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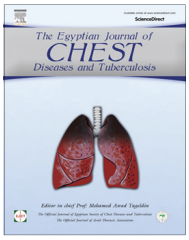

ORIGINAL ARTICLE

Diagnostic accuracy and safety of rigid medical thoracoscopy in undiagnosed pleural effusion and ILD: Retrospective study of 100 patients

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KEYWORDS

Medical thoracoscopy;
Undiagnosed pleural effusion;
ILD.

Abstract *Aim of study:* A retrospective study of diagnostic evaluation, safety and thoracoscopic findings in 100 cases was done at thoracoscopy unit of Chest Department Mansoura University Hospitals in the last two years.

Results: We studied 100 patients in two groups, first group (G1) consisted of 85 male patients (67.1%) with undiagnosed pleural effusion and the second group (G2) consisted of 15 undiagnosed ILD female patients (60%).

Final histopathologic diagnosis in the first group revealed metastatic adenocarcinoma in 35.3%, para-pneumonic 44.7%, TB 10.6%, NHL7.1% and mesothelioma 2.4%, while in the second group it was metastatic adenocarcinoma 6.7%, UIP 46.7%, NSIP 13.3%, TB 6.7%, BAC 13.3%, silicosis 6.7% and lastly LIP in 6.7%.

We found that time of ICT removal was significantly lower in the first group with p value 0.001 and complication incidences were variants; fistula was significantly lower in the first group while empyema and surgical emphysema were significantly higher in the first group with p value 0.001.

Conclusion: VAMT is a good tool for the diagnosis of undiagnosed pleural diseases and is promising in ILDs, safe, and inexpensive with minimally tolerable complications.

Introduction

Thoracoscopy is important in the diagnosis of pleural disease and for pleurodesis in a recurrent pneumothorax or pleural effusion. It has been safely and successfully performed by well trained pulmonologists for several decades [1]. The introduction of modern video equipment and more refined instrumentation expanded the indications, both for interventional pulmonary endoscopists performing video-assisted medical

Abbreviations: VAMT, video-assisted medical thoracoscopy; ILD, interstitial lung diseases; TB, tuberculosis; NHL, non-Hodgkin lymphoma; BAC, broncho-alveolar carcinoma; UIP, usual interstitial pneumonia; NSIP, non-specific interstitial pneumonia; LIP, lymphocytic interstitial pneumonia; ICT, intercostals tube; HRCT, high-resolution computer tomography; BAL, broncho-alveolar lavage; TBLB, trans-bronchial lung biopsy.

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thoracoscopy (VAMT) and thoracic surgeons performing video-assisted thoracoscopic surgery (VATS) [2] .

Even after extensive diagnostic work-up of the pleural fluid, etiology of some pleural effusions remains undetermined [3]. Blind needle biopsies may establish the diagnosis in some additional cases, particularly in tuberculous pleurisy [4]. In a series [5], of 1000 consecutive patients with pleural effusions, 215 cases remained undiagnosed after repeated pleural fluid analyses and performance of pleural biopsies. This is in agreement with the results of several other authors who, without the use of thoracoscopy, report that at least 20–25% of pleural effusions remain undiagnosed [6].

Diffuse parenchymal lung disease (DPLD) encompasses a heterogenous group of disorders, characterized by a spectrum of inflammatory and fibrotic changes affecting alveolar walls and airspaces. Clinical manifestations are variable, but progressive dyspnea, parenchymal infiltrates on chest radiographs, and pulmonary dysfunction are characteristic. DPLD may be caused by myriad etiologies, with differing prognoses, natural history, and treatment approaches. Clinical signs and symptoms overlap between differing diseases, but salient differences in clinical, demographic, radiographic, and histopathological patterns distinguish these diverse entities. An initial approach to diagnosis requires incorporating these various facets [10].

The aim of study: A retrospective study of diagnostic evaluation, safety and thoracoscopic findings of 100 cases was done at the thoracoscopy unit of Chest Department Mansoura University Hospitals in the last two years.

Patient and methods

This retrospective study includes 100 patients admitted to Chest Medicine Department Mansoura University Hospital Egypt from April 2012 to June 2014. Written consent was obtained from all the patients before the procedure.

We included adult patients with undiagnosed exudative pleural effusion or undiagnosed diffuse pulmonary infiltrate and excluded patients with uncorrectable bleeding diathesis, patients with uncontrolled cardiac co-morbidities like intractable arrhythmia and patients diagnosed by any other diagnostic procedure.

Patients were divided into two groups, group one (G1) included 85 patients with undiagnosed exudative effusion and group two (G2) included 15 patients with diffuse pulmonary infiltrates; all Patients were subjected to the following: clinical evaluation; (Full history taking and clinical examination), routine laboratory investigation: (CBC-liver & kidney function-bleeding profile), chest X-ray and CT chest and bedside chest sonography if needed for localization of best site for entry, pleural fluid aspiration for biochemical examination, AFB stain, total cell count, pleural fluid culture and sensitivity and cytological examination 3 samples, closed pleural biopsy by Abrams needle, fibro-optic bronchoscopy and BAL for cytology, AFB stain and culture.

Thoracoscopic examination was done using an 11 mm single trocar thoracoscope that included the following: (i) Trocar and Cannula with a valve. (ii) Telescope Bridge with the instrument channel. (iii) 90 telescope rod lens with fiberoptic light transmission and incorporation. (iv) Biopsy forceps and injection needle and (v) Xenon light source. The procedure was performed in a cleaned endoscopy room stocked with the necessary medications and resuscitation equipment. Patients must be in the Lateral decubitus position with the affected side up. The patient should be given the standard anesthetic premedication intramuscularly 30 min prior to the procedure: Midazolam 5–10 mg IV was given. After localization of the appropriate site of entry either in pleural effusion or in interstitial lung disease. Induction of pneumothorax was done in the interstitial lung disease and usually in the mid axillary line in safety triangle. Local anesthesia was given using xylocaine, a vertical incision was made through the skin and subcutaneous tissue appropriate to the size of the trocar to be used. Parietal pleural biopsies in case of pleural effusion were taken from suspicious areas and visceral and lung biopsies in cases of parenchymal lung diseases using cupped lung biopsy forceps with diathermy.

Follow up: At the end of procedure an appropriate intercostal tube was placed in the intercostal space and followed up for any complication till diagnosis and tube removal.

IBM SPSS Statistics version 21 (IBM_ SPSS_ New York, U.S.A) was used to analyze the data. Categorical variables are expressed as numbers and percentages and continuous variables as mean ± standard deviation. Fisher exact test was used to detect a significant difference between categorical variables. Differences in means were compared using a *t*-test. A *p*-value of <0.05 was considered statistically significant (see Figs. 1 and 2).

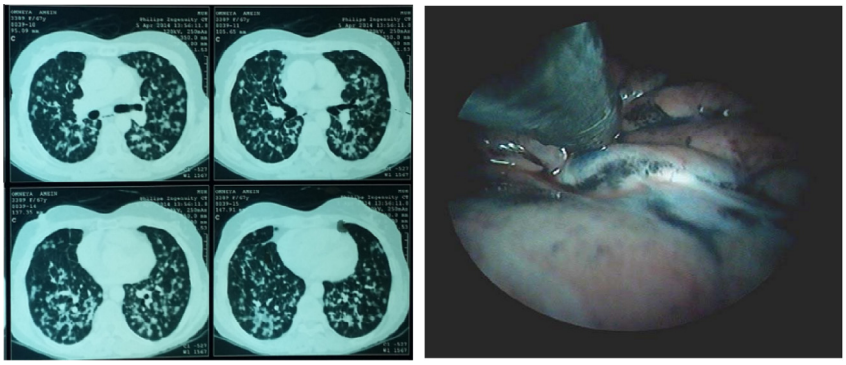

Figure 1 60 year old female presented with dyspnea for two months showing bilateral diffuse nodular infiltrates four biopsies taken via VAMT and patient diagnosed as metastatic adenocarcinoma.