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Brief Note on Follicular Lymphoma

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Description

Follicular Lymphoma (FL) is one of the most common types of indolent lymphoma, accounting for 20-25 percent of all Non-Lymphoma Hodgkin's (NHL) cases in the United States and Europe. However, it is less common in the African and Asian populations, which account for 10% of all NHL cases. Follicular lymphoma has no known risk factors. It is primarily a disease of the elderly, with a median age of 65, and young people are only rarely affected. It is a dormant disease characterized by asymptomatic adenopathy. Involvement of the bone marrow is common, accounting for up to 80% of cases. Approximately 20% of patients have B symptoms and high serum Lactate Dehydrogenase (LDH) levels. Extra nodal involvement is less common, occurring in about 10% of cases.

Follicular lymphoma has densely packed follicles with attenuated mantle zones that obscure nodal architecture on histopathologic examination. The follicles are made up of two types of cells: centrocytes and centroblasts. Centrocytes have sparse cytoplasm, elongated or cleft nuclei, and small nucleoli. Centroblasts are large cells (about the size of a lymphocyte) with a basophilic cytoplasm ring, round to oval non-cleaved nuclei, and prominent nucleoli. The proportion of centrocytes and centroblasts in the germinal centres determines histological grading. FL grades 1 to 3a are considered low-grade indolent lymphoma, whereas FL grade 3b is an aggressive lymphoma. Follicular lymphoma has a para trabecular pattern of bone marrow involvement and tumor appearance. Follicular lymphoma involves the bone marrow in a para trabecular pattern, and the appearance of tumor cells is similar to that of lymph nodes.

In terms of Immunohistochemistry (IHC) B-cell antigens (CD19, CD20, CD22, and CD79 a), BCL2, BCL6, and CD10 are all expressed by follicular lymphoma cells. Surface immunoglobulin expression is seen in roughly half of the cases. Overexpression of BCL2 is found in the majority of grade 1-2 FL, but it is less common in grade 3 FL. CD 10 negative FL are typically of high grade, express IRF4/MUMI, and BCL 6, but lack BCL2 expression.

The cell of origin for follicular lymphoma is the germinal centre B cell that expresses CD20 and B-cell Leukemia/Lymphoma 2 (BCL2). Up to 90% of patients have the characteristic translocation involving the BCL2 gene on chromosome 18q21.3 and the immunoglobulin heavy chain gene on chromosome 14q32; q21. It gives malignant B cells a survival advantage by up regulating anti-apoptotic signals. BCL2 overexpression, on the other hand, is insufficient for malignant transformation to FL, and additional hits are required. Mutations in KMT2D, CREBBP, EZH2, EP300, KMT2C, and ARID1A are common, but their significance in FL is unknown.

The recent history of FL has revealed that patient outcomes have dramatically improved in recent years, owing primarily to the use of highly effective immunochemotherapy regimens. Patients with FL are likely to benefit from further advancements. These will most likely result from the discovery of new and more effective monoclonal antibodies, the development of safer chemotherapy regimens, and the implementation of maintenance therapies. Furthermore, the study of tumor biology and the use of highly sensitive techniques such as minimal residual disease analysis and PET will contribute to a better definition of the patient's individual status and prognosis, which will help to improve the outcomes of future patients.

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