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Scientific letter

An exceptional cause of brain abscess

Una causa excepcional de absceso cerebral

Dear Editor,

Brucellosis is a bacterial zoonotic disease caused by *Brucella* spp. Depending on the causative reservoir, is classified as *B. abortus* (cattle), *B. mellitensis* (goats and sheep), *B. suis* (pigs, reindeer, rodents) and *B. canis* (dogs).[1] Transmission occurs by ingestion, inhalation or direct contact with animals or their products. The usual incubation period is 2–8 weeks but can range from 5 days to several months.[2]

The most common form of acute presentation is fever with generalized symptoms. It also causes abortion and reproductive failure. Chronic manifestations include osteoarticular infections, genitourinary and intra-abdominal abscesses, and infective endocarditis. Central nervous system (CNS) involvement has also been described, most commonly as meningitis or encephalitis.[3]

Brucellosis is a notifiable disease and is a major public health concern, especially for people living in resource-limited settings.[4] However, the clinical index of suspicion for infections caused by *Brucella* spp. is low.

A 46-year-old peruvian man presented with epileptic seizures associated with left hemiparesis. Three months prior to admission, he reported an epileptic seizure for which he was evaluated in his home country. A CNS-MRI was performed and showed an anfractuous image with lobulated borders centered in the right middle frontal gyrus. Contrast showed diffuse enhancement with a multinodular pattern (Fig. 1a and b).

Surgical excision of the lesion was performed. Samples were sent for histologic analysis, which excluded malignancy and was reported as necrotizing granulomatous inflammation with negative Ziehl–Neelsen staining (Fig. 1c). Microbiologic studies included HIV, syphilis, HBV, HCV, *Toxoplasma* sp., *Leishmania* sp. serologies, Rose Bengal test and dimorphic fungal immunodiffusion, all of which were negative. On the biopsy specimen, PCR for *Mycobacterium tuberculosis*, *Toxoplasma gondii*, *Histoplasma capsulatum*, universal 16SrRNA gene and panfungal PCRs were all negative. Tuberculosis IGRA (Quantiferon-TB-Plus®) was positive and tuberculostatic treatment with rifampin, isoniazid, pyrazinamide and ethambutol was started.

Bacterial cultures were negative after 48 h of incubation, but two weeks later small colonies of an oxidase-positive gram-negative cocci were detected on chocolate agar (Fig. 1d). Repeated attempts at identification by MALDI-TOF® using the standard database showed a good peak pattern but an unreliable score (below 1400). PCR of the complete 16S rRNA gene and sequencing were performed, resulting in the identification of *Brucella* sp. without species differentiation. Antibiotic treatment was then changed to rifampin at higher doses (900 mg/day), doxycycline, and ceftriaxone at a dose of 2 g IV every 12 h for the first 4 weeks. The patient completed 4 months of treatment and subsequently had a favorable course, with no further neurologic symptoms or treatment-related adverse events.

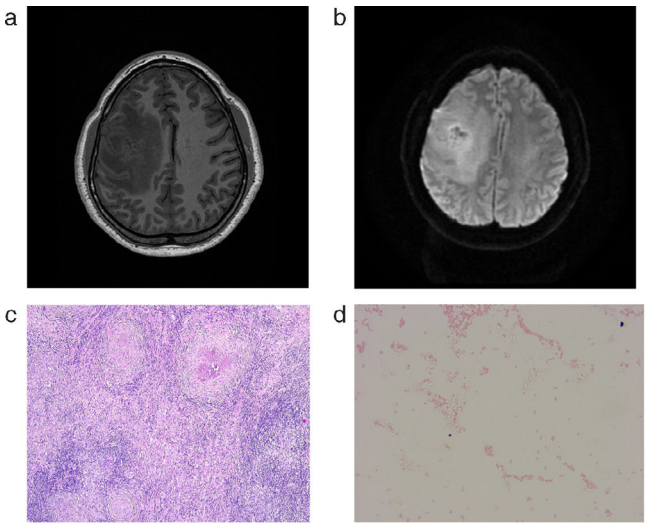

Fig. 1. (a) and (b) CNS MRI findings. (c) Necrotizing granuloma in histologic specimen. (d) Gram stain of *Brucella* sp. colonies.

Neurological manifestations of brucellosis are rare but may occur at any stage of systemic infection in a variety of clinical forms, including meningitis, meningoencephalitis, and cerebral or epidural abscess. In a series of 54 patients with neurobrucellosis, none presented with an intracranial mass.[5] Case reports of intracranial abscesses due to *Brucella* sp. have been reported but are very rare.[6,7]

Diagnosis of brucellosis is made by isolation of the bacteria but is often complex. *Brucella* spp. is a fastidious intracellular microorganism, so recovery by conventional culture is not effective in many cases. Although serology is helpful in the diagnosis, a negative test does not exclude the disease, especially in chronic forms. Rose Bengal is an agglutination test that readily detects IgM immunoglobulins, and is positive in acute infections, but titers decreased significantly during follow-up.[8]

Another important point that emerges from our case is the lack of identification of *Brucella* sp. by MALDI-TOF® standard database, despite presenting a good score in the identification peaks. The lack of reference spectra in the currently commercialized databases does not allow the identification of *Brucella* sp. isolates.[9] Therefore, in our case, we had to perform 16S PCR sequencing, which finally led us to the identification of *Brucella* sp. genus but was not able to distinguish between the species.

Finally, in the treatment of neurobrucellosis and infective endocarditis caused by *Brucella* sp., triple antimicrobial combination of doxycycline, rifampicin and cotrimoxazole for 4–6 months is recommended. In case of neurobrucellosis, substitution of cotrimoxazole by ceftriaxone in the first 4–6 weeks resulted in better evolution of patients and could shorten the duration of treatment to 4 months.[10]

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Neumonía neonatal de mala evolución: un agente insospechado

Neonatal pneumonia with poor evolution: An unsuspected agent

Sr. Editor:

La baja frecuencia de algunas enfermedades infecciosas en neonatos ocasiona un retraso diagnóstico, acarreando una alta morbimortalidad. Presentamos el caso de un prematuro de 28 semanas gestacionales, padres sanos y etnia gitana, que ingresa en la unidad neonatal por prematuridad con evolución favorable. A los 57 días de vida, próximo al alta hospitalaria, inicia distrés respiratorio grave junto con fiebre, hepatoesplenomegalia y coagulopatía. Se diagnostica de sepsis-neumonía nosocomial, con mala evolución clínica y radiológica (fig. 1) con la antibioterapia habitual, mostrando en la tomografía axial computarizada una extensa neumonía necrosante bilateral. Se sospecha síndrome hemofagocítico secundario al cumplir 6 de los 8 criterios clínico-analíticos[1]. Tras 15 días del inicio del cuadro, ante la mala evolución clínica y la negatividad de las pruebas microbiológicas para virus, hongos y bacterias habituales, se realiza despistaje de infección tuberculosa. Se extraen muestras de jugo gástrico durante 3 días consecutivos para las pruebas de reacción en cadena de la polimerasa (PCR), baciloscopia y cultivo, y se realiza una prueba de la tuberculina (PT). Ante la lectura negativa de la PT a las 48 h, se solicita una prueba de *interferon-gamma release assay* (IGRA). Se reciben los resultados de la baciloscopia y de la PCR en jugo gástrico, que son positivos para *Mycobacterium tuberculosis*, siendo el IGRA también positivo. Se diagnostica de tuberculosis (TB) perinatal, obteniéndose posteriormente un cultivo positivo para *M. tuberculosis*. El estudio de contactos de familiares y del personal sanitario revela enfermedad tuberculosa pulmonar bacilífera tanto en la madre como en la abuela. Ambas referían encontrarse asintomáticas y negaban viajes al extranjero.

La TB perinatal es aquella que aparece en menores de 3 meses, con una baja incidencia en nuestro medio[2]. En una serie de casos del Hospital La Paz, su frecuencia supone el 1,4% de las TB en edad

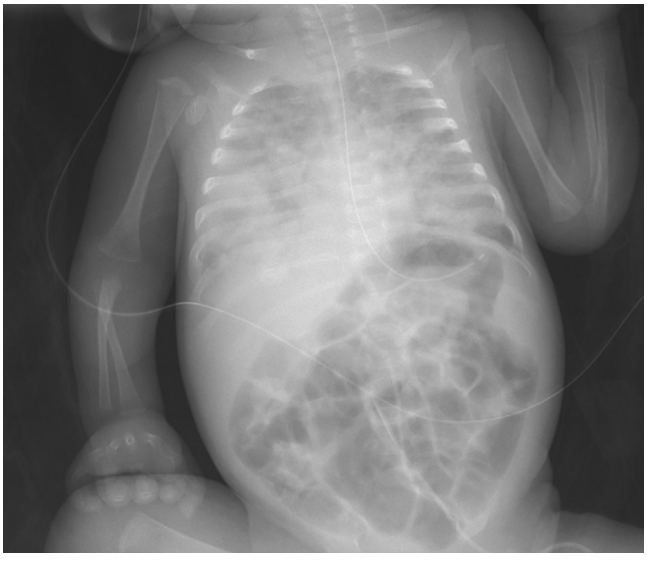

Figura 1. Condensaciones pulmonares bilaterales, más llamativas en el lóbulo inferior derecho y el lóbulo medio.