ORIGINAL ARTICLE

Evaluation of Abram's Needle Pleural Biopsy Verses Pleuroscopic Biopsy at Tertiary Care Hospital

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ABSTRACT

Objective: To evaluate the diagnostic yield of Abram's needle pleural biopsy verses Pleuroscopic biopsy.

Study Design: Observational, descriptive study.

Place and Duration: The work was completed in two years duration in the department of Pathology, Basic Medical Sciences Institute and Department of Thoracic Medicine, Jinnah Postgraduates Medical Centre, Karachi.

Material and Methods: A total of 36 pleural biopsies were received during study period. The material was obtained by Abram's needle biopsy and Pleuroscopic biopsy to see the accuracy of both procedures. After processing of all the specimens the H & E stained slides were made and examined under light microscope to determine the various non-neoplastic and neoplastic lesions. Special stains such as PAS, PAS-D, Trichrome and Reticulin were also employed in some cases for a definitive diagnosis.

Results: According to the type of biopsy technique, a total of 36 samples of pleural biopsy were received. Among these 36 cases, neoplastic and non- neoplastic pleural biopsy lesions showed diagnostic yield with Abram's biopsy to be 13 (36.12%) cases and 14 (38.88%) cases respectively, 09 (25%) cases were inconclusive. The neoplastic and non- neoplastic pleural biopsy lesions showed diagnostic yield with Pleuroscopic biopsy 17 (47.20%) and 15 (41.60%) cases respectively. Four 04 (11.27%) cases were inconclusive. Out of 36 cases, 21 (58.3%) were male, and a higher diagnostic yield was seen more in the 4th decade.

Conclusion: Diagnostic yield with Pleuroscopic biopsy was high as compared to Abram's needle biopsy.

Key words: Pleural biopsy, Abram's needle biopsy, Pleuroscopic biopsy, Neoplastic & Non-neoplastic lesions.

INTRODUCTION:

Pleural diseases (e.g., pleural effusion, pleural based masses and pneumothoraces) are common problems in pulmonary practice[1]. A number of benign and malignant diseases may cause diffuse pleural abnormalities. The most common causes are asbestos-related pleural fibrosis, fibrothorax, empyema, mesothelioma and metastatic diseases[2]

Pleural diseases particularly pleural effusion is a frequent diagnostic problem[3]. Biochemical, bacteriologic and cytological studies of pleural fluid combined with needle biopsy will yield a diagnosis in 60 to 80 percent of tuberculosis and 40 to 60 percent of neoplastic pleural diseases[4]. Pleural effusion of unknown etiology is frequent and often difficult clinical problems. A variety of diseases may be associated with pleural effusion and several techniques are employed to determine a diagnosis[5]. The most common procedure for determining the etiology of plural effusion is pleural needle biopsy with aspiration of fluid. Unfortunately, its reliability varies and the diagnostic yield ranges between 30 and 64 percent[3]. In contrast, the reported experience with pleuroscopy carries a yield of 74% to 100% of positive diagnosis. Clearly, direct vision pleural and lung biopsy increase the chances of obtaining satisfactory material for diagnosis[6]. Percutaneous pleural biopsy is minimally invasive procedure performed to obtained pleural tissue using a pleural biopsy needle[7]. This may be performed untargeted for pleural effusion or using image guidance for pleural masses[8]. Indications for percutaneous biopsy include undiagnosed pleural effusion and pleural thickening or pleural masses[9,10].

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Medical pleuroscopy /Thoracoscopy is a minimally invasive procedure that allows access to the pleural space. It also allows for basic diagnostic (pleural biopsy) and the therapeutic (pleuredesis) to be performed safely. Thoracoscopic pleural biopsy is highly accurate in the diagnosis of pleural malignancy[11].

No study on evaluation of comparative diagnostic yield with Abram's needle biopsy and pleuroscopic biopsy has been done in Pakistan. Keeping in mind, studies regarding statistics of pathological lesions in pleural biopsies according to the types of biopsy techniques i.e. Abram's needle biopsy and pleuroscopic biopsy. There fore a study was planned to evaluate the diagnostic yield of Abram's needle biopsy verses pleuroscopic biopsy in pleural lesions.

MATERIAL & METHODS:

This was a prospective study carried out in the Department of Pathology, Basic Medical Sciences Institute, with collaboration of Department of Thoracic Medicine, JPMC, Karachi. A total number of 36 cases of Pleural biopsies were received, the material was obtained by Abram's needle biopsy and Pleuroscopic biopsy to evaluate and see the diagnostic yield of both procedures. The specimens were fixed in formalin and after processing, 3-4 µ thick sections were cut and stained with H&E stain, the slides were examined under light microscope to determine the various non-neoplastic and neoplastic lesions & results were tabulated. Special stains such as PAS, PAS-D,Trichrome and Reticulin were also employed in some cases for a definitive diagnosis.

RESULTS:

In our study we studied 36 pleural biopsies; all patients underwent both Abram's and Pleuroscopic biopsy.

The table-1 reveals comparison of diagnostic yield in both procedures. The neoplastic and non-neoplastic pleural biopsy lesions showed diagnostic yield with Abram's biopsy to be 13 (36.12%) and 14 (38.88%) cases respectively. 09 (25%) cases were inconclusive. The diagnostic yield of the neoplastic and non- neoplastic pleural biopsy lesions with Pleu-roscopic biopsy were 17(47.22%) and 15(41.66%) cases respectively. 04(11.12%) cases were incon-clusive. It showed that the diagnostic yield with pleuroscopic biopsy was high as compared to Abram's biopsy. Out of 36 cases, 21 (58.3%) were male.

DISCUSSION:

Pleural lesions constitute a significant portion of cases in Pakistan. Pleural biopsy is a safe and reliable procedure with fewer complications[12]. It is recommended to per-form it in all cases of exudative pleural effusion and it has greatest applicability in the diagnosis of exudative pleural effusion with lymphocytic pre-dominance. It is very difficult to diagnose the underlying cause by clinical, radiological or even pleural fluid analysis. These cases usually require pleural biopsy for definitive diagnosis[13].

Needle biopsy of the pleura is a routine invasive investigation for the etiological diagnosis of exudative pleural effusion. The diagnostic accuracy of the needle biopsy however was a limited visualization because it procures pleural tissue from around a single puncture site. Pleuroscopy and thoracotomy are the ultimate diagnostic options[14].

In our current study, 36 cases of pleural biopsies were received to evaluate the diagnostic yield with Abram's needle biopsy verses pleuroscopic biopsy the diagnostic yield with Abram's needle biopsy was seen in (75%) of cases. As compared to pleuro scopic biopsy was (88%) of cases (Table-1). Comparing to other workers, Parbhu and Narasinhan[12] showed diagnostic yield with pleuroscopic biopsy in 56.44% of cases, but they did not compare their results with Abram's needle biopsy. Ahmed et al[8] compare the diagnostic yield of both the procedures and confirming the results of our study, they found 81.22% with pleuroscopic biopsy and 76.22% with Abram's needle biopsy.

CONCLUSION:

It can be concluded from this study that pleuroscopic biopsy diagnostic yield in neoplastic and non-neoplastic lesion is high as compared to Abrams needle biopsy.

Table No. 2: Comparison of Diagnostic Yield (n=36)

Pathological lesion	Abram's Pleural Biopsy		Pleuroscopic Biopsy	
	Number of cases	Percentage	Number of cases	Percentage
Neoplastic	13	36.12%	17	47.22%
Non-neoplastic	14	38.88%	15	41.66%
Diagnostic yield (Total)	27	75%	32	88.88%
Inconclusive (Material indequate)	09	25%	04	11.12%

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