PLEURAL BIOPSY IN 50 CASE OF EXUDATIVE PLEURAL EFFUSION

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ABSTRACT

Introduction: Pleural effusion is a common problem uncounted by general physicians and pulmonologists. Exuda tive pleural effusion is due to many causes like TB and malignancies etc. There are several investigations to find ou the cause among them pleural biopsy is one of lest expensive and very useful investigation. We analyzed the yield o Abraham's pleural biopsy needle in the diagnosis of exudative pleural effusion in 50 consecutive cases at the depart ment of medicine Hayatabad Medical Complex, Peshawar from January-December 2009.

Material & Methods: 50 consecutive patients were selected who underwent pleural biopsy using Abraham's pleura biopsy needle having exudarive pleural effusion. Patients with transudative effusion, empyema, on diuretics therapy and with bleeding diathesis were excluded. An informed written consent was obtained from all the cases.

Results: Out of 50 case 30 (60%) were male & 20 (40%) were female. Mean age was 45 years SD ±25 years. In 3((60%) it was reported to have TB, 15 (30%) malignant & in 5 (10%) non specific inflammation.

Conclusion: TB is the commonest cause of exudative pleural effusion and pleural biopsy has a very yield in tubercu lous and malignant pleural effusion.

Key words: Pleural biopsy, Abraham's needle, pleural effusion.

INTRODUCTION

Exudative pleural effusion is the most common problem encountered by general physicians and pulmonologists. It may be due to an excessive production / reduced absorption or both[1]. The relative annual incidence of pleural effusion is estimated to be 320 per 100,000 people in industrialized countries[2]. After extrapolation these figures and its application to other countries, the distribution and incidence of causes of pleural effusion vary from population to population. In areas where tuberculosis (TB) is prevalent, a higher percentage of pleural effusions from TB is possible.[2] Pleural effusion is classified as exudative and transudative depending upon protein and LDH concentration in the fluid. Pleural effusion is exudative when protein concentration is 3 gm% or more and has high cell count; and transudative when protein concentration is less than 3 gm% and the cell count is low.[3] Pleural biopsy is a valuable and time tested investigation in diagnosing tuberculous and malignant pleural effusion and it can also be used to diagnose pleural effusion due to other causes like sarcoidosis, mesothelioma, rheumatoid and fungal pleurisy.[4] The yield of pleural biopsy depends on age of patient, number of biopsy specimens, technique and histopathological expertise. This study was carried out to evaluate the diagnostic role of Abrams Needle Biopsy in 50 patients having exudative pleural effusion from January 2009-December 2009 at the department of medicine Hayatabad Medical Complex, Peshawar.

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MATERIAL & METHODS

The study was conducted in the department of medicine Hayatabad Medical Complex, Peshawar over a period of 1 year from, January 2009 to December 2009. Patients with exudative pleural effusion of both sexes and all ages were included; and those with transudative effusion, empyema, on diuretics therapy, and with bleeding diathesis were excluded. Fully informed, written and voluntary consent was taken from all patients. Patients were made to sit on bench with their hands resting on the table for easy approach of the operator to the patient. After selecting the site, i.e., 2 intercostals spaces below the fluid level and cleaning and draping with Pyodine, area was anaesthetized with 2% lignocaine and a small incision made with surgical blade parallel to the ribs. Abrams needle was inserted, fluid aspirated to confirm the position and then biopsy was taken. Minimum of four biopsy specimens were taken, stored and sealed in 10% formaldehyde. All specimens were accurately labeled and sent for histopathology laboratory. Therapeutic aspiration of pleural fluid was done where required in selected cases.

RESULTS

Out of 50 cases 30 (60%) were male and 20 (40%) were female. Mean age was 45 years SD ±25

were. In 30 (60%) it was reported to have TB, 15 (30%) malignant & in 5 (10%) non specific inflammation.

DISCUSSION

The pleura consist of five main anatomical compartments: the parietal systemic circulation (branches of the intercostal and internal mammary arteries), the parietal interstitial space, the pleural space lined on either side by mesothelial cells, the pulmonary interstitium, and the visceral circulation (bronchial and pulmonary arterioles). Pleural fluid is filtered in the parietal pleural compartment from the systemic capillaries down a small pressure gradient into the pleural space. Under normal conditions the visceral pleura plays an insignificant role in pleural fluid turnover. Experiments using radioactive albumin and other labeled proteins have shown that pleural fluid secretion is greatest at the apex and absorption is increased towards the diaphragm and mediastinum[5,6]. Pleural fluid is drained out of the pleural space predominantly through the stomata of the parietal lymphatics lying between the parietal mesothelial cells. The number of parietal lymphatics is greatest at the diaphragm and mediastinum. These stomata merge into small lymphatic channels which, in turn, form larger vessels ultimately draining into the mediastinal lymph nodes. Experiments using radioactive albumin and other labelled proteins have shown that pleural fluid secretion is greatest at the apex and absorption is increased towards the diaphragm and mediastinum.[7] Pleural fluid is drained out of the pleural space predominantly through the stomata of the parietal lymphatics lying between the parietal mesothelial cells. The number of parietal lymphatics is greatest at the diaphragm and mediastinum. These stomata merge into small lymphatic channels which, in turn, form larger vessels ultimately draining into the mediastinal lymph nodes[8]. Exudative pleural effusion results from disturb balance of production/absorption or both.

A study undertaken by Heidariet *et al*[9] on 100 patients suggested that pleural biopsy shows 97% results in diagnosing tuberculous pleural effusion and 91% in Malignant Pleural effusion. Another study done by Frank[10] showed the diagnostic yield of pleural biopsy in 40–70% cases in both tuberculous and malignant pleural effusion. In our study the diagnostic yield of pleural biopsy was found to be 95% in malignant, tuberculous and Anthracosis. Khadadah *et al*[11] suggested that taking 4 or more specimens increases the yield of closed pleural biopsy. Another study by Chakarbarti *et al*[12,13] suggested that taking pleural specimens yields 72% results in pleural effusion, compared to 4–6 pleural specimens increased the yield to 80%, which is in line with our study in which a minimum of 4 and maximum of 6 specimens were taken is the reason that the yield was increased to as high as 95%. Furthermore we noted that positive result of biopsy is more in young people than older patients owing to the fact that pleura is more elastic in young people, thus easier to get a good pleural specimen. Another interesting statistic is that haemorrhagic effusion was found to be malignant in 65% case.[14]

CONCLUSION

TB is the commonest cause of exudative pleural effusion in our setting. Pleural biopsy using Abraham pleural biopsy needle has a high yield in TB and malignant pleural effusion.

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