

# **BRAF V600E Positive Hairy Plasma Cell Leukemia; Are the Cytoplasmic Projections in Plasma Cells Predictive of a Particular Molecular Characterization?**

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## **Abstract:**

**Introduction:** Plasma cell leukemia (PCL) is a rare and clinically aggressive form of plasma cell dyscrasia. Despite the significant role of BRAF mutation in plasma cell neoplasms, this mutation has been rarely considered in these cases. Finding evidence guiding us toward assessing the BRAF mutation in patients with plasma cell neoplasms could help make the suitable decision for targeted therapy.

**Case Presentation:** A 79-year-old man presented with leukocytosis. Peripheral blood smear exhibited marked lymphocytosis and infiltration of about 50% abnormal lymphoid cells with slender cell-surface projections and oval shape nucleus. These findings raised the provisional diagnosis of hairy cell leukemia (HCL) or HCL variants (HCL-v). Molecular analysis confirmed the presence of BRAFV600E mutation, which was in agreement with HCL diagnosis, albeit the flow cytometric assessment of abnormal lymphocytes corroborated PCL.

**Conclusions:** Together with the previous comprehensive analysis regarding the association of cytoplasmic projections and BRAF mutations, our findings could suggest this morphological characteristic in plasma cells (PCs) as an indication for the assessment of BRAF V600E mutation in PC dyscrasias.

**Keywords:** BRAFV600E Mutation, Plasma Cell Dyscrasia, Plasma Cell Leukemia