

Patient	NAATs (# positive/total sent)	Respiratory Cultures (# positive/total sent)	Concordant with culture
1	1/3	1/3	Yes
2	1/3	3/3	No
3	1/2	2/2	No
4	1/3	2/3	No
5	1/3	2/3	No
6	1/2	2/2	No
7	1/3	5/5	No
8	3/3	3/3	Yes
9	2/5	4/5	No
10	1/4	1/4	Yes
11	1/3	1/3	Yes

Table 2. Number of positive NAATs compared to positive respiratory cultures in patients with smear negative pulmonary TB.

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1347. Tuberculosis Caused by *Mycobacterium bovis* in Children: A Retrospective Review of Cases From 2010 to 2019 in a Pediatric Tertiary-care Center in Mexico
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Background. Tuberculosis (Tb) is a leading cause of death worldwide. The most common cause of Tb is due to *M. tuberculosis*, however, *M. bovis* is considered a public health issue and an often-undetected cause of Tb. Information regarding Tb by *M. bovis* in children is scarce.

Methods. Retrospective analysis of culture-proven cases of Tb by *M. bovis* from 2010 to 2019 in a pediatric tertiary-care center in Mexico. Clinical and paraclinical characteristics were compared.

Results. We included 22 cases of Tb by *M. bovis* in children younger than 18 years of age. 64 percent were men, mean age was 3.8 years. All subjects had a positive history of BCG immunization. Eight subjects (36.4%) consumed unpasteurized dairy products, 3 (13.6%) referred contact with Tb-infected people, and none had contact with cattle. Twelve patients (54.5%) had an immunodeficiency (ID). The most common ID was defects in the IL-12/IFN- γ axis (36.3%), followed by severe-combined ID (9%). All of the subjects presented any form of extrapulmonary Tb, and 8 (36.4%) had disseminated Tb. The most common extrapulmonary presentations were lymph-node (40.9%), abdominal (18.2%), and skeletal Tb (13.6%). Fever was present in 21.3% of the cases, weight-loss in 12%, and diaphoresis in 9.3%. Hepatomegaly was present in 83% of patients with abdominal Tb ($P = 0.001$). We found a negative association between lymph-node enlargement and skeletal Tb by *M. bovis* ($P = 0.01$). Five cases (22.7%) were identified as *M. bovis* BCG strain. Infection by BCG strain was associated with a shorter time of presentation (< 4 months) ($P = 0.005$). Polydrug resistance (resistance to ≥ 2 drugs, excluding those classified as MDR) was observed in five strains (22.7%). We detected 3 RIF-resistant strains (19%), 2 INH-resistant strains (9.1%), and 1 EMB-resistant strain (4.5%). No MDR strains were detected. We report an 86% cure rate, and 5% mortality. Nine percent are still in treatment.

Conclusion. We report 22 cases of culture-proven cases of Tb by *M. bovis*, from 2010 to 2019 in a pediatric tertiary-care center in Mexico. Disseminated presentation was common, as well as extrapulmonary involvement. Infection by *M. bovis* BCG strain was associated with a shorter time of presentation. Further studies are required in order to expand our knowledge on *M. bovis* infection in children.

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1348. Mycobacterium Chimera Infection Following Cardiac Surgery: A Review of a Large Cohort of Cases in the United States

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Background. Mycobacterium chimera (MC) is a nontuberculous mycobacterium associated with infections originating from heater-cooler devices following cardiac surgery globally from 2012 to 2016. Twenty-eight cases occurred within our health system in Southern California, the largest number of cases in the United States to date. We aim to summarize the clinical features, diagnosis, treatments, and outcomes of these cases.

Methods. We reviewed the electronic health records of 28 patients with identified MC infection who had index coronary artery bypass (CABG) and/or valve replacement surgery between 2014 and 2016. All diagnoses were confirmed by cultures speciated to MC by 16S partial DNA sequencing or Karius testing, except for one case. Patients were grouped by clinical presentation of disseminated disease ($n = 18$) or localized disease

($n = 10$). Treatment delay was calculated from the time of initial presentation to the start date of antibiotics and evaluation for surgical intervention.

Results. All patients who underwent CABG alone ($n = 5$) developed localized sternal wound infections, whereas patients who had valve replacement surgery ($n = 23$) developed either localized or disseminated disease. Disseminated disease carried a mortality rate of 40% in those with surgical source control vs. 72% in patients who were not surgical candidates (OR 6.6, 95% CI 0.8–55). The mortality rate of patients with localized sternal wound infections was 11% after incision/drainage and sternal wire removal ($n = 9$). Delay of antimicrobial treatment greater than 6 months in all 28 patients was associated with a mortality rate of 54% compared with 35% in patients who started treatment within 6 months (OR 2.2, 95% CI 0.47–10.35). Overall mortality rate of patients with MC infection was 42%.

Conclusion. Disseminated MC infection should be considered early in at-risk patients presenting with constitutional symptoms. In this review of 27 confirmed and 1 probable case of MC infection, disseminated infection only occurred in patients who underwent valve surgery while localized disease occurred in patients who underwent CABG. Surgical source control with early initiation of antimicrobial therapy is associated with improved outcomes. Optimal duration of antimicrobial treatment is still unknown.

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1349. Risk Factors for Extrapulmonary Tuberculosis in Greece, a Low Tuberculosis Burden and High Immigrant Receiving Country

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Background. Although the most common site of tuberculosis (TB) is the lungs, spreading may occur to any part of the body, resulting in extrapulmonary tuberculosis (EPTB). We conducted a study to describe the clinical and epidemiological features of EPTB in Greece, a low TB burden country (<50 TB cases/million), in which immigrants from high TB burden countries make up >7% of the population.

Methods. We retrieved data for adults presenting with signs/symptoms consistent with EPTB from 2014 to 2015 registries of the Athens Chest Disease Hospital. EPTB was clinically, histologically or microbiologically diagnosed. We recorded age, gender, immigrant, or native status, site of disease, history of diabetes, smoking, and immunological status. Proportion ratios (PR) and 95% confidence interval (CI) were calculated to estimate risk factors for developing EPTB.

Results. We identified 277 (153 males) adult patients, 254 (91.7%) natives, and 23 (8.3%) immigrants, with signs/symptoms consistent with EPTB. Of 118/277 (42.6%) EPTB cases, 67 (57.6%) were males. No association with gender, diabetes, or smoking was shown between EPTB cases and non-cases. Immigrants were twice as likely to develop EPTB as natives (PR = 1.86 95% CI: 1.38–2.51 $P < 0.001$). Immigrants from high TB burden countries were 2 times as likely to develop nodal, pericardial, or pleural TB as the native population (Tables 1 and 2). Native patients > 60 years of age presenting with lymph node enlargement or with a pleural effusion were 3 times as likely to have TB disease as those aged <60 years (Table 2). In contrast, all immigrants with lymph node enlargement were EPTB cases (Table 1) and were <45 years old. Impaired immunological status increased the risk of developing EPTB by 62% in the native population (PR = 1.62 95% CI: 1.20–2.33 $P < 0.001$).

Conclusion. In a low TB burden country, EPTB is associated with old age and weak immune system due to possible extrapulmonary dissemination of latent TB. Considered to be at high-risk for developing EPTB, immigrants from high TB burden countries with signs and/or symptoms consistent with EPTB, albeit not transmitting the disease, need to be priority-wise tested for TB in order to be adequately treated.

Table 1. Signs and symptoms of extrapulmonary tuberculosis among immigrants and natives in Greece, 2014–2015.

Signs and symptoms consistent with EPTB	Cases with signs/symptoms consistent of EPTB						
	Total	Immigrant		Native			
		TB	Non-TB	TB	Non-TB		
Pleural effusion	123	49	74	6	2	43	72
Lymph node enlargement	101	47	54	8	0	39	54
Pericardial effusion	31	13	18	2	0	11	18
Ascites	8	4	4	0	1	4	3
Meninges	11	3	8	1	3	2	5
Osteoarticular	2	1	1	0	0	1	1
Sterile pyuria	1	1	0	0	0	1	0
Total	277	118	159	17	6	101	153

EPTB: extrapulmonary tuberculosis; TB: tuberculosis

Table 2. Risk for nodal, pleural or pericardial tuberculosis stratified by immigrant status and age in Greece, 2014–2015.

Risk factors	Clinical presentations of EPTB								
	Nodal TB			Pleural TB			Pericardial TB		
	PR	95%CI	p	PR	95%CI	p	PR	95%CI	p
Immigrant status	2.38	1.88–3.03	< 0.001	2.00	1.25–3.19	0.003	2.64	1.66–4.20	< 0.001
Age > 60 years	3.01	1.60–5.68	< 0.001	2.67	1.46–4.90	0.002			

EPTB: extrapulmonary tuberculosis; TB: tuberculosis

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1350. Clofazimine as an Oral Companion Drug for Treatment of Mycobacterium abscessus complex Infections

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