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THE ROLE OF MEDICAL THORACOSCOPY DONE AT THE GOVERNMENT MEDICAL COLLEGE, KOTA, RAJASTHAN; IN CASES OF HAEMORRHAGIC PLEURAL EFFUSIONS

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ABSTRACT

BACKGROUND : More than 15% of transudative and more than 40% of all types of exudative pleural fluids are blood tinged which means they have pleural fluid RBC counts between 5,000 and 100,000/mm3. Hemorrhagic pleural effusions are considered to be secondary to malignancy unless otherwise proved.The most common causes of hemorrhagic pleural effusion include tumor (both primary pleuro-parenchymal as well as metastasis), trauma (both iatrogenic and accidental) and tuberculosis

AIMS AND OBJECTIVES: The Role of Medical Thoracoscopy done at the Government Medical College, Kota, Rajasthan; In cases of Haemorrhagic Pleural Effusions.

METHODS: This was an Cross Sectional study was conducted in the New Medical College and Hospital, Kota over a period of one year from Sept 2018 to Sept 2019 On 50 subjects.

RESULTS: In this study the age of the patients varied between 22 to 77 years.Among the patients in the tuberculosis group the mean sugar value was 51 mg/dl.On assessing whether the pleural fluid sugar value had any significance with relation to the final diagnosis it was found that the p value was significant[p value=0.0447]. Pleural fluid cytology for malignant cells was positive in 12 of the 50 patients i.e in 24 % of patients –most common cause for haemorrhagic effusion

CONCLUSION: In cases that are classified as hemorrhagic effusions, early intervention in the form of medical thoracoscopy is valuable in both diagnostic and therapeutic aspects.The advantages include early relief of symptoms, early diagnosis and early initiation of appropriate therapy.

KEYWORDS : Exudative,haemorrhagic,malignant,cytology

INTRODUCTION

- More than 15% of transudative and more than 40% of all types of exudative pleural fluids are blood tinged which means they have pleural fluid RBC counts between 5,000 and 100,000/mm3.
- Hemorrhagic pleural effusions are considered to be secondary to malignancy unless otherwise proved.
- The normal amount of pleural fluid is small. One can collect approximately less than 1 ml from that of a human. The fluid forms a thin layer about 10 µm thick between the visceral and parietal pleurae.
- Because of gravity, pleural pressure at the apex is more negative when body is erect and changes about 0.2 cm H_2O per centimeter of vertical height.
- The normal pleural fluid contains 1 to 2 gm of protein per 100 ml, similar to that of interstitial fluid. There are 1400 to 45000 cells in 1 µ1 of pleural fluid
- They are mostly macrophages with few lymphocytes and red blood cells
- These data indicate that the amount of fluid is closely regulated and barrier for molecular and cellular passage is tightly restricted in the pleural cavity.
- The mechanics of the respiratory system are dependent upon the interaction of its two fundamental constituents with elastic properties, the lungs and the 'chest wall', which includes the ribs, intercostals muscles and diaphragm
- The turnover of fluid in the human pleural space is about 1-2 liters in 24 hours, with only 5-10 ml of fluid present at any one time as a film about 20 µm thick, between the visceral and parietal pleura
- The main factors involved are increase in the interstitial fluid, trans pleural pressure, decreased lymphatic drainage, increased capillary &. mesothelial permeability Commonest mechanism of formation of pleural effusion is the increased interstitial fluid.
- The most common causes of hemorrhagic pleural effusion include tumor (both primary pleuro-parenchymal as well as metastasis), trauma (both iatrogenic and accidental) and tuberculosis.

AIMS AND OBJECTIVES :

- The Role of Medical Thoracoscopy done at the Government Medical College, Kota, Rajasthan; In cases of Haemorrhagic Pleural Effusions.

MATERIALS AND METHOD:

- Cross sectional study
- Number of patients-50

CRITERIA OF INCLUSION :

- Patients with clinically and radiologically confirmed pleural effusion
- Patients with hemorrhagic pleural effusion defined by three criteria-
- pleural fluid RBC < 2,00,000 per mm3
- Pleural fluid hematocrit < 50% of peripheral blood
- Uniformly blood stained fluid in the tube while tapping of the effusion

Criteria of Exclusion :

- Patients with straw colored fluid during tapping
- Pleural fluid RBC> 2, 00,000 per mm3 of blood
- Pleural fluid hematocrit > 50 % - Hemothorax
- Patients with only initially blood stained fluid in the tube
- Patients not willing for the procedure
- Bleeding diathesis

Data Collection:

- Apart from a detailed history & clinical examination, the following investigations were done-
- complete haemogram
- Bleeding time/Clotting time

- sputum for AFB
- mantoux, HIV-ELISA ,HBsAg,
- Chest X Ray, CT scan Chest with contrast.
- Pleural Fluid- AFB ,cell Count, sugar , protein, pH, hematocrit
- Pleural Fluid- Cytology for malignant cells
- Pleural Fluid RBC Count
- Thoracoscopic Biopsy

RESULTS :

Table 1: Influence Of Study Parameters On The Diagnosis Of Study Subjects In Population

Parameter	Mean	P value
Age	49.14	0.0966
PF Glucose	49.72	0.0447
PF protein	4.31	0.5608
PF PH	7.29	0.5611

***PF-Pleural fluid.**

Table 2: Showing Pleural Fluid Characteristic Among Final Diagnosis Of Study Subjects In Population

Factors	Malignancy	Tuberculosis	Unknown
Symptom	Chest discomfort, Dyspnea	Chest discomfort, Dyspnea	Chest discomfort, Dyspnea
Pleural fluid protein	Exudate	Exudate	Exudate
Pleural fluid AFB	Negative	Negative	Negative
Pleural fluid cytology	Positive 12/38	Negative 7/7	Negative 5/5
Pleural fluid Glucose	Mean 50.13	Mean 51.28	Mean 53
Pleural fluid PH	Mean 7.29	Mean 7.25	Mean 7.34

DISCUSSION:

- In this study the primary aim was to study the results of thoracoscopic biopsy in cases of hemorrhagic pleural effusions.
- Hemorrhagic effusions were defined based on the pleural fluid RBC count, hematocrit and the nature of fluid seen during the tapping procedure. The total number of patients that met the criteria during the study period of 12 months from SEPTEMBER 2018 to SEPTEMBER 2019 was FIFTY. Among them 35 were male patients and 15 were female patients.
- All the selected patients underwent routine investigations. After ascertaining that they had adequate maneuvering space between the pleurae by ultrasound, they were subjected to thoracoscopy. During thoracoscopy the parietal, visceral and diaphragmatic pleurae were visualized.
- Any abnormal areas were biopsied under direct surveillance . a minimum of three and maximum of six biopsies were done per patient.
- In this study the age of the patients varied between 22 to 77 years.
- When looking at the pleural fluid cytology all 50 cases were lymphocytic effusions.
- Among the patients in the tuberculosis group the mean sugar value was 51 mg/dl.
- On assessing whether the pleural fluid sugar value had any significance with relation to the final diagnosis it was found that the p value was significant[p value=0.0447].
- The pleural fluid protein levels had no significance of correlation with the diagnosis
- Pleural fluid cytology for malignant cells was positive in 12 of the 50 patients i.e in 24 % of patients –most common cause for haemorrhagic effusion
- There was no significant correlation between pH and the final diagnosis and the p value was not significant [p value=0.5611].
- The yield of our study was 90 % i.e. we were able to arrive at a diagnosis in 45 patients out of 50
- The second most common cause of hemorrhagic effusions in our study was tuberculosis [7 out of 50 patients i.e 14% of the cases].

CONCLUSION

- In cases that are classified as hemorrhagic effusions, early intervention in the form of medical thoracoscopy is valuable in both diagnostic and therapeutic aspects.
- The advantages include early relief of symptoms, early diagnosis and early initiation of appropriate therapy.
- The total hospital stay is comparatively less and the overall patient satisfaction is good. Malignancy and tuberculosis were the two leading causes of hemorrhagic effusions in this study.
- The complication rate was negligible.

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