

Geng E, Kreiswirth B, Burzynski J, Schluger NW. **Clinical and radiographic correlates of primary and reactivation tuberculosis:** a molecular epidemiology study. JAMA 2005; 293(22):2740-5.

Abstract: CONTEXT: The traditional teaching that pulmonary tuberculosis characterized by lymphadenopathy, effusions, and lower or mid lung zone infiltrates on chest radiography represents "primary" disease from recently acquired infection, whereas upper lobe infiltrates and cavities represent secondary or reactivation disease acquired in the more distant past, is not based on well-established clinical evidence. Furthermore, it is not known whether the atypical radiograph common in human immunodeficiency virus (HIV)-associated tuberculosis is due to a preponderance of primary progressive

Table 2. Radiographic Characteristics in Patients With Pulmonary Tuberculosis

	No. (%) of Total Patients	
	Present	Absent
Cavitary lesion	131 (28.7)	325 (71.3)
Upper lobe infiltrate	266 (58.3)	190 (41.7)
Lymphadenopathy	103 (22.6)	353 (77.4)
Effusion	90 (19.7)	366 (80.2)
Effusion only	26 (5.7)	430 (94.3)
Middle or lower lobe infiltrate	187 (41.0)	269 (59.0)
Miliary	24 (5.3)	432 (94.7)
Typical	276 (60.5)	180 (39.5)

presence or absence of 6 features: upper lobe infiltrate, cavitary lesion, adenopathy, effusions, lower or mid lung zone infiltrate, and miliary pattern. Radiographs were considered typical if they had an upper lobe infiltrate or cavity whether or not other features were present. Atypical radiographs were those that had adenopathy, effusion, or mid lower lung zone infiltrates or had none of the above features. RESULTS: Human immunodeficiency virus infection was most commonly associated with an atypical radiographic appearance on chest radiograph with an odds ratio of 0.20 (95% confidence interval, 0.13-0.31). Although a clustered fingerprint,

representing recently acquired disease, was associated with typical radiograph in univariate analysis (odds ratio, 0.68; 95% confidence interval, 0.47-0.99), the association was lost when adjusted for HIV status. CONCLUSIONS: Human immunodeficiency virus status is the only independent predictor of radiographic appearance. The altered radiographic appearance of pulmonary tuberculosis in HIV is due to altered immunity rather than recent acquisition of infection and progression to active disease.

disease or altered immunity. OBJECTIVE: To analyze the relationship between recently acquired and remotely acquired pulmonary tuberculosis, clinical and demographic variables, and radiographic features by using molecular fingerprinting and conventional epidemiology. DESIGN, SETTING, AND POPULATION: A retrospective, hospital-based series of 456 patients treated at a New York City medical center between 1990 and 1999. Eligible patients had to have had at least 1 positive respiratory culture for Mycobacterium tuberculosis and available radiographic data. MAIN OUTCOME MEASURES: Radiographic appearance as measured by the

Table 4. Univariate Analysis of Association Between Typical Radiographic Features and Social, Demographic, and Clinical Predictors

	No. (%)		OR (95% CI)	P Value
	Typical Radiograph (n = 266)	Atypical Radiograph (n = 190)		
Any drug resistance	28 (10.5)	10 (5.26)	2.11 (1.00-4.47)	.05
Age >60 y	51 (19.2)	24 (12.6)	1.64 (0.97-2.78)	.06
Clustered RFLP	127 (47.7)	109 (57.4)	0.68 (0.47-0.99)	.04
IV drug use*	26 (22.2)	22 (30.56)	0.64 (0.33-1.26)	.20
Non-US born	104 (39.1)	59 (31.1)	1.42 (0.96-2.11)	.08
HIV-infected†	77 (38.7)	114 (74.5)	0.21 (0.13-0.34)	<.001
Homelessness‡	37 (14.5)	27 (14.6)	1.00 (0.58-1.70)	.98
Isoniazid resistance	26 (9.8)	10 (5.3)	1.95 (0.92-4.15)	.08
Multidrug resistant	11 (4.14)	7 (3.68)	1.13 (0.43-2.96)	.80
Race or ethnicity				
Asian	10 (3.8)	5 (2.6)	1.44 (0.49-4.30)	.50
Hispanic	124 (46.6)	81 (42.6)	1.18 (0.81-1.71)	.40
Black	116 (43.6)	86 (45.3)	0.94 (0.64-1.36)	.73
White	16 (6.02)	18 (9.5)	0.61 (0.30-1.23)	.17
Men	79 (29.7)	60 (31.6)	0.91 (0.61-1.37)	.67
Year of diagnosis before 1995	103 (38.7)	65 (34.2)	1.20 (0.82-1.79)	.32