

## First isolation of *Mycobacterium canariasense* in a child



### Primer aislamiento de *Mycobacterium canariasense* en un niño

*Mycobacterium canariasense* is a rapidly growing, non-pigmented mycobacteria. The first report published was in 2004 and *Mycobacterium canariasense* was isolated from blood samples of 17 patients carrying a central venous catheter, most of them presenting also a malignant disease. Its name is due to the Spanish islands where it was first isolated.<sup>1</sup> Here, we present the first case of catheter-related bacteremia in a non-immunosuppressed child.

A 4-year-old girl with a recent history of otitis media treated with amoxicillin-clavulanate was admitted to our hospital with a 7-day history of severe headache and vomiting. No findings were found on a cranial computed tomography scan but a left otomastoiditis and adjacent cerebellar abscess were observed on a brain magnetic resonance imaging. *Fusobacterium necrophorum* was isolated from the abscess and brain tissue samples and the patient was subsequently treated with metronidazole for 27 days and topical ciprofloxacin.

During the stay, the patient presented fever after manipulation of a jugular central venous catheter placed 28 days ago. Central and peripheral blood cultures were collected and the central catheter was removed.

Blood culture aerobic bottles (BD BACTEC™ FX) were positive at 2 days and 19 h inoculated with blood obtained through the catheter, and at 3 days and 18 h with blood obtained by venipuncture. Pleomorphic Gram-positive bacilli were observed on the Gram stain and a Ziehl-Neelsen stain was also performed, demonstrating acid-alcohol resistant bacilli. Blood cultures were seeded on blood and chocolate agar and there was growth after 48 h of incubation at 37 °C. The catheter was opened longitudinally and the content was spread with a swab on blood agar as routinely performed in our laboratory for children and new-borns catheters.<sup>2</sup> Growth (>100 CFU) occurred in 72 h.

The identification of the microorganism isolated from the catheter and from central and peripheral blood cultures was realized by matrix-assisted laser desorption/ionization-time-of-flight mass spectrometry (MALDI-TOF MS) (Maldi Biotyper® Bruker Daltonics) resulting in *Mycobacterium canariasense* with a score value of 2.4. Additionally, a *BstEII* pattern of 320/130 bp and a *HaeIII* pattern of 140/90/80 bp, corresponding to *Mycobacterium canariasense* type 1 at the PRASITE database (<http://app.chuv.ch/prasite>, last accession 25/05/2020) was obtained by PCR-restriction fragment length polymorphism analysis of the *hsp65* gene.<sup>3</sup>

Antimicrobial susceptibility was performed by gradient diffusion with the MIC test Strip (Liofilchem®) on Mueller-Hinton agar, according to Clinical and Laboratory Standards Institute (CLSI) criteria for Rapidly Growing Mycobacteria (RGM).<sup>4</sup> The strain was susceptible to all the antibiotics tested (cefotaxime, imipenem, meropenem, tobramycin, amikacin, linezolid, ciprofloxacin and clarithromycin) except to azithromycin. The patient was treated with meropenem 720 mg/8 h (34 days), clarithromycin 135 mg/12 h (15 days) and amikacin 100 mg/8 h (5 days) and was discharged without antibiotic treatment, due to good clinical evolution.

Reviewing the literature, we have only found a few cases of catheter-related bacteremia in adults,<sup>5–8</sup> a case of respiratory infection,<sup>9</sup> a breast prosthetic infection<sup>10</sup> and a septic non-union of the humeral shaft.<sup>11</sup>

As in all of the bacteremia cases described in the literature,<sup>5–8</sup> in our case, bacteremia was catheter-associated, with a semi-quantitative culture of the catheter tip > 100 CFU and the blood

culture sample drawn through the catheter positive 24 h before that obtained directly from peripheral venipuncture.

Regarding susceptibility testing, CLSI recommends broth microdilution as the reference method,<sup>4</sup> but due to its complexity, gradient diffusion tests are an alternative. Our strain was susceptible to all the antibiotics tested except azithromycin. These data are in line with other reported cases, which resulted susceptible to all the antibiotics.<sup>7,8</sup> Resistance to macrolides is reflected in the article of Paniz-Mondolfi et al. where clarithromycin showed intermediate sensitivity,<sup>6</sup> our strain was susceptible to clarithromycin but the azithromycin MIC was > 256 µg/mL. It is necessary to study a large number of cases in order to obtain representative data of the antibiotic susceptibility of this species.

The patient recovered shortly after removal of the catheter without recurrence of mycobacteremia. In other published cases, most patients recovered after the treatment even without catheter removal. However, some patients died as a consequence of their underlying disease.<sup>1,7</sup>

The case presented here confirm the ability of *M. canariasense* as an opportunistic pathogen and highlights the importance of a good management of catheters due to the high risk of suffering infections caused by environmental bacteria in both immunosuppressed and non-immunosuppressed patients.

### Conflict of interest

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## COVID-19 and influenza A coinfection: A matter of principle<sup>☆</sup>



### Coinfección por COVID-19 y gripe A: una cuestión de principios

Dear Editor,

In November 2019 a new health emergency emerged in the city of Wuhan with the world's first case of COVID-19.<sup>1</sup> At the same time, Spain was suffering its own seasonal flu epidemic. The first patient registered with coronavirus infection in Spain, a German tourist, was reported by the National Centre for Microbiology on 31 January 2020 in La Gomera in the Canary Islands. Until 24 February there were no reports of cases in Mainland Spain, until one, also considered as an imported case, was detected in Barcelona. Increasing numbers of people are suggesting that the influenza A epidemic in Spain may have masked the arrival of the COVID-19 virus weeks before the confirmed date in official records.<sup>2</sup>

We present the case of a patient admitted to our hospital on 18 January 2020 for bilateral influenza A pneumonia, in which a later PCR test on the nasopharyngeal exudate taken on admission confirmed co-infection with COVID-19. This was a 46-year-old patient from Madrid, with no relevant epidemiological history, who came in following onset of symptoms on 13 January consisting of a persistent dry cough brought on by breathing in, fever of up to 38 °C, arthromyalgia, significant prostration and progressively increasing dyspnoea. On examination, she had a temperature of 40 °C, blood pressure 95/64, heart rate 95 bpm, and O<sub>2</sub> saturation 89%. On auscultation, sounds were rhythmic without murmurs, with Velcro-like dry crackles in both lung fields. The initial analysis showed: leucocytes 1700/μl (neutrophils 1100, total lymphocytes 500), haemoglobin 13 g/dl, haematocrit 36%, platelets 72,000, CRP 1.5 mg/l, procalcitonin 0.09 ng/ml, ferritin 696 μg/l, CPK 516 U/l, LDH 712 IU/l, GPT 59 U/l, GPT 32 U/l and GGT 20 U/l. The D-dimer result was not available. The chest X-ray on admission showed consolidation in the left upper lobe and right perihilar region. A nasopharyngeal swab confirmed influenza A infection. Pneumococcal antigen and *Legionella pneumophila* serogroup 1 antigen were negative, as was the sputum culture. She was started on treatment with oseltamivir, oxygen therapy and cough suppressants. Four days after admission, as the patient's condition deteriorated both clinically and radiologically, with greater extension of the consolidation in her left lung and right perihilar region, reported as "worsening of the bilateral infectious or inflammatory process of the type of organising pneumonia", levofloxacin PLUS systemic corticosteroids were added to the treatment (Fig. 1). This produced a rapid clinical and radiological response, with the analytical parameters described returning to normal, allowing the patient to be

discharged from hospital with a tapering regimen of corticosteroids and baseline saturation of 95%. Four months later, the patient had been asymptomatic since discharge, but requested a PCR retest on the sample collected on 18 January because of a legal problem with her medical insurance, and in the light of the epidemiological situation of a coronavirus pandemic. The retest confirmed co-infection by SARS CoV-2.

The interest of our case is based on the verification of the presence of COVID-19 infection in Spain, prior to the data reported so far, the fact of co-infection with influenza A in the same process,<sup>3</sup> and the rapid resolution of her clinical and radiological condition with the use of systemic steroids. Despite the recognised efficacy of steroids in treating severe respiratory symptoms during previous outbreaks caused by other coronaviruses (SARS and MERS),<sup>4</sup> there is a strong recommendation against their use in the large amount of literature created as a result of the pandemic.<sup>5–7</sup> Previous studies associate the use of steroids with a delay in the release of the virus without a clear improvement in survival. However, results are beginning to emerge showing reduction in deaths in specific stages of the disease, once viral replication has been controlled,<sup>8</sup> which reflect the benefits in terms of their use as an immunomodulator in the inflammatory phase of infection. The pathology findings in series of cases on lung damage associated with the virus, such as the formation of hyaline membranes and evidence of fibrinous and organising pneumonia, may justify administration of steroids in these circumstances, to prevent subsequent development of respiratory distress.<sup>9,10</sup> We hope that time and a better understanding of the disease will provide more evidence regarding their use.



Fig. 1. Chest X-ray on day four in hospital: progression of consolidation in the left lung and right perihilar region. Small bilateral pleural effusion.

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