**Original Article**

**Title:** **Copy number alterations of 9p24 can differentiate between Hodgkin lymphoma and Peripheral T-cell lymphomas: A diagnostic surrogate**

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**Background:** Peripheral T-cell lymphomas(PTCLs), particularly nodal T-follicular helper lymphoma-angioimmunoblastic type(AITL), can histomorphologically mimic Hodgkin lymphoma(HL), leading to diagnostic challenges with significant therapeutic implications.

**Objectives:** This study aims to evaluate the presence of 9p24(PDL1/PDL2) alterations in HL and PTCL and correlate these findings with T-cell receptor(TCR) clonality testing.

**Materials and Methods:** Fifty-cases of HL and twenty-five-cases of PTCL were analyzed. Fluorescence in-situ hybridization(FISH) was performed to assess 9p24 amplification of PDL1/PDL2. Immunohistochemistry(IHC) for PDL1 and PD1 was conducted alongside TCR clonality validation.

**Results:** PDL1-IHC highlighted both tumor cells and the immune-microenvironment in both entities. PD1-IHC identified the immune-microenvironment in HL and T-follicular helper cells in PTCL. Among the HL-cases, 96% exhibited 9p24 amplification, whereas none of the PTCL-cases showed copy-number alterations, despite IHC-positivity. HL-cases displayed polyclonal TCR peaks, while PTCL-cases exhibited monoclonal peaks, confirming diagnostic accuracy. Two refractory HL-cases were initially misdiagnosed; due to absence of 9p24 amplification and presence of monoclonal TCR-peaks, they were reclassified as PTCL, leading to revised treatment strategies.

**Conclusion:** 9p24 alterations can serve as a valuable diagnostic tool in cases with borderline morphology, ensuring accurate classification with significant therapeutic impact. FISH proves to be superior to IHC, as the latter may yield positive-staining in both entities.