior oral mucosa.

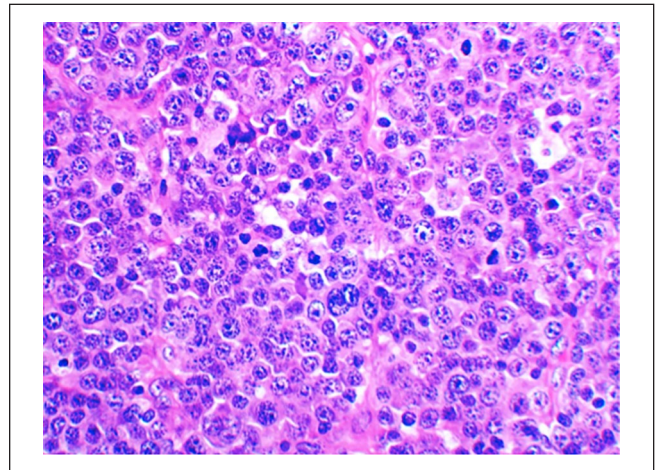
**Table 1.** Laboratory Values From Initial Hospitalization.

	Initial hospitalization
White blood cell count	$5.1 \times 10^3$ cells/mcl
Absolute lymphocyte count	$1.6 \times 10^3$ cells/mcl
Platelet count	$250 \times 10^3$ cells/mcl
HIV antibody/antigen screen	Reactive
Immunoglobulin A	574 mg/dL
Immunoglobulin G	1804 mg/dL
Immunoglobulin M	91 mg/dL
CD4% (T helper cells)	15% (normal range = 30% to 61%)
Absolute CD4+ cells	336 cells/mcl
CD8% (T cytotoxic cells)	69% (normal range = 12% to 42%)
Absolute CD8+ cells	1606 cells/mcl
Helper/suppressor ratio	0.21 (normal range = 0.86 to 5.00)
HIV-1 RNA copies/mL	48826 copies/mL (normal <20 copies/mL)
HIV-1 RNA LogCopies/mL	4.69 LogCopies/mL (normal <1.30 LogCopies/mL)
Acute hepatitis panel	Nonreactive
Epstein-Barr virus DNA real time polymerase chain reaction	2012 copies/mL (normal range <200 copies/mL)

HIV antigen/antibody that resulted as positive. The patient completed 5 cycles of V-EPOCH therapy (bortezomib/velcade, etoposide, vincristine/ovcovin, cyclophosphamide, and hydroxydaunorubicin) and intrathecal methotrexate chemotherapy. Intrathecal methotrexate was administered empirically as PBL has high risk of metastasis to the central nervous system. Since the completion of his chemotherapy and with



**Figure 2.** X-ray orthopantomogram showing large lytic lesion along the alveolar margin of the right submandibular body.



**Figure 3.** Immunohistochemistry with hematoxylin and eosin stain. Diffuse proliferation of large atypical lymphoid cells with plasmablast features is seen. These cells have prominent round nuclei with eccentric amphophilic cytoplasm and clumped chromatin within the nuclei indicating increased mitotic activity. Immunohistochemistry results were positive for tumor markers CD45, CD79a, CD10, and lambda light chains. These cells were negative for CD19, CD20, CD22, CD138, PAX5, kappa light chains, and CD30. EBV testing showed nuclear positivity in most of the cells.

initiation of antiretroviral therapy, the patient remains in remission of his PBL.

## Discussion

DLBCLs are the most common subtype of B-cell lymphomas, accounting for approximately 41% of all non-Hodgkin lymphomas.<sup>4</sup> PBL is classified as a subtype of DLBCL frequently occurring in AIDS patients presenting as oral lymphomas, although PBL is now being increasingly reported in extra-oral sites.<sup>2,4</sup> EBV is the common factor in several proliferative B-cell lymphomas and has been strongly associated with AIDS-related PBL.<sup>4</sup> PBL's immunohistochemistry

notably displays plasma cell differentiation with a negative CD20 marker.<sup>4,5</sup> Similar results were noted in our case, with our patient's immunohistochemistry results being positive for CD45, CD 79a, CD10, and lambda light chains. The resemblance of rapid proliferation of cells and their architecture of viral protein expression is rather common in PBL and Burkitt's lymphoma.<sup>6</sup> However, PBL is unique in its plasma cell differentiation and its immunohistochemistry. The major difference being the expressivity of CD20 and CD45 in Burkitt's lymphoma.<sup>6</sup>

PBL patients have been treated heterogeneously, with a combination of chemotherapy, radiotherapy, and/or surgery, and their prognosis is usually poor, with a death rate of approximately 60% at 1 year.<sup>7</sup> Current guidelines for treating PBL recommend more intensive treatment regimens than just cyclophosphamide, doxorubicin, vincristine, and prednisone (CHOP) therapy. Significant survival benefit was noted in a patient-level meta-analysis with the use of etoposide, prednisone, oncovin, cyclophosphamide, hydroxydaunorubicin regimen (EPOCH) over patients who were treated with CHOP.<sup>8</sup> Recently, a few studies have reported the potential value of the proteasome inhibitor bortezomib and thalidomide in PBL patients.<sup>9</sup> Infusional EPOCH regimen has not been proven to have a better outcome in PBL patients as compared with other regimens. However, the use of infusional EPOCH has resulted in good results in other HIV-associated non-Hodgkin's lymphomas and is becoming the treatment of choice, as used in our patient.<sup>10</sup>

PBL is an AIDS defining illness and at times may be the initial presentation of HIV in undiagnosed patients. In a retrospective analysis of 70 patients with AIDS associated with PBL, the response to CHOP was 77% with a survival time span of 14 months, while 72% of patients succumbed to disease progression.<sup>11</sup> The study concluded that more extensive chemotherapy regimens did not lead to prolonged survival times.<sup>11</sup> Fortunately, our patient remains in remission after completing his chemotherapy regimen.

Diagnosis of PBL in a superficially healthy appearing patient can be rather challenging. Emergency department visits for oral masses will prompt any clinician to consider abscesses or other dental manifestations, especially with lack of basic laboratory tests indicating some sort of immunocompromised state. This can lead to delay in treatment, loss to follow-up, and obvious life-threatening dissemination. An astute clinician should recognize the lack of response to antibiotics, and the rapid progression of the disease. Appropriate knowledge of HIV-associated malignancies can help prevent diagnostic errors and further delay in treatment.

## Conclusion

HIV patients are predisposed to non-Hodgkin malignancies that may present as an oral mass in the form of a rare PBL. In patients with high-risk behavior that predisposes them to

HIV, it is prudent to perform an extensive head, neck, and oromucosal physical examination.

## Authors' Note

All authors takes responsibility for all aspects of the reliability and freedom from bias of the data presented and their discussed interpretation.

## Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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## Ethics Approval

Ethics approval to report this case was obtained from Kern Medical Institutional Review Board with ID #20093.

## Informed Consent

Verbal informed consent was obtained from the patient for their anonymized patient information to be published in this article.

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## References

1. do Vale DA, Rogado CM, de Carvalho DLC, Trieveiler M, Ortega KL. Oral plasmablastic lymphoma as the first manifestation of AIDS. *An Bras Dermatol*. 2017;92(5 suppl 1):110-112. doi:10.1590/abd1806-4841.20175417
2. Vieira FO, El Gandour O, Buadi FK, Williams GB, Shires CB, Zafar N. N. Plasmablastic lymphoma in a previously undiagnosed AIDS patient: a case report. *Head Neck Pathol*. 2008;2:92-96. doi:10.1007/s12105-008-0058-1
3. Castillo J, Pantanowitz L, Dezube BJ. HIV-associated plasmablastic lymphoma: lessons learned from 112 published cases. *Am J Hematol*. 2008;83:804-809. doi:10.1002/ajh.21250
4. Corti M, Minué G, Campitelli A, Narbaitz M, Gilardi L. An aggressive plasmablastic lymphoma of the oral cavity as primary manifestation of acquired immunodeficiency syndrome: case report and literature review. *Int Arch Otorhinolaryngol*. 2015;19:354-358. doi:10.1055/s-0034-1397335
5. Delecluse HJ, Anagnostopoulos I, Dallenbach F, et al. Plasmablastic lymphomas of the oral cavity: a new entity associated with the human immunodeficiency virus infection. *Blood*. 1997;89:1413-1420.
6. Raviele PR, Pruneri G, Maiorano E. Plasmablastic lymphoma: a review. *Oral Dis*. 2009;15:38-45. doi:10.1111/j.1601-0825.2008.01493.x
7. Barta SK, Lee JY, Kaplan LD, Noy A, Sparano JA. Pooled analysis of AIDS malignancy consortium trials evaluating rituximab plus CHOP or infusional EPOCH chemotherapy in HIV-associated

- non-Hodgkin lymphoma. *Cancer*. 2012;118:3977-3983. doi:10.1002/ncr.26723
8. Barta SK, Xue X, Wang D, et al. Treatment factors affecting outcomes in HIV-associated non-Hodgkin lymphomas: a pooled analysis of 1546 patients. *Blood*. 2013;122:3251-3262. doi:10.1182/blood-2013-04-498964
  9. Elyamany G, Al Mussaed E, Alzahrani AM. Plasmablastic lymphoma: a review of current knowledge and future directions. *Adv Hematol*. 2015;2015:315289. doi:10.1155/2015/315289
  10. Sparano JA, Lee JY, Kaplan LD, et al; AIDS Malignancy Consortium. Rituximab plus concurrent infusional EPOCH chemotherapy is highly effective in HIV-associated B-cell non-Hodgkin lymphoma. *Blood*. 2010;115:3008-3016. doi:10.1182/blood-2009-08-231613
  11. Desai RS, Vanaki SS, Puranik RS, Giraddi G, Pujari RV. Plasmablastic lymphoma presenting as a gingival growth in a previously undiagnosed HIV-positive patient: a case report. *J Oral Maxillofac Surg*. 2007;65:1358-1361. doi:10.1016/j.joms.2005.11.077