



## Case Report

**Rare presentation of tuberculosis in a cancer survivor.: A Case Report**

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**Abstract:**

A known risk factor for the emergence of active tuberculosis (TB) disease is cancer. Although, Pulmonary tuberculosis Worldwide, the number of cancer patients is increasing, but it's still unknown how much of a burden tuberculosis (TB) is in terms of incidence, death, and relapse. In this paper, we discuss a rare case of TB with a highly unusual presentation in which a cancer survivor was found to have bone marrow TB.

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**Introduction**

India has the greatest burden of tuberculosis (TB), a severe public health issue in developing nations. According to the WHO's 2016 Global Tuberculosis Report, TB kills 1.8 million people annually, mostly in developing nations, and affects more than 9 million people.

Extra-pulmonary TB [EPTB] manifestations have increased in line with the global increase in TB prevalence. (1)

Most common site of extrapulmonary TB is Lymph nodes TB, followed by pleura, bone and joints, urogenital tract and meninges (2)

EPTB is reported to be on the rise in recent years. (3) The symptoms and clinical manifestations of EPTB are variable and depend on the organ affected. Unlike pulmonary tuberculosis patients, EPTB patients are less likely to present with cough, dyspnoea, haemoptysis, abnormal chest x-rays, night sweats, weight loss, anorexia, or fatigue. High rates of abdominal pain, diarrhoea, infertility, single joint pain, headache, meningismus, or lymphadenopathy may occur, depending on the organ affected.

Diagnosis of EPTB is usually difficult. TB can mimic neoplastic and non-neoplastic conditions including lymphoma, leukaemia, metastases, sarcoidosis, histoplasmosis, and pyogenic infections.

EPTB usually presents as nonspecific features making it hard to detect and treat. Delay in diagnosis causes increase in morbidity and mortality.

Bone marrow TB can present as an isolated entity or as disseminated TB with bone marrow involvement

### Case Report –

This is a case of a 78-year-old patient, came with complaints of fever for 2 months. The patient has history of Carcinoma GE junction (post chemotherapy and radiotherapy). Patient was admitted for evaluation and underwent routine investigations and blood cultures to rule out the cause of fever. Peripheral smear showed no significant abnormality.

Patient gave no recent history of travel or animal exposure, patient denied any exposure to known contact of tuberculosis, upon physical examination patient was cachectic, conscious, coherent, ambulatory, not in cardio respiratory distress.

Vital signs were stable with blood pressure 120/80, heart rate at 80 beats per minute, respiratory rate at 20 cycles per minute. He was afebrile with temperature of 37.4°C. Also found to have pleural effusion and ascites for which he was evaluated but investigations were inconclusive. Liver function test, Renal parameters were within normal limits. Inflammatory markers like CRP were mildly elevated. Viral markers were negative.

Finally, patient also underwent PET CT to rule out any malignant cause for fever but it didn't show any significant abnormalities when compared to previous PET CT which patient received before undergoing chemotherapy.

### Discussion –

Old age, male sex, and certain cancer types were independent risk factors for TB in cancer patients. Targeted latent TB screening may be appropriate among high-risk groups. (4) (5)

Cancer is an independent risk factor for tuberculosis (TB) other risk factors include Diabetes mellitus, HIV, CKD, malnutrition, immunocompromised. In India, EPTB constituted 45%-56% of all TB cases in AIDS patients. (6)

Bone marrow tuberculosis can present as various haematological manifestations, that includes pancytopenia, hemophagocytic lymphohistiocytosis syndrome. Myeloid hyperplasia, Plasmacytosis

Megaloblastic maturation, Hypoplasia or aplasia Haemophagocytosis, Caseating and non-caseating granulomas and even Bone marrow necrosis. (7) (8)

DISSEMINATED TUBERCULOSIS (TB) with bone marrow involvement is an uncommon form of TB

Disseminated TB with bone marrow involvement is an uncommon finding in patient infected with tuberculosis. (9)

Mortality in patients with bone marrow seems to be high even after availability of effective anti-tubercular therapy. (10) High mortality can be attributed to delayed presentation. (12)

On bone marrow biopsy bone marrow granulomas are noted in nearly 50-100% of the patient with miliary TB. (10)

Presence of caseation necrosis along with AFB in granulomas is considered to be the diagnostic of tuberculosis.

Hence, Bone marrow examination is known to be very essentially in diagnosing TB, AFB in these biopsy specimens can be demonstrated by mycobacterial culture, newer methods like PCR in bone marrow aspirate is known to be more sensitive than culture methods. (11).

Studies have shown that Genetic mutations can be brought on by the chronic inflammation.

Our patient underwent Bone marrow biopsy at right posterior superior iliac spine under strict aseptic conditions and after taking proper precautions. Procedure went uneventful and patient was hemodynamically stable post procedure.

Biopsy samples were collected and were subjected to microbiological examination.

On Microscopic examination, sections showed bony trabeculae with granulomas. There were lymphocytes, histiocytes, epithelioid cells along with giant cells.

Surrounding area show haematopoiesis activity with no evidence of any malignant cells on the sections.

Upon staining for AFB of biopsy sample, numerous acid-fast bacilli seen and impression suggestive of Bone marrow with chronic granulomatous lesion of tuberculous aetiology. And hence, a diagnosis of bone marrow tuberculosis was made.

After the procedure patient was discharged and was started on Anti Tuberculous treatment.

**BONE MARROW BIOPSY**

**HISTORY :**

Carcinoma GE Junction.

**SITE:**

Right Posterior Superior Iliac Spine

**MICROSCOPIC EXAMINATION:**

Section show bony trabeculae with intervening marrow show granulomas. There are lymphohistiocytes, epithelioid cells clusters and giant cells seen. Surrounding area show hematopoietic activity. No evidence of any malignancy in the sections evaluated.

**STAIN FOR AFB :** Numerous acid fast bacilli seen.

**IMPRESSION:**

**BONE MARROW WITH CHRONIC GRANULOMATOUS LESION OF KOCH'S ETIOLOGY.**

\*\*\*End of Report\*\*\*

**DATE 10/10/2022**  
**Whole Body PET-CT Scan - (Base of the skull to mid thigh)**

**Clinical History:**

- Case of carcinoma GE junction. Post CT & RT.

**PET-CT:**

Whole body Multi- slice CT with oral and without I.V contrast and PET images were obtained from base of the skull to mid thigh using a dedicated PET-CT scanner approximately one hour after I.V injection of ~10 millicurie of FDG with reported blood sugar level at the time of injection was 124 mg/dl.

Axial, Sagittal and coronal PET reconstructions was interpreted with and without attenuation correction. Semi quantitative assessment of FDG uptake was done by calculating Standardized uptake value (SUV Max) based on body weight and expressed as gm/ml.

**PET-CT Findings:**

**NECK**

- Non avid hypodense nodule noted in left lobe of thyroid gland, measuring 9 mm.
- Nasopharynx, oropharynx and hypopharynx are normal.
- Parotid and submandibular glands are normal.
- No significant cervical lymphadenopathy.

**THORAX**

- The earlier noted mildly avid enlarged right hilar node has shown complete metabolic regression (previous measuring 15x11 mm with SUV max of 2.93).
- Mild bilateral pleural effusion noted.
- Trachea, main bronchi and oesophagus are normal.
- Both lung parenchymas are normal.

**ABDOMEN**

- Non avid circumferential wall thickening noted involving GE junction with maximum wall thickening 13 mm – remains static.
- Non avid small volume perigastric nodes – remain static.
- Diffusely increased FDG uptake noted in spleen.
- Moderate ascites.
- Liver parenchyma appears normal and normal attenuation.
- No evidence of intrahepatic biliary dilatation is seen.
- Pancreas and adrenals are normal.
- Prostatomegaly with heterogeneous enhancement.
- Simple cortical cyst noted in right kidney.
- Left kidney and urinary bladder are normal.
- The peritoneal fat planes are normal.
- Bilateral hydrocele noted.

**MUSCULO SKELETAL**

- Degenerative changes noted in spine.

## IMPRESSION:

- PET – CT on comparing with previous scan done on 07.02.2022, non avid circumferential wall thickening involving GE junction – remains static.
- Non avid small volume perigastric nodes – remain static.
- Complete metabolic regression in mildly avid enlarged right hilar node.
- Moderate ascites.
- Mild bilateral pleural effusion.

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