

# Missed lung cancer in patients with pulmonary tuberculosis

신촌세브란스병원 내과

\*최지연, 이상훈, 박무석, 김영삼, 장준, 강영애, 정경수, 정지예, 김은영, 김송이, 임아영, 이은혜, 최지수, 이수환

**Background/Aims:** Regarding the similarity in clinical symptoms and radiological findings of lung cancer (LC) and pulmonary tuberculosis (TB), the diagnosis of LC can be delayed in patients with concurrent TB and LC. This may lead to diagnosis of LC at a more advanced stage with subsequent increased morbidity and mortality. The aim of this study was to investigate the clinical characteristics and change of stage by considering the timing of TB and LC diagnosis. **Methods:** This was a retrospective study based on medical chart from university hospitals in South Korea. From November 1st 2005 through April 23rd 2019, 532 patients were enrolled. This study involved 114 patients diagnosed and treated with TB and LC. Patients were classified to 3 groups; (1) TB diagnosed before LC ( $n=28$ ), (2) LC diagnosed before TB ( $n=47$ ) and (3) LC diagnosed with TB simultaneously ( $n=39$ ). We analyzed the baseline characteristics between groups. In the TB diagnosed before LC group, we compared the time gap of diagnosis, change of tumor size, change of stage according to 8th edition AJCC/TNM. **Results:** The median age was  $66.3 \pm 9.8$  years and 90 (78.9%) were male. The most common histological type was adenocarcinoma ( $n=56$ , 49.1%), followed by squamous cell carcinoma ( $n=35$ , 30.7%). The median time interval of TB and LC diagnosis was about 4.9 months, tumor size of TB diagnosed prior to LC group significantly increased in  $2.4 \pm 1.6$  to  $4.3 \pm 3.1$  cm ( $p < 0.001$ ). Twelve patients (57.1%) progressed in T classification and thirteen patients (61.9%) changed in stage ( $p=0.021$ ). **Conclusions:** Delay in the diagnosis and treatment of LC results in poor prognosis and rapid progression. In patient with TB, we should consider the possibility of coexistence LC and it is necessary to carefully make a short term follow up for a certain amount of time after TB diagnosis. If a patient diagnosed TB not much improves after TB medication, diagnosis of LC should be kept in mind.

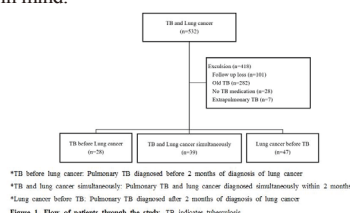


Figure 1. Flow of patients through the study. TB indicates tuberculosis

Table 1. Baseline characteristics of the patients

Variable	TB and LC simultaneously	TB before LC	LC before TB
No. of patients	39 (34.2)	28 (21.9)	46 (40.4)
Sex			
Male	33 (28.9)	25 (21.9)	31 (27.2)
Female	6 (5.3)	3 (2.6)	15 (13.2)
Age, years	67.2±9.8	64.4±9.2	65.1±9.4
Smoker			
Nonsmoker	8 (7.0)	5 (4.4)	15 (13.2)
Former smoker	23 (20.2)	17 (14.9)	17 (14.9)
Current smoker	8 (7.0)	6 (5.3)	14 (12.3)
Type of LC			
Adenocarcinoma	18 (15.8)	13 (11.4)	25 (21.9)
Squamous cell carcinoma	12 (10.5)	12 (10.5)	11 (9.6)
Large Cell	2 (1.8)	0	2 (1.8)
SLCL	0	3 (2.6)	6 (5.3)
NLSCL	4 (3.5)	0	1 (0.9)
Others	3 (2.6)	1 (0.9)	1 (0.9)

TB indicates tuberculosis; LC, lung cancer; SLCL, small cell lung cancer; NLSCL, non-small cell lung cancer; others, sarcomatoid or not confirmed. Values are presented as No.(%).

Table 2. Changes of stage at each time of TB and LC diagnosis

	When diagnosed with TB	When diagnosed with LC	p-value
Stage I	15 (71.4)	7 (33.3)	
Early stage	2 (9.5)	2 (9.5)	
Stage IIIA	2 (9.5)	2 (9.5)	0.021
Late stage	2 (9.5)	2 (9.5)	
Stage IV	0	8 (38.1)	
Total	21	21	

McNemar's test was used to comparison of paired proportions.  $P < 0.05$  was considered statistically significant. Values are presented as No.(%).

Table 3. Changes in tumor size and LC stage according to time interval between diagnosis

Time interval (months)	No. of patients	Increase in tumor size (cm)	Change in T classification (%)	Change in stage (%)
4.9 (3.6, 8.7)	21	2.4±1.6 → 4.3±3.1	12 (57.1)	13 (61.9)

Paired t tests was used for comparison of tumor size. ( $p$ -value=0.001)