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abstract

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High-grade B-cell Lymphoma with 11q Aberration in Pediatric Patients: Insights from Three Cases

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Introduction: High-grade B-cell lymphoma (HGBCL-11q) with 11q aberration is an uncommon entity within aggressive B-cell malignancies which is characterized by morphologic and immunophenotypic similarity to Burkitt lymphoma but lacks MYC, BCL2, and BCL6 gene rearrangements typically associated with Burkitt lymphoma and diffuse large B-cell lymphoma. While its frequency remains low, pediatric cases may present distinct clinical and molecular features. This study aims to analyze clinical presentation, morphology, immunophenotypic profiles, and treatment outcomes of HGBCL-11q in pediatric patients

Methodology: We retrospectively analyzed tissue samples and medical records of three children diagnosed with HGBCL-11q at a single tertiary care center in 2024. Diagnostic assessments included histopathology, immunophenotyping, cytogenetics, and targeted next-generation sequencing for additional genomic alterations. All patients received standard chemotherapy protocols for Burkitt lymphoma with supportive care. Institutional review board approval was obtained for data collection and analyses.

Results: Patients' age was 13, 14 and 17 years. Two patients presented with nodal disease, and one had extranodal involvement. Histopathological examination showcased Burkitt-like features in all cases with abundant macrophages and apoptotic bodies in two cases and low apoptotic activity in the third one. Immunophenotyping revealed universal expression of CD20 and Bcl-6 and variable CD10 and c-myc positivity. Cytogenetic testing confirmed the absence of MYC translocation but detected 11q24 deletions in all cases. Next-generation sequencing identified no additional TP53 mutations.

Two patients achieved complete remission after standard therapy, the third patient is in the process of treatment at the time of submission.

Conclusion: Our research describes the clinical, morphological, and molecular features of HGBCL-11q. Cytogenetic testing for MYC, Bcl2, BCl6 translocations, and 11q aberrations is necessary to diagnose this emerging entity. Future research is needed to better understand these neoplasms and develop proper treatment regimens.