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https://doi.org/10.1016/j.eimce.2021.08.004

Mycobacterium malmoense: When the weird starts to stop being weird☆

Mycobacterium malmoense*: cuando lo raro empieza a dejar de serlo*

In recent years, an increase has been observed in the isolation of microorganisms from the *Mycobacteriaceae* family such as *Mycobacterium malmoense*. These mycobacteria can cause both extrapulmonary and pulmonary disease, and are clinically relevant in 70–80% of patients with pulmonary disease.[1] We need to determine the presence or absence of disease based on agreed criteria,[2] taking into account that such disease generally occurs in immunosuppressed individuals with general or local immunodeficiency. There are case series in which it has been isolated in patients with cystic fibrosis, prior tuberculosis, pneumoconiosis[3] and Crohn's disease, but we present the case of a patient without underlying illness with pulmonary disease caused by *M. malmoense*.

A 45-year-old female smoker (15 cigarettes per day) with 23 pack years of cumulative tobacco use, with no other history. She was seen for chronic bronchitis, right pleuritic pain over the last year, and, in recent months, uncomplicated respiratory infections. A chest X-ray was ordered, which showed evidence of pulmonary infiltrate with cavitation in the right apex, which was not present on an earlier X-ray performed eight years earlier. The study was expanded with a chest CT which revealed the presence of nodular opacities, some with cavitation in the right upper lobe (RUL) (Fig. 1). A microbiological study in sputum was also ordered; bacilloscopies were negative, but *M. malmoense* was isolated in two determinations in the culture, and was also isolated in bronchoalveolar lavage.

The diagnostic guidelines of the American Thoracic Society (ATS)[2] and the British Thoracic Society (BTS) were reviewed, and based on microbiological, clinical and radiological criteria, the pathogenic nature of *M. malmoense* was evaluated and the decision made to begin treatment with azithromycin, rifampicin and ethambutol. No sensitivity study was performed due to the limited value in this case. The patient was informed of the possible adverse effects of the treatment and received advice on stopping smoking.

In follow-up visits at three and six months, the patient reported adequate tolerance of the treatment and that she was asymptomatic. Subsequent sputum bacilloscopies and mycobacteria cultures converted to negative at one month from the start of treatment, remaining so in subsequent monthly follow-ups. Likewise, an improvement was observed in the chest CT ordered at six months. Spirometry was performed, showing mild peripheral airway obstruction, with a negative bronchodilator test, thus ruling out the presence of chronic obstructive pulmonary disease at that time (forced vital capacity [FVC] 3,130 ml [110%], maximum expiratory volume in the first second of forced expiration [FEV1] 2380 ml (98%), FEV1/VC 74.85%, maximal mid-expiratory flow [MMEF] 75/25 1910 ml [57%]).

In view of the results, it was decided to maintain the treatment for one year, based on the BTS recommendations.[2] *M. malmoense* is an environmental mycobacterium that generally does not cause disease in humans and human-to-human transmission has not been described.

Infections of this type are more common in other environments, such as northern Europe, although its isolation is becoming increas-

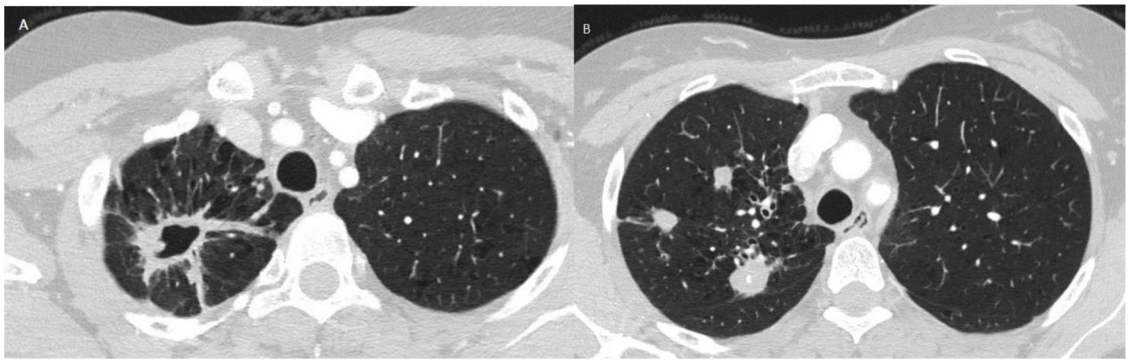

Figure 1. Chest CT: radiological findings suggestive of post-primary tuberculosis with involvement of apical and posterior segments of the RUL, traction bronchiectasis and bilateral centrilobular emphysema predominantly in the upper lobes. (A) Major cavitation of 36 mm associated with pleuroparenchymal scarring. (B) Multiple heterogeneous nodular opacities.

☆ Please cite this article as: Gámiz-Molina AB, Martín-Ripoll L, Cassini-Gómez de Cádiz LF, Gallardo-Medina M. *Mycobacterium malmoense*: cuando lo raro empieza a dejar de serlo. Enferm Infecc Microbiol Clin. 2021;39:476–477.

ingly common here due to the increase in cases in Spain in recent years.[4] There are few reported cases of *M. malmoense*, the prevalence of which varies widely from country to country, with the highest figures in northern Europe, although over the years new cases of disease have appeared, with the first case in South Korea described in 2015 and the twelfth in France in 2017.[5]

Pulmonary infection due to *M. malmoense* is difficult to diagnose.[6] *M. malmoense* has been shown to have a greater tendency to present major cavities and air-fluid levels in comparison with *M. tuberculosis*,[7] although these differences are not sufficient for diagnosis. Some studies have found a higher prevalence in males, with a mean age of 58 years, with infection limited to the upper lobes in some 30% of cases.[8]

It is necessary to tailor the treatment in each case, as no single established regimen exists. A review published in 2016 suggested treating with isoniazid, rifampicin and ethambutol, with or without fluoroquinolones/macrolides[9], for at least 12 months after sputum cultures have become negative.

The growing detection of these mycobacteria compels us to think of them as disease-causing agents. Increasingly, studies are being conducted such as that by Vande Weygaerde et al.,[10] but we cannot forget that the difficulty of diagnosing diseases caused by *M. malmoense* and other non-tuberculous mycobacteria lies in the cross-cutting interpretation of microbiological, radiological and clinical data.

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https://doi.org/10.1016/j.eimce.2021.08.005

Febrile syndrome upon return from the tropics during the COVID-19 pandemic☆

Síndrome febril al regreso del trópico durante la pandemia de COVID-19

Any febrile syndrome upon return from travel to a tropical region is malaria until proven otherwise.[1] Fever is one of the most common reasons for consultation for travellers. It is an important warning sign of potentially severe disease that compels us to establish a diagnosis and quickly treat certain diseases that require urgent care, such as malaria.[2]

In the differential diagnosis of fever in travellers, it is essential to know which regions they have visited and at what time of year. The activities undertaken in the location they have returned from must be analysed and investigated in order to individually assess the risks. Medical history and epidemiological context are of even greater importance in these patients, as it is vital to confirm that correct antimalarial prophylaxis has been used and that their vaccination status was up-to-date prior to travel.[3–5]

According to recent data published by the World Health Organization,[6] there were 228 cases of malaria in 2018, with the agent most frequently implicated in Sub-Saharan Africa: *Plasmodium falciparum*. Since 2010, there has been a reduction in incidence globally. However, there is still long way to go, especially in terms of prevention, with immigrant patients and those returning from areas where malaria is endemic after visiting friends and relatives (VFR) accounting for the majority of cases of imported malaria in our country. European countries continue to have the highest burden of imported malaria in the world (70%). According to official data published in a meta-analysis in 2017 and analysed by Mischlinger et al. in 2020, France has the highest average number of cases per year (2169) followed by the United Kingdom, Italy, Germany and Spain (with 374 cases per year on average).[7,8]

We present the case of a 46-year-old male patient, originally from Mali and resident in Spain since 2001. He was previously healthy with no personal history of interest. He is a seasonal worker, a fruit and vegetable picker. He had not returned to his country of origin until nine months ago, when he went to visit friends and relatives (VFR). In spite of having received travel advice prior to the trip, he did not take antimalarial prophylaxis.

Due to the declaration of the COVID-19 pandemic, the patient could not return to Spain until 27 August 2020, when he returned by plane, landing in Almería. Five days after returning, he began to experience fever each evening, headache, epigastric pain and generalised arthromyalgia, and consulted a doctor in the emergency department of our hospital.

After an initial assessment, a basic blood test was ordered, which most notably revealed: hyperbilirubinaemia (2.93 mg/dl) with elevated indirect bilirubin (1.93 mg/dl), hyponatraemia (sodium 129 mEq/l), hypokalaemia (potassium 2.9 mEq/l), ele-

☆ Please cite this article as: Ferra Murcia S, Hernández Sierra B, Vogt Sánchez EA, Collado Romacho AR. Síndrome febril al regreso del trópico durante la pandemia de COVID-19. Enferm Infecc Microbiol Clin. 2021;39:477–478.