



ROLE OF THORACOSCOPY GUIDED PLEURAL BIOPSY, PLEURAL BRUSHING AND FNAC (WITH TBNA NEEDLE IF LARGE LESIONS ARE SEEN) IN UNDIAGNOSED EXUDATIVE PLEURAL EFFUSIONS

Pulmonary Medicine

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ABSTRACT

INTRODUCTION: Medical thoracoscopy also referred to as pleuroscopy is an endoscopic evaluation of the pleural space. It is a minimally invasive procedure invented in 1910 by Hans Christian Jacobus who is regarded as 'Father of Thoracoscopy'. Thoracoscopy was mainly used in the etiological diagnosis of pleural effusions. It is also useful in evaluation of pneumothorax, empyema & therapeutic procedures like pleurodesis and adhesiolysis may be done. In patients with pleural effusions, cytochemical analysis of pleural fluid establishes etiology in upto 60% of cases. In around 20% of cases etiology remains unclear and in this context thoracoscopy becomes an important investigation modality. Forceps biopsy, pleural brushings and FNAC from pleural lesions using TBNA needle could be used through medical thoracoscope to obtain specimens.

AIM: To study the role of thoracoscopic pleural biopsy, pleural brushings and FNAC using TBNA needle in undiagnosed exudative pleural effusions.

METHODOLOGY: It is a prospective study taken up by the department of pulmonary medicine of SVS medical college and hospital, Mahabubnagar, Telangana. All the enrolled cases of undiagnosed exudative pleural effusion which satisfy the inclusive criteria were taken into the study from January 2018 to November 2018. Total of 20 patients were satisfying the inclusive criteria and were further studied for their thoroscopic findings. The study was started after taking the approval of Institutional Ethics Committee, SVS medical college and hospital, Mahabubnagar, Telangana.

RESULTS: A total of 20 patients were enrolled in the study, out of which 80% (16) were males and (20%) 4 were females. Total patients diagnosed with malignancy were 60% (12). Rest 40% (8) were all diagnosed with Tuberculosis. The diagnostic yield of forceps biopsy, pleural brushings and FNAC with TBNA was 100%, 85%, 65% respectively.

KEYWORDS

Pleural Effusion, Thoracoscopy, Pleural biopsy, Pleural brushing, FNAC.

INTRODUCTION:

Medical thoracoscopy also referred to as pleuroscopy is an endoscopic evaluation of the pleural space. It is a minimally invasive procedure invented in 1910 by Hans Christian Jacobus who is regarded as 'Father of Thoracoscopy'[1]. Thoracoscopy was mainly used in the etiological diagnosis of pleural effusions. It is also useful in evaluation of pneumothorax, empyema & therapeutic procedures like pleurodesis and adhesiolysis may be done. In patients with pleural effusions, cytochemical analysis of pleural fluid establishes etiology in upto 60% of cases. In around 20% of cases etiology remains unclear and in this context thoracoscopy becomes an important investigation modality [2]. Forceps biopsy, pleural brushings and FNAC from pleural lesions using TBNA needle could be used through medical thoracoscope to obtain specimens.

Definition of undiagnosed pleural effusion was considered as the failure to achieve an etiologic diagnosis by initial pleural fluid microbiological, biochemical analysis and at least 3 pleural fluid cytologies negative for malignant cells or other definite causes [3].

In Indian scenario, there are fewer studies that have been done on the role of thoracoscopy in cases of undiagnosed pleural effusion [4,5,6].

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from January 2018 to November 2018. Total of 20 patients were satisfying the inclusive criteria and were further studied for their thoroscopic findings. The study was started after taking the approval of Institutional Ethics Committee, SVS medical college and hospital, Mahabubnagar, Telangana.

INCLUSION CRITERIA:

The inclusion criteria includes, any case of moderate to massive exudative pleural effusions of age 20-60 years, which remained undiagnosed and who has given the consent for participating in the study.

EXCLUSION CRITERIA:

The exclusion criteria includes any case of age less than 20 years and greater than 60 years with minimal to mild pleural effusions, with underlying liver, kidney disorders, bleeding diathesis and skin infections. Any case of massive undiagnosed pleural effusion who is not willing to give consent was excluded from the study.

PROCEDURE:

The patient underwent complete physical examination with written informed consent after detailed clinical history was taken. All the necessary baseline investigations were done including Prothrombin time to assess the fitness of the patient. Radiological investigations included Chest X-ray, CECT chest and USG chest.

For thoracoscopic procedure, the patient should be nil by mouth for at least 6 hours prior to the procedure. During the procedure the patient is asked to lie down in the lateral decubitus position with the affected side facing upwards. Loco regional anesthesia is given on the desired site of affected side. Throughout the procedure, conscious sedation with benzodiazepine and opioid was given and blood pressure, oxygenation and pulse were monitored.

Incision was given at the desired site and pleural cavity was entered with blunt dissection. A trocar and canula was introduced along with rigid thoracoscope. Inspection of the pleural cavity was done and at selected sites pleural biopsies were also taken simultaneously. The findings of thoracoscopy were recorded. Forceps biopsy, pleural brushings and FNAC specimens along with pleural fluid were sent for Histo Pathological Examination and cytological examination.

The data was entered using Microsoft excel and analysed using Microsoft excel and Epi info software. Univariate analysis was done.

RESULTS:

A total of 20 patients were enrolled in the study, out of which 80% (16) were males and (20%) 4 were females.

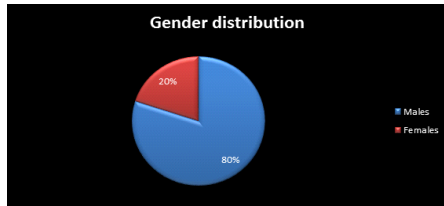


Figure 1 showing gender distribution among study population:

Majority 75% (12) of the males were smokers. Only 25% (4) were non smokers. Among male smokers, majority 83.33% (10) were diagnosed to have malignancy. Only 16.66% (2) had tuberculosis. Among non smoking males, 75% (3) had tuberculosis. Only 25% (1) of them had malignancy.

Among females, all were non smoking. Tuberculosis was common in this group. 75% (3) had tuberculosis. Only 25% (1) was diagnosed with malignancy.

Total patients diagnosed with malignancy were 60% (12). Rest 40% (8) were all diagnosed with Tuberculosis.

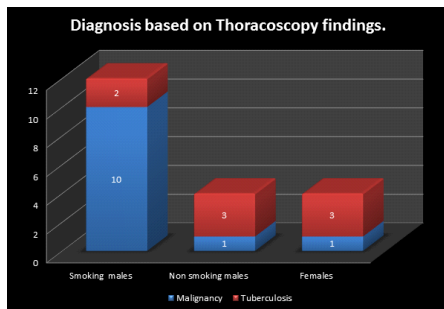


Figure 2 showing diagnosis based on thoracoscopy findings:

Out of 12 malignancy cases, 8 were Squamous cell carcinoma, 3 were Adenocarcinoma and 1 was Lymphoma.

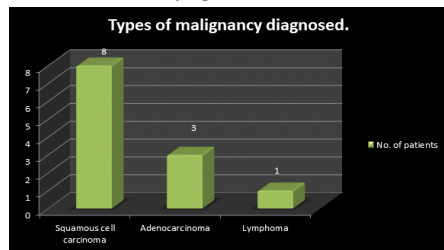


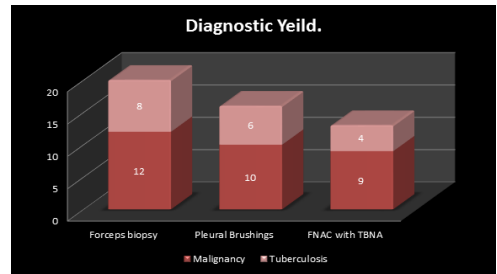
Figure 3 showing types of malignancy diagnosed based on thoroscopic findings:

Table 1 showing the Diagnostic Yield:

Sno	Method	No. of cases diagnosed	Yield
1.	Forceps Biopsy	20	100%
2.	Pleural Brushings	16 (10 cases of malignancy and 6 cases of tuberculosis)	80%
3.	FNAC with TBNA	13 (9 cases of malignancy and 4 cases of tuberculosis)	65%

Thoracoscopic guided forceps biopsy yielded diagnosis in all 20

(100%) cases. Thoracoscopic guided pleural brushings yielded diagnosis in 16 (80%) cases which included 10 (62.5%) cases of malignancy and 6 (37.5%) cases of Tuberculosis. Thoracoscopic guided FNAC of pleural lesions with TBNA needle yielded diagnosis in 13 (65%) cases. Among 13 cases, 9 (69.2%) were of malignancy and 4 (30.7%) were of tuberculosis.



Complications in the form of mild hemorrhage were observed in 4 cases when the biopsy was done.

DISCUSSION:

This prospective study was taken up by the department of Pulmonary medicine of SVS medical college and hospital, Mahabubnagar, Telangana.

In our study, majority of the patients were males and were smokers. These findings are in concurrence with the study conducted by Patil CB et al [3], where the majority of the cases were males and were smokers. In our study, results revealed that majority 75% (12) of the cases of exudative pleural effusion are malignant. These findings are in line with the study conducted by Patil CB et al [3] and Prabhu V.G et al [6], where majority of the patients were diagnosed with malignancy. Other studies also reported that majority of the findings as malignancies [4,5,8,9].

In our study, the most common type of malignancy found is Squamous cell carcinoma. But in the study conducted by Patil CB et al [3], Adenocarcinoma was the most common type of malignancy.

In our study 20% (4) had complications after the procedure. These findings are in contrast with the findings obtained by Patil CB et al [3], Menzies et al [10], Francois et al [11], Munavvar et al [12], and Law et al [13].

In our study, the diagnostic yield of forceps biopsy, pleural brushings and FNAC with TBNA was 100%, 85%, 65% respectively. But in study done by Zamzam.M.A. [14] revealed that diagnostic yield of biopsy and pleural brushings was 92% and 72% respectively.

CONCLUSION:

Thoracoscopy is a valuable tool as the pleural space can be visualized and representative sample can be picked. It is a safe, simple valuable tool in the diagnosis of undiagnosed pleural effusions. Combined thoracoscopic pleural specimens that are forceps biopsy, pleural brushing and FNAC with TBNA needle can increase the diagnostic yield. Thoracoscopic pleural brushing is a safe diagnostic technique as it can brush certain dangerous areas of pleura. Early diagnosis can be obtained.

CONFLICTS OF INTEREST: None

SOURCE OF FUNDING: Nil

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