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X-RAY AND CLINICAL-MORPHOLOGICAL FEATURES OF LUNG INJURIES IN MDR-TUBERCULOSIS

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Resume

MDR-TB is characterized by marked polymorphism of radiographic changes. This study aims to determine the frequency of various forms of lung lesions, their distribution across lung lobes, and the phases of the pathological process in patients with confirmed tuberculosis.

Materials and methods of research

The results of radiographic and clinical data from 123 patients were analyzed. The following were evaluated:

clinical and radiological form of TB,

damage to the lobes and sides of the lungs,

phase of the pathological process at the time of hospitalization.

Results

Table 1

Frequency of clinical and radiological forms of tuberculosis

Form	ABS	M (%)
Infiltrative	92	74.8%
Fibrosis-cavernous	10	8.1%
Cirrhotic	9	7.3%
Disseminated	5	4.1%
Cavernous	4	3.3%
Tuberculoma	2	1.6%
Focal	1	0.8%
Tuberculosis + peripheral lymph nodes	2	1.6%

The most common form was infiltrative tuberculosis (74.8%), reflecting active inflammation and the typical localization of the process in the upper lobes. Fibrosis-cavernous and cirrhotic forms, accounting for 8.1% and 7.3%, respectively, indicate long-standing chronic changes. The

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proportion of disseminated (4.1%) and cavernous tuberculosis (3.3%) indicates a severe and generalized course of the infection. The small number of tuberculomas (1.6%) and focal forms (0.8%) indicates the prevalence of severe clinical variants characteristic of multidrug-resistant tuberculosis.

Table 2

Distribution of lesions by lung lobes

Share	ABS	M (%)
Upper lobe	87	70.7%
Upper + middle	16	13.1%
Lower lobe	15	12.2%
Average share	3	2.4%
Upper + lower	2	1.6%

The prevalence of upper lobe lesions (70.7%) is due to their better ventilation, lower perfusion, and high oxygen tension—favorable conditions for mycobacterial proliferation. Combined lesions (upper + middle, upper + lower lobes) reflect the prevalence of the process. Lower lobe lesions (12.2%) were significantly less common, consistent with classical concepts of tuberculous localization.

Table 3

Distribution of lesions on the sides of the lungs

Side	ABS	M (%)
Right lung	79	64.2%
Left lung	37	30.1%
Bilateral defeat	7	5.7%

Right lung involvement occurs in more than half of cases (64.2%), consistent with the anatomical features of the bronchial tree. The right main bronchus has a more vertical orientation and a larger diameter, which facilitates the penetration of airborne agents. Left lung involvement is observed in 30.1% of patients, which is also typical. Bilateral involvement (5.7%) indicates the most severe forms of the disease and demonstrates the high activity and prevalence of MDR-TB.

Table 4

Frequency of phases of the pathological process

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Phase	ABS	M (%)
Infiltration	19	15.4%
Infiltration + dissemination	71	57.7%
Infiltration + decay	7	5.7%
Infiltration + dissemination + decay	20	16.3%
Partial resorption	6	4.9%

The most common combined forms are infiltration + dissemination (57.7%) and infiltration + dissemination + decay (16.3%), indicating a late and severe course of the disease. The presence of destruction (decay) reflects the pronounced destructive activity of MBT and the formation of cavities. Isolated infiltration was detected in only 15.4% of patients, emphasizing that most patients are admitted at advanced stages of the pathological process. The proportion of partial resorption (4.9%) indicates initial signs of regression in a small proportion of patients.

Table 5

Distribution of tuberculosis by organs (intrapulmonary/extrapulmonary)

Indicator	ABS	M (%)
Pulmonary TB only	121	98.4%
Pulmonary TB + peripheral lymph nodes	2	1.6%
Extrapulmonary forms (in this study)	0	0%

The overwhelming majority of cases (98.4%) were pulmonary tuberculosis, consistent with the epidemiological characteristics of MDR-TB. The inclusion of concomitant forms (1.6%) in the table highlights the possibility of simultaneous lymph node involvement, which is typical for generalized or progressive forms of the disease. The complete absence of extrapulmonary forms may be explained by the sample's characteristics, as the study was conducted in TB hospitals focused primarily on pulmonary TB.

Discussion

The prevalence of upper lobe and right lung involvement is consistent with known anatomical and physiological patterns: improved ventilation, vertical position of the right main bronchus, and high exposure to airborne agents. The high frequency of the infiltrative form and widespread combined phases indicate late detection.

Conclusion

The radiological picture of MDR-TB is characterized by:

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- dominance of the infiltrative process,
- predominant involvement of the upper lobes,
- a significant proportion of widespread and destructive phases.

The obtained data are important for optimizing radiodiagnostics and early detection of complications.

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