Disseminated *Mycobacterium bovis* infection presenting with cervical lymphadenitis in a 15-year-old girl

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A 15-year-old, previously healthy, Syrian-born girl, who had immigrated from Turkey 3 months previously, presented to the emergency department with a 6-month history of cervical swelling, weight loss and intermittent fevers; a 1-month history of cough; and acute onset of night sweats.

On examination, the patient appeared well (50th percentile of body mass index), with bilateral cervical lymphadenopathy (Figure 1) and without other lymph node involvement. Chest radiography showed patchy bilateral interstitial and airspace opacities, nodules and a calcified granuloma in the right upper lobe. An intravenous contrast-enhanced computed tomography scan of her neck showed necrotic lymphadenopathy (Figure 2). Sputum was positive for acid-fast-bacilli, and polymerase chain reaction (PCR) was positive for *Mycobacterium tuberculosis* complex.

We prescribed rifampin, isoniazid, pyrazinamide and ethambutol for presumed disseminated *M. tuberculosis* infection. The patient underwent neck dissection and node excision given increasing lymphadenopathy despite 1 month of medical therapy. Biopsy tissue tested positive for acid-fast bacilli, with granulomatous inflammation present microscopically. Sputum and stool samples were culture-positive for a pyrazinamide-resistant and rifampin-, isoniazid- and ethambutol-susceptible organism, which was later identified as *Mycobacterium bovis* subspecies *bovis*. Further history-taking revealed she had regularly consumed unpasteurized milk while in Turkey.

The patient remains on rifampin and isoniazid, with slowly resolving lymphadenopathy. Close household contacts screened negative for tuberculosis with interferon-γ release assays, chosen over tuberculin skin tests, given their history of bacille Calmette–Guérin immunization.

The cause of bovine tuberculosis, *M. bovis* is part of the *M. tuberculosis* complex.[1] Transmission typically occurs through ingestion of unpasteurized milk and soft cheeses.[1,2] The global

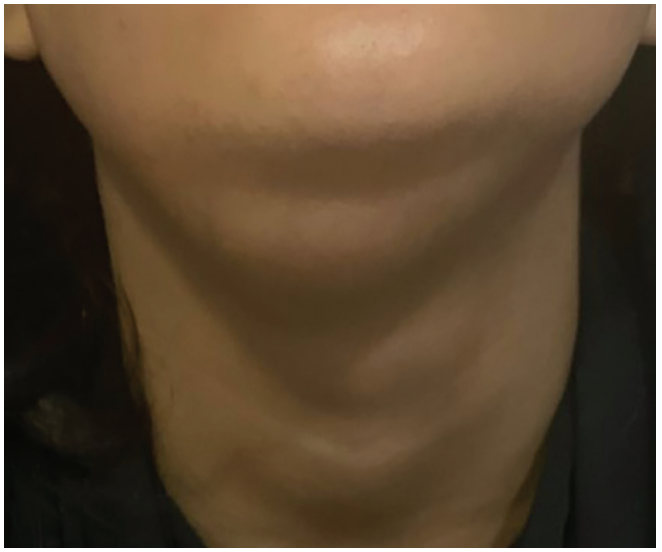

Figure 1: Bilateral cervical lymphadenitis in a 15-year-old girl with *Mycobacterium bovis* infection involving submental and submandibular nodes (bilateral level IA, right-sided level IB).

Figure 2: Sagittal reconstruction from an intravenous contrast-enhanced computed tomography scan of the neck of a 15-year-old girl with *Mycobacterium bovis* infection, showing submental and submandibular cervical lymphadenopathy with low central attenuation.

burden has greatly decreased through milk pasteurization and cattle testing, with almost complete elimination in Canada.[2] Human-to-human airborne transmission is uncommon.

Extrapulmonary manifestations, mainly gastrointestinal disease, result from the primarily oral acquisition of *M. bovis* infection.[1] Cervical lymph node involvement is common.

The *M. tuberculosis* complex includes 12 species; in Ontario, more than 96% of isolates are *M. tuberculosis*.[3] *M. bovis* is intrinsically resistant to pyrazinamide, a diagnostic clue that prompted specialized testing in this patient.[2] A minimum treatment duration of 9 months is suggested given this resistance to pyrazinamide; recurrence is possible.[4]

References

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