

UPDATED LYMPHOMA REQUIREMENTS

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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, 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 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).

Below are listed the 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 (sample is not representative of the lesion).

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.):

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, 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.

Physicians who opt for fine needle aspiration with flow cytometry and B and T-cell gene rearrangement studies must understand that not all B-cell, T-cell and Hodgkin lymphomas may be detected under these circumstances. Flow cytometry may not pick up abnormal phenotypes in neoplasms where rare neoplastic cells are present (such as in T-cell rich B-cell lymphoma or forms of Hodgkin lymphomas). Although sensitive, gene rearrangement studies cannot detect all possible rearrangements due to the primers used in the assay. In some cases, biopsy of a lymph node or lesion is clinically indicated even with negative flow and gene studies for complete morphologic, phenotypic and cytogenetic/molecular correlation necessary for a proper diagnosis.

Questions may be directed to Dr. West at 7453 or Dr. Edwards at 7527 prior to the procedure to discuss the case.