Osteoarticular tuberculosis in paediatrics: A review of 20 years of cases in a tertiary hospital

Dear Editor:

Tuberculosis (TB) is one of the most prevalent infectious diseases worldwide. Paediatric patients are at significantly higher risk than adults of progressing to tuberculosis disease and developing disseminated and extrapulmonary forms of TB. In addition, in recent years we have witnessed an emergence of multidrug-resistant (MDR) strains of Mycobacterium tuberculosis (MTB) in Spain, especially in immigrants from highly endemic countries. Extrapulmonary forms of TB, and osteoarticular TB in particular, pose a considerable diagnostic challenge on account of their insidious course and atypical manifestations. Osteoarticular TB amounts to approximately 1–5% of all cases of paediatric TB, and to 10–17% of extrapulmonary TB cases. However, few case series have been published on this form in the literature, and most of these studies were conducted in highly endemic countries.

The aim of our study was to define the characteristics of paediatric osteoarticular TB in Spain. We made a retrospective review of cases of osteoarticular TB diagnosed in patients aged less than 14 years in the Hospital Universitario La Paz over a period of 20 years (January 1996–December 2015). We collected epidemiologic, clinical, radiologic, microbiologic, treatment and outcome data. We considered that skin tuberculin tests were positive when the induration was 5 mm or greater at 48–72 h from the intradermal injection of 2 units of RT-23 tuberculin in 0.1 mL solution (Statens Serum Institut; Copenhagen, Denmark). We entered and analysed the data in Excel (Microsoft; Redmond, USA).

We identified 213 cases of children with confirmed TB, of which 11 (5.2%) presented with osteoarticular involvement. This presentation was the third most frequent following pulmonary TB (132 cases, 62%) and extrapulmonary lymphadenitis (41 cases, 19%). Of the 11 patients with osteoarticular involvement, 4 (36.4%) received a diagnosis of spinal TB (3 dorsal, 1 lumbar); 5 (45.4%) of articular TB (2 in the knee, 1 in the hip, 1 in the ankle, and 1 with polyarticular TB with hip, knee and shoulder involvement); and 2 (18.2%) of isolated osteomyelitis (1 in the femur, 1 in the mastoid process). Five cases (45%) presented with concomitant pulmonary involvement. The male to female ratio was 1.2:1, and the mean age at diagnosis was 5.3 ± 3.6 years. The median delay in diagnosis was 12 months (range, 2 weeks–3 years). The most frequent reason that led to suspicion of TB was the presence of characteristic findings on magnetic resonance (bone destruction with cold abscesses or synovial hypertrophy) in children of immigrants from countries with a high TB burden (9 patients, 82%). All the patients were immunocompetent. The investigation of contacts identified the index case in 4 patients (36.4%) and relatives with latent tuberculosis infection in 5, and was negative in 2.

The most frequent symptom was functional impairment (64%) accompanied by pain in 45% of cases, and fever in 36% of cases. All patients had a positive tuberculin skin test. The presence of M. tuberculosis was confirmed in 82% (9/11): 2 in joint fluid (PCR and culture) and 7 in a synovial, bone or paravertebral abscess biopsy specimens (1 by culture, 6 by PCR and culture), with the additional detection of growth in the gastric aspirate culture of 2 of these patients. The most frequent radiologic findings were bone destruction (82%), cold abscesses (36%) and synovial hypertrophy (27%). Two strains of MDR-MBT were isolated, both in children born in Spain but with index cases from highly endemic countries: one patient had travelled to China and stayed with a grandfather that had TB; the other one was living with a Moroccan man that died of the disease.

The duration of treatment ranged from 9 to 12 months, except in patients with MDR strains, who were treated for 24 months. One boy needed to switch treatments due to acute drug-induced liver failure. Forty-five percent of patients required surgical intervention (3 to drain the lesion, 2 to stabilise the joint). Forty-five percent developed sequelae


2341-2879/© 2016 Asociación Española de Pediatría. Published by Elsevier España, S.L.U. All rights reserved.
in the long term: 3 patients developed kyphosis, 1 leg-length inequality and 1 limited mobility.

In our case series, paediatric osteoarticular TB was the third most frequent form of disease presentation, which was similar to what has been described in the literature. We would like to highlight the diagnostic delay and the high percentage of children that required surgical intervention and had sequelae in our study. These findings underscore the importance of including tuberculosis disease in the differential diagnosis of osteoarticular lesions with a slow course, accompanied by pain or with prolonged functional impairment, even in the absence of fever, and especially in immigrant children or children in contact with immigrants from highly endemic countries. Furthermore, the prevalence of MDR-MBT is higher in these patients, so it is essential that adequate samples are collected to take advantage of the available molecular diagnostic techniques for the early detection of drug resistances.

References


María José Pérez Durán*, Bárbara Moreno Sanz-Gadea*, Teresa del Rosal Raves*, María José Mellado Peña*, Fernando Baquero-Artigao*

*Hospital Universitario La Paz, Madrid, Spain
*Servicio de Pediatría-Enfermedades infecciosas y Tropicales, Hospital Universitario La Paz, Madrid, Spain
*Corresponding author.

E-mail address: mjopduran@gmail.com (M.J. Pérez Durán).