

PARAMALIGNANT PLEURAL EFFUSION POST MASTECTOMY- A CASE REPORT***Dr. Binny¹, Dr. NC Kajal², Dr. Richa Gupta³, Dr. Sumeet Arodhia⁴**¹Junior Resident, Department of Chest and TB, Government Medical College, Amritsar.²Professor, Department of Chest and TB, Government Medical College, Amritsar.³Junior Resident, Department of Chest and TB, Government Medical College Amritsar.⁴Consultant, Anaesthesia and Intensive Care, Amandeep Medicity Hospital, Amritsar.***Corresponding Author: Dr. Binny**

Junior Resident, Department of Chest and TB, Government Medical College, Amritsar.

Article Received on 24/06/2021

Article Revised on 15/07/2021

Article Accepted on 05/08/2021

ABSTRACT

Paramalignant effusions are pleural effusion with solid tumors without evidence of direct pleural involvement and no evidence of malignant cells in pleural fluid. These cases are most commonly associated with lung cancer followed by breast cancers and others. Lymphatic obstruction appears to be the mechanism for development of PMPE. Here we present a case of PMPE associated with breast cancer with history of right sided mastectomy 13 years back.

KEYWORDS: Paramalignant pleural effusion, breast cancer, therapeutic thoracentesis.**INTRODUCTION**

Breast cancers are most common cause of cancer related deaths among women. While it carries a high risk of local and distant relapse or metastasis during the first decade after initial treatment, delayed relapse of breast cancer after 10 years of disease-free survival (DFS) is rare.^[1] The most common sites of breast cancer relapse are bone (70.6%) followed by liver (54.5%) and lung (31.4%).^[2] Lung involvement after cancers may lead to malignant pleural effusions which may lead to recurrent attacks of dyspnea and frequent hospital admissions. The fluid may accumulate in the thorax during the course of malignant diseases. These fluids are named in two ways.^[3]

1. Malignant pleural effusion (MPE): Cytological evaluation of pleural fluid or parietal pleural biopsy detects malignant cells.
2. Para malignant pleural effusion: It is fluid accumulation due to secondary causes, such as bronchial obstruction, obstruction of lymphatics, or pulmonary embolism. Their cytological evaluation does not reveal malignant cells.

It can be challenging to distinguish between malignant and para malignant effusions. Para malignant effusions are not due to malignant disease spreading to pleura. The probability that an effusion is para malignant is higher if the effusion is a transudative. Differentiation between para malignant and malignant pleural effusion is important, so that appropriate decisions about diagnosis and treatment modalities can be made.

CASE PRESENTATION

A 51 year old female presented with the complaints of breathlessness on exertion (MMRC grade II) and pain chest for the last 6 weeks. Pain was radiating in nature and radiated to back. She had underwent thoracentesis twice from a local practitioner and was taking supportive medications along with steroids. In review of the medications taken, she was not relieved and her symptoms got worsen along with due course of time. After around she presented to us with above mentioned symptoms. On careful history taking and examination, surprising findings were revealed i.e she had past medical history of invasive ductal carcinoma with duct carcinoma in situ of the right breast, which was positive for both oestrogen and progesterone receptors (oestrogen receptors(ER)/progesterone receptors(PR)), which was diagnosed 13 years back. At that time, she had undergone modified radical mastectomy of right side followed by treatment with adjuvant chemotherapy and radiation therapy.

Due to her current symptoms of breathlessness a chest X-ray was taken, which shows bilateral pleural effusion more on right side than on left side as shown in figure 1. Right sided thoracentesis was done as shown in figure 2. and the fluid was sent for investigations. The fluid shows neutrophilic predominance- transudative pleural effusion, ADA was 3.86. Cytology of pleural fluid is negative for malignant cells.

After few weeks, patient developed progressively worsening of dyspnoea. Again chest X ray revealed

bilateral pleural effusion more on right side than the left side and thoracentesis was done for recurrent right sided pleural effusion. Whole body PET-CT was scheduled for evaluation of the disease status and staging. The findings of PET-CT thorax shows metastatic pleural effusion in both lung fields, mildly metabolically active pleural thickening and nodularity in both lung fields- consistent with the features of metastasis and metastatic lymph nodal infiltrations. She was ultimately diagnosed with malignant pleural effusion secondary to metastatic breast carcinoma which was ER+/PR+. So the patient was referred to oncology department.

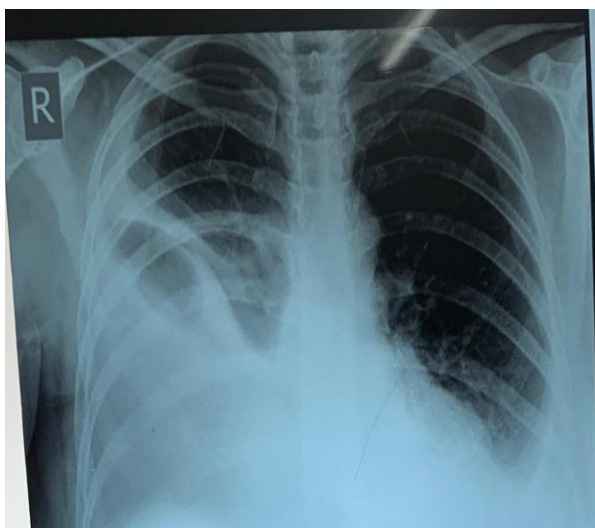


Figure 1.



Figure 2.

DISCUSSION

Malignant pleural effusions (MPEs) are defined as effusions that result from the direct infiltration of the pleura by cancer cells.^[4] Breast cancer is the second most common cause after lung cancer of MPEs, accounting for approximately one third of all MPEs.^[5,6] On the other hand PMPE is that malignant cells had not been identified in the effusion either cytologically or histologically. These effusions are not a sign of malignant disease spreading to the pleura.^[7] These effusions are usually caused by conditions that coexist with tumors, such as pulmonary embolism, thoracic duct obstruction, compression of the superior vena cava, pericardial infiltration, hypoalbuminemia, obstructive pneumonia, or atelectasis.^[8] Paramalignant pleural effusions have better prognosis than malignant pleural effusions. Differentiating between these two is important and always require thoracentesis and fluid analysis.

In patients with paramalignant effusion it is noted that complete evaluation and examination is important.

Typically, breast cancer has a dual peaked relapse pattern, with most relapses occurring during the second and sixth to ninth years after initial treatment.^[9] With breast carcinoma, the mean interval between the development of the primary tumor and the appearance of the pleural effusion is approximately 2 and 5 years.^[10,11], but this interval can be as long as 20 years.^[12] In patients with pleural effusions secondary to breast carcinoma, determination of the steroid receptors in the effusion is useful in planning therapy. The patients with malignant effusions experience dyspnea, and additional symptoms include weight loss, anorexia, malaise and fatigue, which interfere quality of life. So the management of MPEs is important to improve the quality of life of patients.

Therapeutic thoracentesis is initial approach for the patients with respiratory symptoms including dyspnea. However, pleural fluid usually recurs after simple aspiration.^[13] Therefore, other approaches are used to prevent the re-accumulation of pleural effusions. These include chemical pleurodesis using various sclerosing agents, use of chronic indwelling catheter and pleuroperitoneal shunting. Systemic therapy using with cytotoxic and/ or endocrine agents may also be effective in decreasing pleural fluid or relieving dyspnea in breast cancer patients.^[14]

One research paper suggested that when a patient with breast carcinoma is found to have a pleural effusion, it is preferable to treat the patient with systemic therapy plus pleurodesis rather than systemic therapy alone.^[15]

Delayed presentation in pleural metastasis is a rare occurrence in breast cancer relapses and is associated with limited treatment options and reduced survival time.

CONCLUSION

In newer world, breast carcinoma has become leading cause of significant morbidity and mortality in women. Carcinoma of any organ can metastasize to the pleural cavity to produce malignant and paramalignant effusions. However carcinoma of the breast is the second most common cause. Awareness of the pathologies and timely screening will help for early diagnosis and subsequently reduce the morbidity and mortality of such cases.

REFERENCES

1. Omidvari S, Hamed SH, Mohammadianpanah M, et al. Very late relapse in breast cancer survivors: a report of 6 cases. *Iran. J. Cancer Prev.*, 2013; 6: 113–117.
2. Savci-Heijink CD, Halfwerk H, Hooijer GK, et al. Retrospective analysis of metastatic behaviour of breast cancer subtypes. *Breast Cancer Res. Treat.*, 2015; 150: 547–557.
3. Azzopardi M, Porcel MJ, Lee YC, Fysh ET, Koegelenberg CF. Current controversies in the management of malignant pleural effusions. *Semin Respir Crit Care Med*, 2014; 35: 723–31.
4. Heffner JE: Diagnosis and management of malignant pleural effusions. *Radiology*, 2008; 13: 5–20.
5. Aydogmus U, Ozdemir S, Cansever L et al: Bedside talc pleurodesis for malignant pleural effusion; factors affecting success. *Ann Surg Oncol*, 2009; 16: 745–50.
6. Tremblay A, Michaud G: Single-center experience with 250 tunnelled pleural catheter insertions for malignant pleural effusion. *Chest*, 2006; 129: 362–68.
7. Johnston WW. The malignant pleural effusion: A review of cytopathological diagnoses of 584 specimens from 472 consecutive patients. *Cancer*, 1985; 56: 905-909.
8. Sahn SA. Pleural diseases related to metastatic malignancies. *Eur Respir J.*, 1997; 10: 1907-13.
9. Omidvari S, Hamed SH, Mohammadianpanah M, et al. Very late relapse in breast cancer survivors: a report of 6 cases. *Iran. J. Cancer Prev.*, 2013; 6: 113–117.
10. Apffelstaedt JP, Van Zyl JA, Muller AG. Breast cancer complicated by pleural effusion: patient characteristics and results of surgical management. *J Surg Oncol*, 1995; 58: 173-175.
11. Van Galen KP, Visser HP, Van Der Ploeg T, et al. Prognostic factors in patients with breast cancer and malignant pleural effusion. *Breast*, 2010; 16: 675-677.
12. Fentiman IS, Millis R, Sexton S, et al. Pleural effusion in breast cancer: a review of 105 cases. *Cancer*, 1981; 47: 2087-2092.
13. Fentiman IS, Millis R, Sexton S, Hayward JL. Pleural effusion in breast cancer. *Cancer*, 1981; 47: 2087–92.
14. Perrone F, Carlomagno C, De Placido S, et al. First-line systemic therapy for metastatic breast cancer and management of pleural effusion. *Ann Oncol*, 1995; 6: 1033–43.
15. Hirata T, Yonemori K, Hirakawa A, et al. Efficacy of pleurodesis for malignant pleural effusions in breast cancer patients. *Eur Respir J*, 2011; 38: 1425-1430.