Role of Medical Thoracoscopy in Undiagnosed Exudative Pleural Effusion

Thesis submitted for partial fulfillment of M.D
in Chest Diseases and Tuberculosis

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LIST OF ABBREVIATIONS

ACCP	**:**	American college of chest physicians
ADA	**:**	Adenosine deaminase
AFB	**:**	Acid fast bacilli
ATS	**:**	American thoracic society
BAPE	**:**	Benign asbestos-related pleural effusion
BTS	**:**	British thoracic society
CA-125	**:**	Cancer antigen-125
CA-153	**:**	Cancer antigen-153
CABG	**:**	Coronary artery bypass graft
CBC	**:**	Complete blood culture
CD4	**:**	Cluster of differentiation 4
CEA	**:**	Carcinoembryonic antigen
CHF	**:**	Congestive heart failure
ANA :	**:**	Anti nuclear antibody
CCF :	**:**	Congestive cardiac failure
CRP	**:**	C-reactive protein
CT	**:**	Computed tomography
CTPA	**:**	Computed tomography pulmonary angiography
CXR	**:**	Chest x-ray
DNA	**:**	De-oxy ribonucleic acid
ERS	**:**	European respiratory society
FDG	**:**	Fluorodeoxyglucose
FOB	**:**	Fibreoptic bronchoscopy
HCT	**:**	Haematocrit
HGB	**:**	Hemoglobin
HIV	**:**	Human immunodeficiency virus
IFN	**:**	Interferon

IGRA	**:**	Interferon-Gamma release assay
IU	**:**	International unit
ICU	**:**	Intensive care unit
IHC	**:**	Immunohistochemistry
LDH	**:**	Lactate dehydrogenase
LE cells	**:**	Lupus erythromatosis cells
MPM	**:**	Malignant pleural mesothelioma
M.L.N	**:**	Malignant lymphnodes
MT/P	**:**	Medical thoracoscopy/pleuroscopy
MPE	**:**	Malignant pleural effusion
MRI	**:**	Magnetic resonance imaging
PCR	**:**	Polymerase chain reaction
PE	**:**	Pleural effusion
PET	**:**	Positron emission tomography
PF	**:**	Pleural fluid
PS	**:**	Pleural space
P.C	**:**	Pulmonary capillary
RBC	**:**	Red blood cells
SLE	**:**	Systemic lupus erythematosis
S.C	**:**	Systemic capillary
TB	**:**	Tuberculosis
^{Tr} mean	**:**	Trimmed mean
TREM-1	**:**	Triggering receptors expressed on myeloid cell-1
WBCS	**:**	White blood cells
VATS	**:**	Video-assisted thoracoscopic surgery
V/Q	**:**	Ventilation/perfusion
ZN	**:**	Ziehl - neelsen

INTRODUCTION

Pleural effusion is an abnormal collection of fluid in the pleural space resulting from excess fluid production, decreased absorption or both. It is the most common manifestation of pleural disease, with etiologies ranging from cardiopulmonary disorders to symptomatic inflammatory or malignant diseases requiring urgent evaluation and treatment ***(Diaz-Guzman and Dweik, 2007).***

Diagnosis of a pleural effusions begin with the clinical history, medical examination, and chest radiography and is followed by thoracentesis when appropriate ***(McGrath and Anderson, 2011).***

Recurrent and persistent pleural exudates are common in clinical practice, and in a large number of patients, thoracocentesis and blind pleural biopsy procedures do not provide a definitive diagnosis.The majority of these exudates are malignant. Thoracoscopy today remains the gold standard technique in providing diagnosis and management in these cases ***(Noppen, 2010).***

Pleural effusion of unknown origin remains the commonest indication of thoracoscopy and is considered to be one of the techniques with the highest diagnostic yield in cytology negative exudative effusions with an efficacy almost comparable to video-assisted thoracoscopic surgery (VATS) ***(Rahman et al., 2010).***

Thoracoscopy is a minimally invasive procedure that allows visualization of the pleural space and intrathoracic structures. It enables the taking of pleural biopsies under direct vision, therapeutic drainage of effusions and pleurodesis in one sitting ***(Lin et al., 2006).***

Medical thoracoscopy should be considered in patients with undiagnosed pleural effusions, particularly those lymphocytic exudative effusions where TB and malignant pleural effusion are clinical possibilities and initial pleural fluid analysis is inconclusive ***(Mootha et al., 2011).***

In patients with suspected tuberculous pleurisy, thoracoscopic pleural biopsy under local anesthesia should be actively performed, because the technique has a high diagnostic rate, and can be easily and safely performed ***(Sakuraba et al., 2006).***

Diagnosis of pleural TB can be achieved in 99% of patients with thoracoscopy, which is higher than the 51% yield for closed pleural biopsy. Similarly, yield of thoracoscopic pleural biopsy is higher in patients with suspected pleural malignancy. A diagnosis could be achieved in 95% of patients as against 44% patients using closed pleural biopsy ***(Loddenkemper et al., 1993).***

The semirigid thoracoscope achieves a diagnostic yield similar to that of the conventional rigid instrument despite the smaller biopsy size. Both instruments remain valuable in the evaluation and management of pleural disease ***(Khan et al., 2012).***

Medical thoracoscopy in the hands of experienced physicians is safe with mortality of 0.35% and likely to be less if diagnostic procedures alone are performed. Pain is frequently reported after the procedure and may be more common when using talc poudrage. Major complications (empyema, hemorrhage, port site tumor growth, bronchopleural fistula and/or persistent air leak, postoperative pneumothorax and pneumonia) occur in 1.8% and minor complications (subcutaneous emphysema, minor hemorrhage, operative skin site infection, fever, and atrial fibrillation) occur in 7.3% ***(Rahman et al., 2010).***