Introduction

Transbronchial needle aspiration (TBNA) is a beneficial, safe and minimally invasive bronchoscopic technique used in the diagnosis and staging of bronchogenic carcinoma. This method is usually performed through a flexible bronchoscope and provides cytologic or histologic sampling of mediastinal lesions that lie adjacent to tracheobronchial tree ***(Khoo et al., 2003)***. Previously, the utility of TBNA was restricted to mediastinal lymph node and extra bronchial lesion sampling. Its use has been expanded to complement conventional diagnostic techniques (CDT) such as bronchial brushing (BB) and forceps biopsy (FB) in the diagnosis of lung cancer with endobronchial lesions ***(Gullon et al., 2003)***.

Central bronchogenic carcinoma tends to manifest in one of three patterns. The growth may be predominately in the mucosal layer, in which case the tumor presents as a bulky, exophytic mass. It can also spread predominantly in the submucosa, with endoscopic findings consisting of erythema, loss of the normal bronchial markings, narrowing of the airway or thickening of the mucosa. The third pattern in that of a predominantly peribronchial spread, in which the endoscopic findings are usually narrowing of airway due to extrinsic compression of the bronchus ***(Shure and Fedullo, 1985)***. The diagnosis of bronchogenic carcinoma with CDT is difficult, particularly in the presence of peribronchial and submucosal lesions. However, applying a needle into the lesion provides access to lower layers of the bronchus and adjacent lesions. Despite its advantages in diagnosis, TBNA is still underutilized procedure in many centers because of

the risk of damage to the bronchoscope, need for experienced staff, and high cost ***(Khoo et al., 2003)***.

Horsley et al. (1984) suggested that TBNA was very useful in submucosal lesions, especially those covered with intact mucosa, which is not readily accessible to other sampling techniques.