Collision Tumor of Plasmacytoma with Hematological and Non-Hematological Malignancies

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Abstract : Collision tumors are rare entities characterized by neoplasms of two different cell populations with distinct separating boundaries. Such tumors could be benign, malignant, or a combination of both. The exact mechanism of origin for collision tumors is predicted to be tumor heterogeneity or concurrent occurrence of neoplasm in the same organ. We present two cases of plasmacytoma presenting as a collision tumor, one with a tumor of hematological origin and another with a non-hematological origin, namely Chronic Lymphocytic Leukemia and Adenocarcinoma of the colon, respectively. The immunohistochemical stains and flowcytometry analysis performed on the specimens aided incorrect diagnosis. Interestingly, neoplastic cells of plasmacytoma in the first case demonstrated strong cytokeratin along with weak Epithelial Specific Antigen/ Epithelial cell adhesion molecule Monoclonal Antibody (MOC31) positivity, indicating that the tumor may influence the microenvironment of the tumor in the vicinity. Furthermore, the next-generation sequencing studies performed on the specimen with plasmacytoma and chronic lymphocytic lymphoma demonstrated BReast CAncer gene (BRCA2) and Tumor Necrosis Factor Alpha Induced Protein 3 (TNFAIP3) as a disease associated variants suggestive of risk for multiple tumors including collision tumors. Our reports highlight the unique collision tumors involving plasmacytoma, which have never been reported previously, as well as provide necessary insights about the underline genetic aberrations and tumor heterogeneity through sequencing studies and allow clonality assessment for subsequent tumors.
Keywords : BRCA2, collision tumor, chronic lymphocytic leukemia, plasmacytoma
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