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ORIGINAL ARTICLE

Yield of transbronchial needle aspiration of mediastinal lymph nodes of 36 cases

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KEYWORDS

Transbronchial lymph node aspiration;
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Abstract *Background:* Besides clarifying the etiology of unidentified lymphadenomegaly, puncturing hilar and mediastinal lymph nodes by a flexible bronchoscopic needle is an aid in diagnosing and staging bronchogenic cancer or other metastatic cancers and diagnosing other inflammatory diseases i.e. sarcoidosis tuberculosis.

Objective: Our study had the principal objective to evaluate the positivity of transbronchial needle aspiration (TBNA).

Method: We retrospectively reviewed 36 patients using bronchoscopy and histopathological reports and corresponding patients chart over 3 years from January, 2009 to December, 2012 at the department of chest disease at Mansoura University.

Results: A total of 38 underwent FFB procedures. 2 (5%) patients were excluded due to incomplete follow up data.

The yield of TBNA was positive in 22 patients (61%), of them 9 patients (25%) were positive for malignancy and 13 patients (36%) were diagnosed as inflammatory disease i.e. tuberculosis or sarcoidosis.

Only 3 patients (8%) had documented bleeding after TBNA and, bleeding stopped spontaneously. No mortality was reported due to this procedure.

Conclusion: Our study indicated that this method is safe, easy to perform, with a minimum of complications and useful for the diagnosis and staging of pulmonary neoplasms and mediastinal lymph node enlargement.

Introduction

Transbronchial needle aspiration (TBNA) is a valuable technique for sampling mediastinal lymph node and pulmonary parenchymal lesion. The diagnostic yield of TBNA varies

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widely in reported cases ranging from 20% to 90%. It is a safe, cheap and minimally invasive procedure, performed via a flexible bronchoscope [1–7].

Indications for TBNA are any enlarged lymph node lining the trachea or main bronchi or a parenchymal lesion abutting the main or segmental bronchi out lined by a CT scan or X-ray chest. The gold standard for histologic diagnosis is mediastinoscopy, mediastinotomy or an open lung biopsy however these procedures are invasive and complications can be serious [8].

The objective of this study was to report our 3 years experience with diagnostic yield and complication of the transbronchial needle aspiration biopsy at Mansoura University Chest Department.

Methods

Study subjects

All patients were retrospectively reviewed using bronchoscopy and histopathological reports and corresponding patient chart over 3 years from January, 2009 to December, 2012 at the department of chest disease at Mansoura University.

Each FFB was completed by a pulmonary physician under a consultant's supervision at the endoscopy unit. Demographic data were recorded including: age, gender, indication for procedure, pre-medication, radiographic findings, bronchoscopy findings, pathological diagnosis, and complications of bronchoscopy.

All selected patients had no accessible peripheral lymph node, not previously diagnosed as malignancy or other inflammatory diseases like tuberculosis or sarcoidosis. They had tracheobronchial wall adjacent lymph node. A written consent was obtained from each patient prior to the procedure.

Bronchoscopy procedure

Patients were maintained without oral intake for at least 6 h prior to the procedure. Platelet count prothrombin time (PT) and activated partial thromboplastin time (aPTT) were extracted before the procedure and with normal values.

The procedure was performed using a flexible fiberoptic bronchoscopy (Pentax FV_18v, Japan) on the patient in supine position. Just before insertion of the bronchoscope, 2–3 ml of 2% viscous lidocaine was applied to the nose or lidocaine spray into oral cavity. Midazolam (0.07 mg/kg) was administered intravenously in incremental doses to achieve conscious sedation, before and after the insertion of the bronchoscope.

All patients were supplemented with oxygen through nasal cannula and were continuously monitored with electrocardiogram and pulse oximetry. Liquid xylocaine 2% was administered through the bronchoscope directly to the vocal cords and the bronchial tree as needed. Bronchoalveolar lavage (BAL), transbronchial needle aspiration (TBNA; lymph nodes or lung), bronchial mucosa biopsy (TBB), were performed as decided by the bronchoscopist. Transbronchial needle aspiration (TBNA) was performed blindly and as per the international recommendations [9]. Postbronchospy sputum was collected and sent for sputum cytology. Post-bronchoscopy chest X-ray and ABG were performed routinely 4 h after TBLB. In situations where TBNA has to be performed, before bronchial mucosa biopsy to avoid contamination. The TBNA needles used were the 20-gauge and 19-gauge needles and needle length 12 mm. The TBNA needle was advanced to penetrate through the intercartilaginous space. Then suction was applied with a 20-ml syringe and the needle was moved in and out by 3–4 mm. Complications were categorized as minor or major according to the BTS guidelines [9]. All bronchoscopies were done without fluoroscopy. Biopsy specimens were fixed in formaldehyde solution, embedded in paraffin, and BAL was centrifuged and was subsequently fixed and stained on a glass slide. Direct smear technique was used for the preparation of TBNA specimens. The specimen was smeared on a glass slide applying pressure from the same syringe and immediately covered with a second slide and while exerting gentle continuous pressure the slides were drawn apart and fixed with 95% alcohol.

Statistical analysis

Data were analyzed using Statistical Package for the Social Sciences (SPSS) version 16 software package. Continuous variable was expressed as mean ± SD categorical variables were tested using Chi-square test. Significance was taken at 0.05.

Results

A total of 38 underwent FFB procedures. 2 (5%) patients were excluded due to incomplete follow up data.

The mean age of 36 was 48 ± 13 and 19 (53%) were males, cigarette smokers account for 16 (44%) of studied patients. 18 (50%) had received medication pre procedure in the form of oral steroid and other non specific medication.

Malignancy was suspected through history and radiological finding in 10 (28%) of the studied groups.

8 patients (22%) of the studied group had posterior mediastinal lesion, 6 patients (17%) had anterior mediastinal lesion, 17 patients (47%) had mediastinal and subcarnial lymph node and 5 patients (14%) had both lymph node enlargement and lung infiltration (see Table 1).

The yield of TBNA was positive in 22 patients (61%), of them 9 patients (25%) were positive for malignancy and 13 patients (36%) were diagnosed as inflammatory disease i.e.

Table 1 Diagnostic yield of various bronchoscopy procedures.

	Total no. of procedures performed (N)	% of procedures performed in all patients (n)	No. of positive results (n)	Yield ($n/N \times 100\%$)
TBNA	36	100	22	61
BAL	36	100	18	50
Bronchial mucosa biopsy	22	61	14	63
Sputum	18	50	6	33