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Cytologic sub-classification of lung cancer; Use of immunocytochemical and molecular techniques

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Lung carcinoma sub-classification into small-cell and non-small-cell carcinomas has important implications for clinical management and prognosis of the disease. With the introduction of target therapy and its associated significant therapeutic implications for patients with advanced stage lung cancer, the subclassification of non-small cell carcinomas into adenocarcinomas and squamous cell carcinomas has also become an important task for practicing pathologists. Moreover in recent years, cytologic samples including fine needle aspiration, bronchoscopic brushings and washings and bronchoalveolar lavages have been increasingly used to establish the diagnosis of lung cancer and subclassification of these tumors. Based on cytomorphology alone, distinction between nonkeratinizing squamous cell carcinomas and poorly differentiated adenocarcinomas can be difficult. Moreover, in some clinical settings the differential diagnosis may include primary versus metastatic carcinomas or adenocarcinoma vs. malignant mesothelioma. Cytologic features of these tumors can overlap and a variety of factors can distort the cytomorphology of the tumor cells. In addition, the cytologic material may be limited in quantity and present only in direct smears or cytospin slides. Therefore, the availability of a reliable ancillary technique such as immunocytochemistry applicable to such cytologic preparations is desirable. Molecular techniques used as prognostic and predictor markers will be discussed with emphasis to their application in cytologic material. Following the session, participants will be able to formulate a differential diagnosis based on routinely prepared cytologic slides based on clinical, imaging and cytologic findings; Learn how to identify and mark diagnostic cells properly for further application of immunocytochemistry, select a limited panel of antibodies based on available clinical and cytomorphologic information and to interpret immunostain results being aware of diagnostic pitfall; To apply molecular testing in primary lung carcinomas using cytologic material; Differentiate lung primary carcinomas from those of metastatic origin, accurately diagnose small cell carcinomas of lung and sub-classify non-small cell carcinomas into those with squamous differentiation and distinguish between malignant mesothelioma and lung adenocarcinoma.

Biography

Merce Jorda, MD is board certified in American Board of Pathology-Cytopathology. She has completed her fellowship from Jackson Memorial Hospital in Affiliation with the University of Miami School Of Medicine. She is the Medical Director, Clinical Laboratory Services -UMHC/SCCC and UM Hospital. Her research interests include molecular pathology of cancer and immunocytochemistry of tumors. She is interested in all markers, immunohistochemical and molecular, which may give the diagnostic, prognostic, predictive and treatment information. Her research interests have been basically at the level of anatomic pathology and cytopathology, specifically in the areas of breast and genitourinary tract malignancies as well as cytopathology.

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