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## Post primary pulmonary tuberculosis: A case report

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## Post primary pulmonary tuberculosis: A case report.

### CLINICAL HISTORY:

Patient presented with a mild cough and progressive hemoptysis since 10 days. Loss of appetite and loss of weight from past 6 months was noted. A past history of untreated cough with mild sputum was also recognized.

ZN staining: Positive for acid fast bacilli 2+

KOH preparation: Negative for fungal elements.

CBNAAT: Positive for MTB.

### IMAGING FINDINGS

#### Chest X-ray PA view:



Fig 1: Well defined thick walled cavitary lesion in the right upper zone with adjacent bronchiectatic changes . Volume loss of the right upper lobe with mild rightward tracheal shift, superior retraction of hilum and crowding of vessels and ribs. Non homogeneous and reticulonodular opacities noted in bilateral lungs predominantly in the right.

**HRCT thorax:**

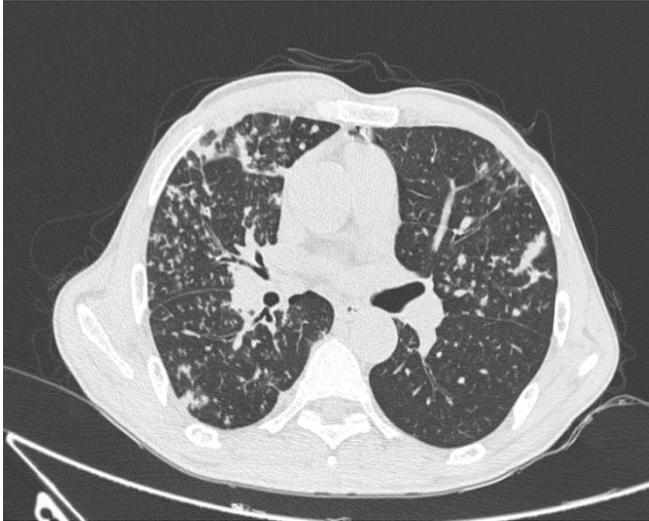
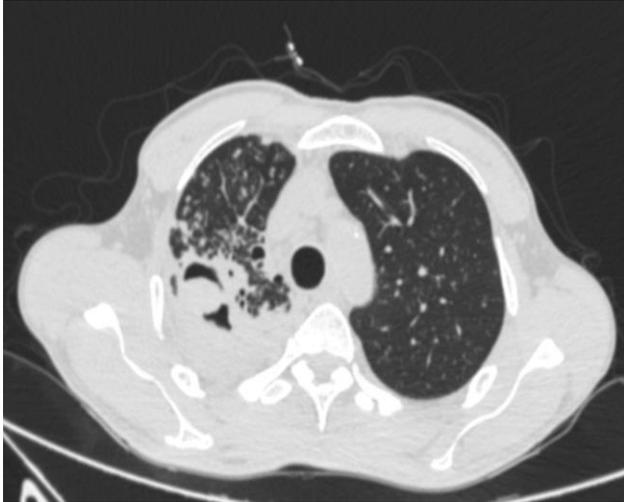


Fig 2: Multiple centrilobular nodules with tree in bud opacities noted in bilateral lungs predominantly in the right.



Fig 3: Patchy areas of consolidation in bilateral lungs predominantly in the right upper lobe.



**Fig 4,5: Prone imaging.**

Fig 4, Fig 5: Volume loss in the upper lobe of the right lung. Thick walled irregular fibrocavitary lesion measuring 6.0 x 4.8 x 4.5cm (AP x TR x CC) in apical segment of right upper lobe. Areas of breakdown with central soft tissue density within the cavitation (with no change in position on prone imaging).

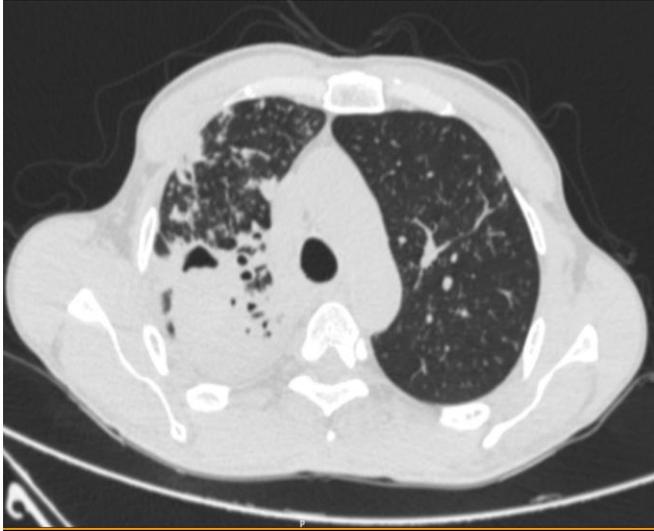


Fig 6: Traction bronchiectasis and regional thickening of the pleura.



Fig 7: Few enlarged lymph nodes in pretracheal, paratracheal, prevascular, precarinal and subcarinal regions.

**DIFFERENTIAL DIAGNOSIS:**

- Post-primary tuberculosis.
- Chronic fungal infection with exacerbation- Aspergillosis.
- Bronchogenic Carcinoma.

**FINAL DIAGNOSIS:**

- Post-primary tuberculosis with reactivation.

## DISCUSSION :

Pulmonary tuberculosis (TB) is a common worldwide infection and a medical and social problem causing high mortality and morbidity, especially in developing countries.

The traditional imaging concept of primary and reactivation TB has been recently challenged and radiologic features depend on the level of host immunity rather than the elapsed time after the infection.<sup>1</sup> With regard to post-primary tuberculosis, evidence suggests that patients in endemic areas are more likely to be infected by a second strain of tuberculosis than to experience reactivation of a previously infected strain.<sup>2</sup>

### Plain radiograph:

- Airspace consolidation, cavities, fibrosis, retraction, distortion, endobronchial spread to dependent lung, acinar nodular opacities
- Apical and apical posterior segments of upper lobes and superior segments of lower lobes.

### CT Findings:

- Morphology<sup>2</sup>
  - Consolidation (100%)
    - Lobular and peribronchial
  - Cavitation (50%)
    - Wall thickness variable: Thick > thin, shape may be irregular.
    - Air-fluid levels are uncommon.
    - Often surrounded by consolidated lung.
  - Endobronchial spread
    - Nodules: Centrilobular rosettes (acinar), poorly defined, 2-10 mm in size
    - Tree-in-bud appearance.
    - Bronchial wall thickening.
  - Volume loss in affected lung
    - Usually from fibrosis (30%): Architectural distortion, bronchiectasis, emphysema.
- Distribution<sup>1</sup>
  - Often segmental in distribution
  - Apical and posterior segments of upper lobes, superior segments of lower lobes
  - Bronchogenic spread: Gravity dependent lobes
- Adenopathy (30%)
  - Classic appearance: Low-density center with peripheral rim enhancement
  - Mean size 3 cm in diameter
- Pleural effusions (20%)
  - Usually small.
  - Consider complicating bronchopleural fistula.
  - Pleural thickening common in advanced cavitory disease
- Evolution
  - With successful treatment, consolidation and nodules will resolve, usually over 9-12 months

- Signs of fibrosis may increase with increasing volume loss in affected lung
- Calcification in lung (Ghon lesion) and lymph nodes (Ranke complex) may be from previous primary disease.
- Active versus inactive disease<sup>2</sup>
  - Activity
    - Signs of endobronchial spread
    - Cavitation
    - Consolidation
  - Inactivity
    - Requires stability over 6 months.

PET: PET scans using 18F-FDG or 11C-choline can help differentiate tuberculous granuloma from lung malignancy.<sup>1</sup>

**Treatment:** Respiratory isolation for cavitory disease or grossly positive sputum smear until antibiotics are instituted. Antituberculous drugs are to be administered depending on the sensitivity.

Bronchial artery embolization or surgery is required for hemoptysis. Bronchial and nonbronchial systemic arteries are the main source of bleeding and are embolized with polyvinyl alcohol particles or gelatin sponge. Immediate cessation of bleeding occurs in more than 75% of patients; however, long-term recurrences are common in patients with progressive disease.<sup>3</sup>

In cases of chronic infection, surgical resection may become necessary.

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