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ENDOSCOPIC DIAGNOSIS OF LUNG CANCER

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Bronchogenic carcinoma is a major public health problem of growing importance throughout the world. In the United States we anticipate over 169,000 new cases in 2001 and more than 157,000 deaths. Lung cancer will kill more Americans than the next three most common malignancies combined – colon, breast, and prostate. In Turkey the estimated number of new cases in 2000 was 11,570, with 10,652 deaths, according to the Internet source, GLOBOCAN 2000 - CANCER Mondial. The incidence rate for males exceeds the worldwide rate in Greece, Italy, Japan, Turkey, the United Kingdom, and the United States to highlight only a few countries. The incidence and death rate for females continues to increase as cigarette smoking becomes more prevalent in women.

INDICATIONS

Bronchoscopy plays an important role in the evaluation and management of patients suspected of having or diagnosed with bronchogenic carcinoma. Indications for bronchoscopy based on symptoms include hemoptysis, cough which is new or changing, wheezing that is new or localized, hoarseness, and chest wall pain. Physical signs warranting investigation would include digital clubbing, Pancoast syndrome, lymphadenopathy, cachexia, and localized wheeze or stridor. Findings alerting the physician might include unresolved pneumonia, recurrent pneumonia in the same segments, an abnormal chest x-ray, abnormal sputum cytology, and any of the several paraneoplastic syndromes. Abnormal radiographic findings might manifest with hilar prominence or mass, peripheral lesions, pleural effusion, diaphragm paralysis, or mediastinal lesions.

Generally speaking the goals of bronchoscopy in lung cancer are to establish the diagnosis by means of histology or cytology, and to help guide the selection of treatment plan. Sampling techniques available include bronchial biopsy, brushing for cytology, needle aspiration biopsy and collection of bronchial secretions. Where available the use of auto fluorescence may be helpful in targeting sampling sites for occult or multicentric cancers. One should bear in mind that sputum cytology may reflect neoplasia in the upper aerodigestive tract, and plan appropriate examination of the upper airway when the cytology alone is positive.

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PROCEDURES

Key to successful application of bronchoscopy in diagnosis of any pulmonary disease is availability of adequate facilities, well-trained personnel, and appropriate equipment. Generally diagnostic bronchoscopy is performed in a dedicated endoscopy suite. This may be an out-patient facility or within a hospital, but either must have resources for monitoring patient vital signs, including pulse oximetry, sufficient space for assistants, and bi-plane or C-arm fluoroscopy. If possible, proximity to the pathology laboratory for frozen section diagnosis is desirable. We prefer to have a respiratory therapist assist in patient monitoring and delivery of supplemental oxygen, a technical assistant to pass instruments and handle biopsies and brushings, and a circulating nurse who can provide intravenous medications and maintain the operative record. A variety of biopsy forceps, brushes, aspirating needles, and the receptacles for transporting specimens is essential.

Whether done with topical anesthesia and conscious sedation or employing general anesthesia, it is essential to inspect the entire accessible airway thoroughly. If there is a localized radiographic abnormality, I prefer to examine the other lobes or segments first and then focus on the area in question. Similarly, if a visible lesion is identified, I prefer examining all other areas before seeking biopsy or brush samples. If needle aspiration of mediastinal nodes is intended to determine stage, and resectability, this should be performed prior to other instrumentation in hope of avoiding contamination.

SUMMARY

Synthesis of findings from bronchoscopy should contribute to decisions regarding treatment planning. First, of course, is determination of histology, and exclusion where possible of benign conditions. If small cell lung cancer is identified, further surgery or invasive procedures is spared. Determination of margins for resection of non-small cell lung cancer is crucial for

surgical planning if the patient's pulmonary reserve is adequate. Finally, if the neoplasm is extensive and proximal, and other modalities have been exhausted, palliative endoscopic therapy may be a consideration.

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