



SPECIMEN REQUIREMENTS FOR THE DIAGNOSIS OF LYMPHOMA

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Lymphoma is one of the most challenging diagnoses facing Pathologists today. The classification system of tumors of the hematopoietic and lymphoid tissues set forth by the World Health Organization (WHO) in 2001 not only takes the overall morphology and cytology of the lesion into consideration but also uses the cell phenotype as identified by immunohistochemical and flow cytometric methods, recurrent and/or clonal cytogenetic abnormalities, molecular changes and clinical signs and symptoms in order to make a definitive diagnosis. These complex ancillary tests demand stringent specimen requirements that include adequate fresh and properly fixed tissues. These specimens can be taken by open biopsy, fine needle aspiration, needle biopsy or in any combination of the three.

Open biopsy with adequate tissue and appropriate use of ancillary studies is usually needed for definitive diagnosis and WHO classification before treatment can be started. Fine needle aspiration is an appropriate methodology for documenting lymphoma recurrence or the transformation of a pre-existing lymphoma to a higher grade. **The primary diagnosis of lymphoma by**

cytology alone is nearly impossible unless it is a high-grade lesion, and even then only a diagnosis of “suspicious for lymphoma” can usually be rendered. Flow cytometry can be used in conjunction with FNA in certain circumstances to help prove monoclonality and thus support the diagnosis of lymphoma. This is an excellent procedure for B-cell non-Hodgkin lymphomas, especially low grade B-cell lymphomas (CLL, mantle zone, marginal zone and lymphoplasmacytic lymphomas). This method uses viable cells for immunophenotyping but it is limited by the loss of morphology of the specific cells tested thus adding to the possibility of sampling error. Flow cytometry is NOT indicated in Hodgkin lymphoma due to the marked reactive background and the paucity of neoplastic cells (in most cases the Reed-Sternberg cells number much less than one cell in a hundred).

Below are listed suggestions for appropriate specimen procurement under different clinical situations:

If a lesion is CLINICALLY SUSPICIOUS for a NON-HODGKIN LYMPHOMA

(in order of preference):

Option #1: Open biopsy; specimen sent fresh for assessment of adequacy, proper fixation, H&E staining, immunohistochemistry, flow cytometric and cytogenetic studies and possible molecular methods.

Option #2: Core needle biopsy; 3 to 6 cores submitted in formalin for proper fixation, H&E staining and immunohistochemistry and 1 to 2 cores submitted fresh for flow cytometric studies.

Option #3: Fine needle aspiration; cytologic preparations plus 3 passes placed in RPMI media (“Roswell Park Memorial Institute” media, available through the laboratory) for flow cytometric studies.

NOTE:

Option #3 can AT MOST give a diagnosis of “B (or T) cell lymphoproliferative disorder” (no classification can be assigned, but a differential may be suggested).

Cytological preparation can ONLY, AT MOST, give a diagnosis of “suspicious for a lymphoproliferative disorder” (if a diagnosis has not been made previously).

Option #2 may give a definitive diagnosis or only a diagnosis of “B (or T) cell lymphoproliferative disorder” or “suspicious for a lymphoproliferative disorder”.

Option #1 is usually diagnostic but in rare instances it may be suboptimal due to partial involvement of a node by lymphoma (sampling error).

If a lesion is CLINICALLY SUSPICIOUS for a HODGKIN LYMPHOMA

(in order of preference):

Option #1: Open biopsy; specimen sent fresh for assessment of adequacy, proper

fixation, H&E staining, immunohistochemistry and cytogenetic studies.

Option #2: Core needle biopsy; 3 to 6 cores submitted fresh for proper fixation, H&E staining and immunohistochemistry.

NOTE:

Cytologic preparation ONLY is not indicated.

If a lesion is UNKNOWN (CARCINOMA, LYMPHOMA, MELANOMA, ETC.)

(in order of preference):

Choice #1: Open biopsy; specimen sent fresh for assessment of adequacy, proper fixation, H&E staining, immunohistochemistry and cytogenetic studies if necessary.

Choice #2: Core needle biopsy; 3 to 6 cores submitted in formalin for proper fixation, H&E staining and immunohistochemistry (don't be concerned about flow cytometry).

Choice #3: Fine needle aspiration; cytologic preparations.

In addition to this a CBC with differential and in some cases a serum protein electrophoresis (SPEP) should be ordered and any clinical and/or radiographic information relayed to the pathologist.

If you have any questions please contact Dr. West or Dr. Edwards prior to the procedure at 7453 to discuss the case.