



## Pulmonary Tuberculosis in Breast Cancer Patients

Authors

**Dr Hidayath Hussain<sup>1</sup>, Dr Sindhu Pericherla<sup>2</sup>,**

**Dr B. Namratha Sai Reddy<sup>3</sup>, Dr Syeda Hafsa Hakeem<sup>4</sup>**

<sup>1</sup>Head of the Department of Pulmonary Medicine (Dr VRK Womens Medical College)

<sup>2</sup>MD, DM (Medical Oncology) Omega Hospitals (Gachibowli)

<sup>3</sup>MD, DNB (Medical Oncology) Omega Hospitals (Gachibowli)

<sup>4</sup>First Year Resident in Department of Pulmonary Medicine

Dr VRK Womens Medical College, Teaching Hospital & Research Centre

Corresponding Author

**Dr Syeda Hafsa Hakeem**

### Background

- The Population with malignancy is growing worldwide.
- TB remains most common infectious disease worldwide that leads to high mortality.
- The relationship between TB and cancer is of dual nature. Patients with malignant diseases are at increased risk for diseases caused by mycobacteria. Patients with depressed cellular immunity such as those who have cancer, transplant patients and patients on immunosuppressive therapy are at particular risk.
- The risk of TB in patients with malignancy is due to immunosuppression from the cancer itself or from the chemotherapy.
- The incidence of pulmonary TB has been therefore reportedly increasing in patients with cancer in both pulmonary and non pulmonary cancers.
- The incidence of TB in cancer patients is also increasing annually from 3% to 23 % in 2022.
- Patients with diabetes, HIV, and cancer patients and persons on corticosteroid frequently present with lower zone tuberculosis.
- It affects females more commonly as compared to males and tuberculosis should be looked in females with lower lung field lesions.
- Cough is the most frequent presentation of lower zone TB as compared to upper zone TB.
- In immunocompromised patients, isolated lower lung field were involved in almost 23.3% patients.

**Case Details**

- A 60 Year old female, k/c/o left breast carcinoma - post op and chemotherapy k/c/o HTN on treatment presents with the complaints of fever and night sweats since 15 days with generalised body weakness , loss of weight and loss of appetite.
- Cough associated with sputum ( white in colour ) since 15 days.

❖ **H/O Presenting Illness**

- Fever was high grade, progressive in nature, more during the night relieved on taking medications.
- Cough was gradual in onset, progressive in nature aggravated on lying down and during night associated with sputum (white) in colour since 15 days.

**Investigations**

CBP: showed raised WBC count 11000.

ESR was 30 mm.

Sputum was sent for C/S , AFB and gram stain = sample was positive for AFB.

CB NAAT sample was sent = MTB was detected.

Mantoux test showed an induration of > 15 mm.

CXR PA VIEW: homogenous opacity seen in lower lobes of left lung .

**Whole Body PET CT Scan (Base of Skull to Mid Thigh)**

Pet ct showed heterogenously enhancing hypodense nodule in the left lobe of thyroid gland, measuring 25\* 20 mm with focal increased uptake in upper pole showing SUV max of 2.64 -remains static. right lobe appears smaller in size.

Mildly FDG avid soft tissue density lesion in left lung lower lobe,measuring 38\* 14 mm with SUV max of 3.04

Fibrotic changes in lower lobes of both lungs ( left > right )

**Histopathology Report**

PET CT showed soft tissue density lesion in left lung lower lobe.

**Specimen:**

CT guided biopsy- left lung lower lobe lesion.

**Gross:**

Received three grey brown soft tissue bits ranging from 0.2 to 0.4 cms.

Entire tissue is processed -A.B

**Microscopic Examination**

Sections show lung parenchyma with coalescent granuloma composing surrounding lymphocytic infiltrate. Langhans type giant cells seen.

**Impression**

Consistent with granulomatous inflammation may be of kochs etiology.

**Treatment**

The patient was treated with ATT for 18 months , 2 months of IP followed by 16 months of CP.

Patient was also advised a high protein diet.

**Discussion**

- TB and breast cancer presenting one after the other creates clinical and radiologic diagnostic difficulties as well as therapeutic challenges.
- They found that TB was most prevalent in patients with Hodgkin's disease, lung cancer, lympho-sarcoma, and reticulum cell sarcoma, whereas it was least prevalent in patients with carcinoma of the colon, bladder, uterus, breast, prostate, and kidney.
- Tubercle bacillus can exist in a state of microbial persistence within the macrophage of the granulomas for the lifetime of the individual and leave the host with persistent immunity in the form of cell-mediated tuberculin sensitivity. Factors that disturb host immunity can allow the tubercle bacillus to cause endogenous reinfection.

- Breast cancer patients may suffer reactivation of their TB during their treatment. Not only this will disturb the treatment protocol but the clinical and radiologic findings will also confuse the follow up process since a malignant and a tuberculous lesion may be indistinguishable.

### Conclusion

- A significantly higher proportion of TB was found in the malignant group, patients with non hodgkins lymphoma, breast cancer, cervical cancer are at a higher risk.
- Pulmonary TB is more common in patients with cancer.
- lymphadenitis is the most commonly occurring form of extrapulmonary tuberculosis in cancer patients . Cervical adenopathy is most common, but inguinal, axillary, mesenteric, mediastinal, and intramammary involvement can also be seen

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