Non-Hodgkin's Lymphoma in the First Two Decades

Morphologic and Immunocytochemical Study

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Summary. The histopathologic and anatomoclinical features of 211 cases of non-Hodgkin’s lymphoma (NHL) were reviewed and each case reclassified according to Lukes-Collins, Kiel and Rappaport criteria. Immunologic determination of cell phenotype in 63 cases as well as assessments of immunoglobulin and lysozyme by immunoperoxidase in 48 cases, permitted a precise definition of cell lineage on a functional basis and showed a high degree of predictability of immunologic phenotype of lymphoma cells by conventional morphology. The results of immunologic cell typing and immunoperoxidase studies were consistent with functional schema of Lukes-Collins and Kiel. “True” histiocytic proliferations, (9 cases) showed biologically different behavior from malignant lymphoma (ML), by a high incidence of extralymphatic (skin and soft tissue) presentation, rapid course, and frequent conversion to histiocytic leukemia. Fifty-two percent of studied ML cases were categorized morphologically as B-cell line proliferations, 36.7% as T-cell line and 6.9% as undefined group (ML “U” type). The ratio of T-cell to B-cell malignancies was 1:1.4. The convoluted type lymphoma was characterized by a high incidence (70%) of anterior mediastinal presentation, high incidence (over 60%) of hematologic and CNS involvement, and a high probability of testicular relapse, especially late. In contrast to malignancies of the T-cell line, B-cell proliferations tended to be localized below

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the diaphragm, and the most common anatomic location of lymphoma growth appeared to be the gastrointestinal tract, where small and large noncleaved follicular center cell types predominated. The nodular lymphoid hyperplasia in the vicinity of intestinal lymphoma and lack of secretory component within enterocytes were other substantial findings in abdominal B-cell malignancies. Among immunoblastic proliferations, the B-cell type was found to predominate over T-cell and was characterized as highly aggressive disease with a relatively common marrow infiltration. A low anatomic stage of disease and a favorable outcome were closely related to small cleaved type of follicular center cell lymphoma, which comprised only 1.5% of the patients studied. The less defined and morphologically heterogeneous group formed ML "U", which in over 95% of patients converted to acute lymphocytic leukemia. This joint analysis of "primary leukemic" and "non-leukemic" NHL patients disclosed striking differences in anatomic presentation and natural history of disease between T, B and null cell proliferations versus related cytologic types.

**Key words:** Non-Hodgkin lymphoma – Children – Immunoperoxidase.

**Introduction**

The impetus given to pathology by recent advances in basic immunology has resulted in several new proposals concerning functional classification of non-Hodgkin's lymphoma (NHL). Immunologic as well as immunopathologic studies in NHL reported during the last five years have provided strong support for the original classification concepts proposed by Lukes-Collins and Lennert and colleagues (Gérard-Marchant et al. 1974; Lennert et al. 1975; Lukes and Collins 1975; Lennert and Mohri 1978; Lennert and Stein 1978; Lukes 1978) and have affected considerable modifications of the older Rappaport terms (Rappaport 1966; Nathwani et al. 1974; Berard et al. 1977; Byrne 1977). It also has become evident that the traditional separation between acute lymphocytic leukemia and NHL in children is mostly artificial, being based only upon the degree of bone marrow infiltration by tumor cells (Barcos and Lukes 1975; Lukes et al. 1978b; Murphy 1978; Williams et al. 1978). Interrelationships between different histologic types of NHL and acute lymphocytic leukemia (ALL) evolving from them have not been fully studied, owing to the fact that from most large reported series of NHL in children, leukemic cases have been excluded (Hutter et al. 1975; Lemerle et al. 1975; Murphy et al. 1975; Pinkel et al. 1975; Traggis et al. 1975; Watanabe et al. 1975; Hausner et al. 1977).

Several studies of NHL in children using either Rappaport's original or modified classification failed to demonstrate any appreciable value of histology in predicting therapeutic results, the likelihood of relapse or length of survival. This was probably because more than 95% of pediatric NHL are of the diffuse type and actually belong to high malignancy groups (Hutter et al. 1975; Lennert 1977; Garwicz et al. 1978; Lennert and Stein 1978; Frizzera and Murphy 1979). The only prognostically valuable indicators identified by these studies were