

# Radiological Differences between Category 1 & 2 of Pulmonary Tuberculosis

AAMIR RAHIM, MONA RAHMAN, FIAZ AHMED

Department of Radiology, Gulab Devi Hospital, Lahore

Correspondence to Dr. Aamir Rahim, Associate Professor Email: rewazdocs@hotmail.com

## ABSTRACT

**Objective:** Pulmonary TB is a worldwide infection and medical , social problem causing increase mortality and morbidity ,especially in our country. The aim of study was to explore the relation b/w degree of smear +ive with radiological extent of lesions on x-ray and HRCT.

**Material and Methods:** Chest radiographs of 1100 patients were received, with sputum +ive .Post t/m residual changes were classified according to the severity of these changes. Data analysis was done by tabulating these categories with pulmonary and extrapulmonary lesions.

**Results:** Clearance of chest radiograph was seen in 40% cases and persistent cavitations was seen in 30% cases with past h/o TB, with only 12% no such history. Age prevalence between males and females noted.

**Conclusion:** Radiology provides essential information for the management and follow up of the patients and is extremely valuable for monitoring complications.

**Key word:** Lung CT, Lung infection, Pulmonary, Tuberculosis

## INTRODUCTION

Category 1 pulmonary TB (smear positive or negative) either with no history of prior Anti TB drugs or if drugs taken, duration is less than 30 days

Category 11 Smear positive pulmonary TB patients, who has taken anti, TB treatment is more than one month. The traditional imaging concept of primary and reactivation TB has been challenged and radiological features depend upon the level of host

immunity rather than the elapsed time after the infection.

## MATERIAL AND METHODS

The study was conducted in Ghulab Devi Chest Hospital, Lahore on 1100 patients. Both male and female patients included with age ranges between 1 yr to 65 yrs plus in category 1.

### Category 1

0-14yrs		15-24yrs		25-35yrs		35-44yrs		45-54yrs		55-64yrs		65 +yrs	
M	F	M	F	M	F	M	F	M	F	M	F	M	F
5	10	33	41	32	34	38	25	36	30	38	19	33	20

### Category2:

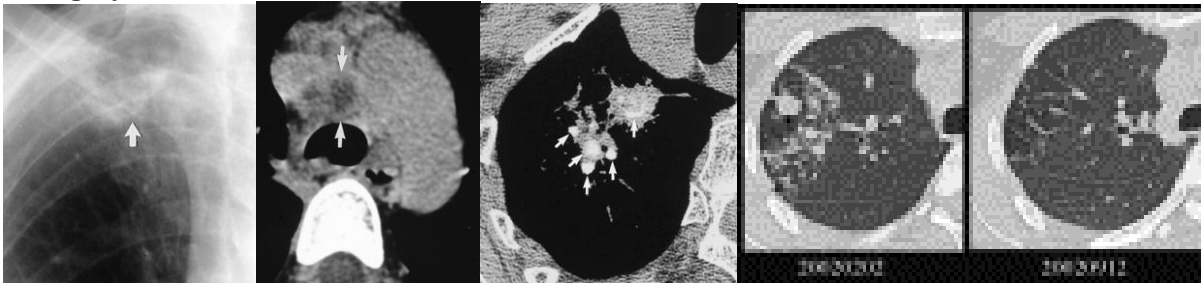
15-30yrs				30-60yrs				60+yrs			
M		F		M		F		M		F	
30		40		58		45		35		30	

Patients screened with sputum +ive and chest radiographs showing either paratracheal or mediastinal lymphadenopathy, consolidation and pleural effusion. Follow up showed 862 patients in category 1 pulmonary TB and 238 patients in category 2 i.e., sputum still +ive and radiologically size of the lesion increased and sequelae of pulmonary TB seen. Data collection was done within 3 months duration i.e., Oct to Dec 2008.

Total Female patients	454
Total male patients	646
Total patients	1100

Total patients	1100	Category1	862	Negative Smear	468	New	862
Female	454	Category2	238	Scanty	114	others	238
Male	646	Total	1100	Positive	518	Total	1100

**Category 1**



**RESULTS**

Results formulated on radiological grounds with X-rays and HRCT findings and its clinical correlation .AS HRCT plays important role in detection of Pul TB in whom chest radiograph is normal or inconclusive, in the determination of disease activity , detection of complications and plays a pivot role in surgical planning. Clearance of chest radiograph -20% of patients of less than 25 yrs with calcification as compared to 40% in patients of more than 40yrs old.

The later group also had signs of increase rate of pleural thickening, Increase fibronodular opacities, cavitation. Males had more significant rate of chest radiograph clearance than females. Healing on Chest radiograph was more frequent in patients with good compliance to drug therapy compared to those with poor compliance. Persistence cavitation was seen in 30% cases with past h/o TB and only 12% with no such history.

Pulmonary manifestation	906	Female new pt	179	Female NN	102	FEP NN	83	Female +ive Out pt	90
Extrapulmonary manifestation	194	Male new patients	215	Male NN	172	MEP NN	111	Male +ive out-pt	148

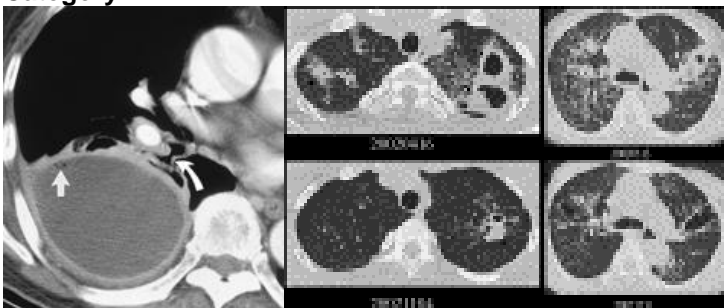
Clinicoradiological correlation was done in smear +ive and -ive pts. More pts presented with pulmonary as compared to extra-pulmonary manifestations.

**COMPLICATIONS**

**Early:** Paratracheal and mediastinal lymphadenopathy, consolidation, cavity formation.

**Late:** Tuberculoma, bronchial stenosis, bronchiectasis, broncholithiasis, aspergiloma, broncho-oesophageal fistula and fibrosing mediastinitis.

**Category 2**



**SUMMARY**

The chest film is the mainstay in the radiological evaluation of suspected and proven pulmonary TB. CT is useful for clarifying confusing findings and has been conclusively shown to have a significant

impact on patients management. Micro nodules, nodules ,tree in bed appearance, consolidation and cavities are most common radiological findings in active Pul TB. Category1 TB is increasingly disease of adults. It manifests as a parenchymal consolidation in

any pulmonary lobe or segment. The most characteristic feature is lymphadenopathy. On enhanced CT chest hilar and mediastinal nodes with central hypodense area suggestive of dx. Category 2 TB typically manifest radiologically as a heterogenous cavitatory lesions, bullae formation, bronchiactasis, and emphysematous changes whereas lymphadenopathy is rare. Radiological stability for 6months and -ive sputum culture is the best indicator of inactive disease. Cavitation is the most important radiological finding in category 2 Pulmonary TB. Cavitation implies a high bacillary burden, increase infectivity and is associated with numerous complications. Tuberculous pleurisy is common in category 1. PI effusion is unilateral, large and self limited. The pleural fluid is usually serous exudates with marked lymphocytes, fluid culture are -ive frequently. The disappearance of tree in bed appearance, PI effusion and presence of fibrotic change shows effectiveness of treatment. Correct dx and therapy is important as untreated patients are at

high risk for pulmonary reactivation. Military TB is more common in primary disease in elderly.

## CONCLUSION

Old age, female gender, delayed dx, poor compliance to t/m and +ive h/o TB were associated with poor radiological outcome.

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