First Case of Multidrug Resistant Spinal TB in Ireland

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Sir,

We refer to the first case of multidrug resistant tuberculosis (MDR TB) osteomyelitis in Ireland, illustrating the importance of vigilance in cases responding poorly to initial treatment, and highlighting the role of microbiological findings in guiding therapy.

A 23-year-old Somalian lady (residing in Ireland for 9 years) presented with right shoulder pain. Otherwise asymptomatic, she had no medical history. A right apical lung lesion on shoulder X-ray was suspicious for TB. Quantiferon assay was positive, and first line anti-TB therapy was commenced – isoniazid, rifampicin, pyrazinamide and ethambutol. Unable to produce sputum spontaneously, bronchoscopy with biopsy and bronchoalveolar lavage (BAL) was performed. 4 weeks later, she represented with bilateral lower limb weakness and paraesthesia. MRI spine demonstrated a large thoracic paravertebral abscess causing spinal cord compression, and osteomyelitis. CT-guided biopsy of the abscess was performed, and GeneXpert confirmed the lesion to be tuberculous in nature, demonstrating resistance to isoniazid and rifampicin.

Results of BAL demonstrated positive Ziehl Neelson stain, and resistance to all first line anti-TB drugs except ethambutol. A second line treatment regime composed of amikacin, moxifloxacin, paser, cycloserine, linezolid and prothionamide replaced ineffective drugs. Directly observed treatment (DOT) was implemented. Further refinement of sensitivity profile (10 weeks post bronchoscopy) revealed additional resistance, requiring repeat amendment of treatment. A personalised drug regime was prescribed for 2 years. Interval imaging demonstrated resolution of pulmonary and spinal lesions.

TB has a comparably low incidence in Ireland, recorded as <10 per 100,000 population consistently since 2010. Approximately 40% of TB patients treated in Ireland are foreign-born. MDR TB (defined as resistance to both isoniazid and rifampicin) occurs even less frequently, at a rate of approximately 2-3 cases per annum for all body sites¹. Worldwide, the surge in drug-resistant TB is multifactorial. It may involve spread of drug-resistant strains, as in this case (primary resistance), or result from previous improper antituberculosis regimens, poor patient compliance or prolonged detection of drug resistance (acquired resistance). Globally in 2014, an estimated 480,000 people developed multidrug-resistant TB;
more than half of these cases occurred in Russia, China and India ², from where studies of spinal MDR TB of significant power hail³.

Almost 65% of TB cases in Ireland are confined to the lungs. Despite being the most common skeletal site of TB infection, the spine accounts for only approximately 7% of remaining extrapulmonary sites. Resulting from haematogenous spread into the vasculature of cancellous bone in vertebral bodies, it originates from either the lungs or genitourinary system⁴. Spinal TB is frequently indolent in onset, but symptomatology can be dramatic upon presentation. Diagnosis of MDRTB is rate-limited by culture and sensitivity testing of available biological samples. At present, there is no molecular drug sensitivity testing method to simultaneously detect all first- and second-line drugs, however the GeneXpert diagnostic system (used in this case) detects rifampicin and isoniazid resistance within hours, and is accurate for spinal and pulmonary biopsies. In practice, close monitoring of patient response and frequent liaison with specimen laboratories remains indispensable.

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**References**