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Letter to the Editor

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Cerebellious abscesses caused by *Nocardia farcinica* in an immunocompromised patient

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Sir,

Nocardia farcinica is a Gram-positive aerobic bacillus that can form branched pseudohyphae [1]. Culture in non-selective media requires 48-72 hours of incubation for visualization of colonies, which present a chalky white or orange appearance, with a slightly cottony appearance due to abundant aerial filaments [2]. Like other species of *Nocardia*, it is characterized by being present in the soil and can be transmitted to man by direct inhalation or by contaminated particles. In 39% of hospitalized patients, the infection commonly manifests as pulmonary disease, although the lesions are not always easily detectable. It is estimated that 9% of *Nocardia* infections lead to a brain abscess, with *N. farcinica* being the most frequent specie [3].

82-year-old female patient who describes cervical pain radiating to occipital area, dysarthria, general weakness and drowsiness to mild stimuli is initially admitted to our Emergency Department. The patient presented history of high blood pressure, dyslipidemia, hearing loss and with a recent temporal arteritis diagnosis. Currently under oral treatment with valsartan 80 mg/day, acetylsalicylic acid 100mg/day, prednisone 30mg/day and methotrexate 2.5mg/week.

On physical examination, the pain worsens with cervical mobilization. Neck stiffness was not observed. Preliminary laboratory evaluation showed CRP of 1.9 mg/L, leukocytes of 9.79x109/L and hematocrit of 30%, with no other findings of interest. The emergency evaluation concluded with a chest x-ray with no abnormal findings. The patient required hospital admission for brain magnetic resonance imaging (MRI). This study revealed the presence of multiple pseudonodular images of cystic appearance with peripheral gadolinium uptake in the posterior fossa, significant diffusion restriction, and slight mass effect and perilesional edema (Figure 1).

Suspecting cerebellar abscesses, the patient underwent craniotomy with evacuation of purulent material from differ-

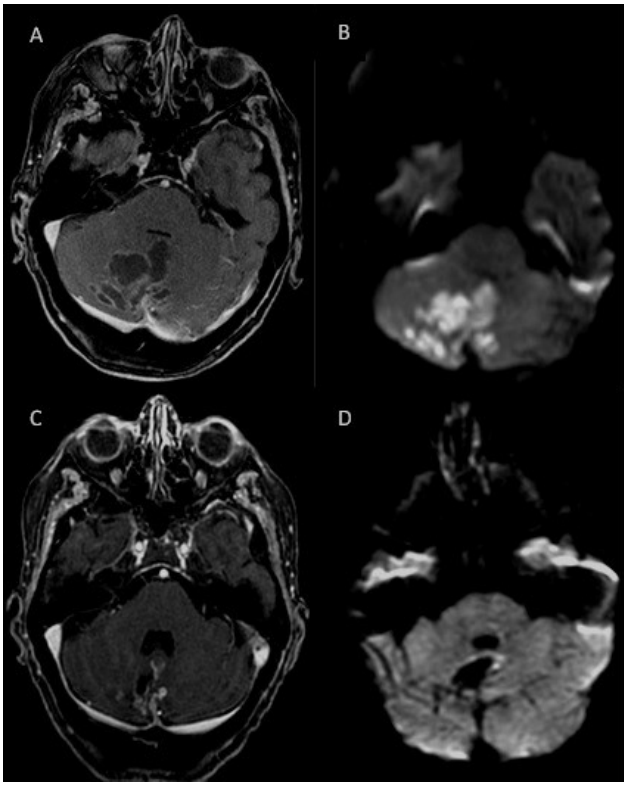

Figure 1 Brain MRI. A) T1 in presurgical axial section with polylobulated peripheral uptake with contrast. B) sequence of diffusion in presurgical axial section with clear restriction of the abscess. C) T1 postsurgical axial section with minimal contrast uptake. D) postsurgical diffusion sequence with almost total absence of restriction.

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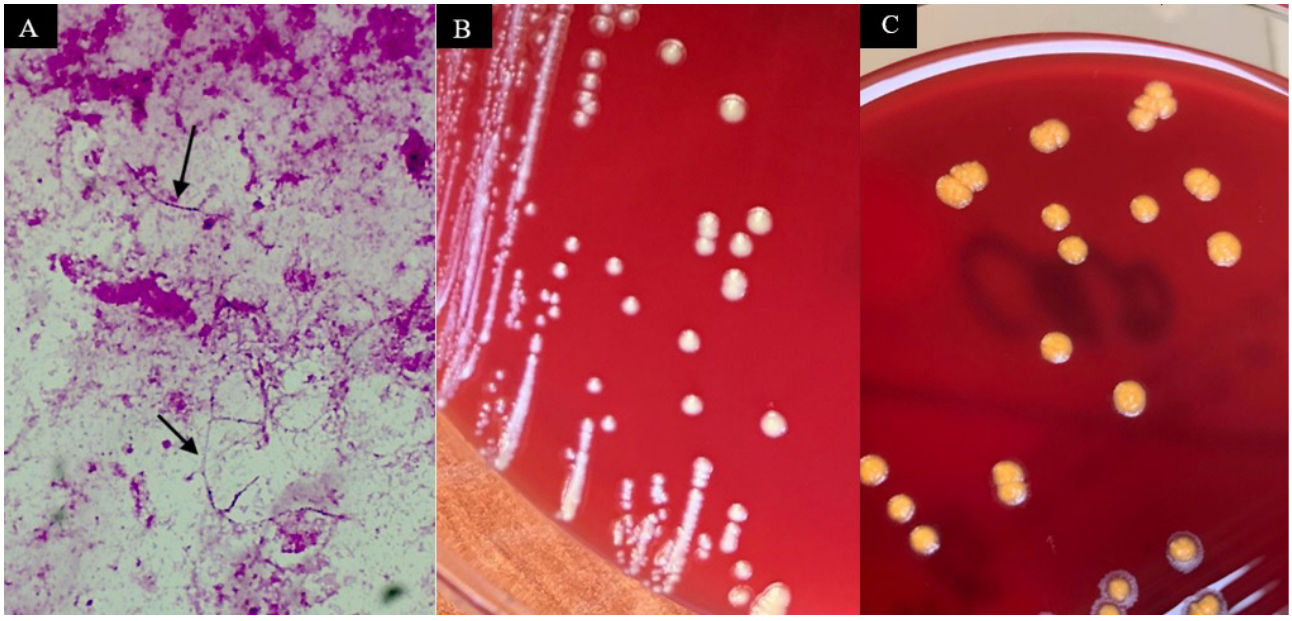

Figure 2 | **A) Gram stain of abscess sample: branched Gram-positive bacilli. B) Abscess cultures after 72 hours and C) 5 days of incubation at 37ºC in aerobic conditions.**

ent cavities and partial excision of the capsule. Samples were collected and sent to the Pathological Anatomy unit and Microbiology laboratory. Given the possibility of an infectious condition, treatment with methotrexate was withdrawn and empirical treatment with cefotaxime, vancomycin, and metronidazole was started.

The anatomopathological study of the drained material ruled out the existence of neoplastic cells. Weak Gram-positive branching bacilli was observed under direct microscopic examination after Gram staining of the abscess sample sent to Microbiology (Figure 2 A). At 72 hours of culture, the growth of small dull white dotted colonies was detected (Figure 2 B) on blood agar that, as the days of incubation passed, acquired a salmon color. The isolate was identified with a high degree of confidence (score = 2.1) using MALDI-TOF technology (Bruker®) as *Nocardia farcinica*. Approximately 75% of *N. farcinica* isolates may be resistant to third-generation cephalosporins [4], so intravenous treatment with cotrimoxazole 800/160mg/8h and amikacin 1g/24h was decided until the sensitivity study was obtained. antibiotic.

The antimicrobial susceptibility study performed by microdilution (SensititreTM RAPMYCOI, Thermo Scientific®) showed MICs, which were interpreted according to CLSI criteria [5] as resistant (ceftriaxone >64 mg/L; imipenem 16 mg/L; ciprofloxacin >4 mg/L) or susceptible (amikacin <1 mg/L; linezolid 2 mg/L; cotrimoxazole 38/2 mg/L).

Twelve days after intervention, neurologic examination was within normal limits overall, with the patient remaining conscious with no additional neurological changes. Hospital discharge was decided to continue with outpatient follow-up and oral treatment with cotrimoxazole 800/160 mg (every 12 h) for 12 months.

Cerebral nocardiosis can occur even in immunocompetent patients, but the highest incidence occurs in immunocompromised patients, such as those treated with corticosteroids or transplant patients, being potentially fatal despite the use of antibiotics and abscess drainage [6]. In recent years, the mortality rate for *N. farcinica* in disseminated infection is estimated at around 39% [7].

The combination of abscess evacuation by craniotomy and administration of antibiotics, being cotrimoxazole the drug of choice, gives very good results for patients with *Nocardia* brain abscess. However, antibiotics must be adjusted according to the sensitivity profiles tested [8], even though a high susceptibility of *Nocardia farcinica* to cotrimoxazole, amikacin, and linezolid has been reported in Spain [4], resistance to cotrimoxazole close to 54% has been documented in other countries [9].

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None to declare

CONFLICT OF INTEREST

The authors declare no conflicts of interest.

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