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Epidemiologic Notes and Reports Tuberculosis Transmission Along the U.S.-Mexican Border --- 1990

In April 1990, a physician in Mexico diagnosed military tuberculosis (TB) in a 6-month-old girl (patient 1) and referred the child for therapy at a health center in Ciudad Juarez, Chihuahua. After the child received treatment for 1 month with isoniazid (INH), rifampin (RIF), and streptomycin, her parents sought health care for her in the United States. When evaluated at the El Paso City-County Health District Tuberculosis Clinic, she had a 4-week history of fevers, cough, and weight loss; examination revealed a low-grade fever (99.8 F (37.7 C)) and a diffuse military infiltrate of the lungs on the chest radiograph. A Mantoux tuberculin skin test was positive (10 mm of induration). Multiple gastric aspirate smears for acid-fast bacilli (AFB) were negative; however, cultures were positive for *Mycobacterium tuberculosis*, which was susceptible to all drugs tested. The patient improved on continued therapy with INH, RIF, and streptomycin.

Investigation of contacts of patient 1 revealed that her 13-year-old aunt (patient 2), who lived in the same household, had been diagnosed with TB in March 1990 and was being treated at a health center in Ciudad Juarez. A chest radiograph of patient 2 showed extensive cavitary infiltrates in the upper lobes of both lungs. A Mantoux tuberculin skin test with 5 tuberculin units (TU) was positive (12 mm of induration). Although multiple sputum specimens collected in May were AFB smear negative, one culture was positive for *M. tuberculosis*. Treatment included INH, RIF, and pyrazinamide (PZA).

Investigation of contacts of patient 1 also identified TB in her 21-year-old aunt (patient 3) who was living in the same household. Patient 3 had had fever, cough, and left pleuritic chest pain for 3 weeks (from April 21 through May 14); a chest radiograph revealed free fluid in the left hemithorax. A 5 TU Mantoux tuberculin skin test was positive (21 mm of induration). Even though multiple sputum specimens were negative on smear and culture, patient 3 improved on therapy with INH, RIF, and PZA.

Nine other members of the extended family of the three patients lived in households in the same small apartment complex; each of these persons had reactions of at least 15 mm induration to a tuberculin skin test. Although none had evidence of current active disease, all were placed on INH preventive therapy.

Public health officials in the United States determined that the only contacts of patient 1 who resided in the United States were her parents. In both parents, skin testing induced reactions of greater than 15 mm induration; however findings were normal on both chest radiograph and physical examination. Both parents were placed on INH preventive therapy. The only contact of patient 3 who resided in the United States was a young adult male; his tuberculin skin test was negative.

The health department also skin tested 12 other family members who did not reside in the same apartment complex as the three case-patients. Although two had skin test reactions of greater than 10 mm of induration, neither had evidence of disease. They were placed on INH preventive therapy. Repeat skin testing of those who had not been reactive during the previous 3 months did not identify additional reactors.

During the 4-month period that preceded initiation of treatment of patient 2, she had attended a school in Ciudad Juarez, usually remaining the entire day in one classroom with 40 other students and two staff members. Of these contacts, skin testing was positive (greater than or equal to 10 mm induration) in 12 (28.6%) persons, including 10 students and the two faculty members. Each of the students had a scar suggestive of previous BCG vaccination in the right deltoid area. None of the staff had evidence of current TB disease. Students with greater than or equal to 5 mm induration were referred to private physicians and the public clinic in Ciudad Juarez for follow-up. Reported by: JA Perez Rubalcaba, MD, Ciudad Juarez, Chihuahua, Mexico. MA Escobedo, MD, L Nickey, MD, El Paso City-County Health District; D Simpson, MD, M Kelley, MD, Bur of Disease Control and Epidemiology, Texas Dept of Health. HH Ortega, MD, Pan American Health Organization Field Office, El Paso, Texas. Div of Tuberculosis Elimination, Center for Prevention Svcs, CDC.

Editorial Note

Editorial Note: The findings described in this report underscore four concerns regarding TB in children and the elimination of TB in the United States. First, the occurrence of TB or tuberculous infection in infants or young children has particularly untoward ramifications: children who are untreated or inadequately treated are at increased risk for serious complications (e.g., miliary disease or tuberculous meningitis) (1). TB or tuberculous infection in infants or young children is also a priori evidence of recent transmission of infection and strongly suggests infectious TB in a community member who requires treatment. The detection of tuberculous infection in an infant or young child should immediately prompt health-care providers and public health officials to initiate

appropriate therapy for the patient and conduct a contact investigation to identify a source case and any other infected persons.

Second, the identification of an infectious source case with close contacts who are young children should prompt an immediate contact investigation. In this report, patient 2 was the probable source of infection for patient 1. Patient 2 had been symptomatic for several months before the onset of illness in patient 1; had had cavitory pulmonary disease; and, after 3 months of therapy, had sputum cultures that remained positive.

Third, this report illustrates the importance of conducting TB contact investigations in "concentric circles"---the practice of first examining higher risk contacts, then continuing to examine lower risk contacts until the prevalence of infection approximates that in a demographically similar population not recently exposed to infectious TB (3). In this investigation, the high prevalence of infection among household members required a more extensive investigation in the community. The extensive use of BCG vaccination complicated the interpretation of tuberculin skin tests among school classmates of patient 2, since tuberculin reactions due to BCG vaccination cannot be reliably distinguished from those caused by *M. tuberculosis* infection (4). However, because patient 2 was clearly infectious, reactions of greater than or equal to 5 mm among her classmates were considered as positive and an indication for both further examination and consideration for INH preventive therapy (5).

Fourth, this report illustrates the importance of the cooperative efforts required to prevent and control TB in a border area, such as metropolitan El Paso/Ciudad Juarez. To effectively control this problem, the health departments in El Paso and Ciudad Juarez cooperated extensively in the contact investigation.

To foster further cooperative planning and intervention efforts, CDC is assisting the Texas Department of Health in establishing a TB control demonstration project in metropolitan El Paso/Ciudad Juarez. The project may serve as a model for other border communities.

References

1. Abernathy RS. Tuberculosis in children: still a public health threat. *Journal of Respiratory Diseases* 1987;(Feb):67--87.
2. Wallgren A. The time-table of tuberculosis. *Tubercle* 1948;29:245--51.
3. American Thoracic Society/CDC. Control of tuberculosis. *Am Rev Respir Dis* 1983;128:336--42.
4. Snider DE Jr. Bacille Calmette-Guerin vaccinations and tuberculin tests. *JAMA* 1985;253:3438--9.

5. CDC. The use of preventive therapy for tuberculous infection in the United States: recommendations of the Advisory Committee for the Elimination of Tuberculosis. *MMWR* 1990;39:(no. RR-8)9--12.

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