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Scientific letters

Elizabethkingia anophelis bacteraemia in a patient with pneumonia

Bacteriemia por Elizabethkingia anophelis *en paciente con neumonía*

The genus *Elizabethkingia* comprises non-fermenting, non-motile, non-spore-forming, aerobic Gram-negative bacilli.

We present the first case of bacteraemia and pneumonia due to *Elizabethkingia anophelis* in Spain.

This was an 80-year-old woman from the United Kingdom with a history of type 2 diabetes mellitus and chronic atrial fibrillation on anticoagulation, admitted the previous month in her country of origin for pneumonia, where she was administered piperacillin-tazobactam (PTZ) 4 g/6 h for 10 days.

She came to Accident and Emergency with a 48-h history of progressively worsening dyspnoea with cough and haemoptysis, sweating, fever and chest pain.

The most significant findings in the blood test were increased C-reactive protein (CRP) (262 mg/l) and procalcitonin (2.53 ng/mL) and leucocytosis with neutrophilia (12.5×10^9/l).

In view of her chest X-ray findings, she was admitted to Respiratory Medicine with a diagnosis of right basal pneumonia with parapneumonic effusion, starting empirical treatment with an extended infusion of PTZ 4 g/8 h plus ciprofloxacin 400 mg/12 h.

Sputum cultures, including auramine staining, were negative.

Pleural fluid is inoculated onto BD® sheep blood agar (BA), BD® MacConkey agar (MK), BD® chocolate agar and BD® Sabouraud agar. Blood cultures were incubated in the BACTEC automated system (Becton Dickinson) and at 10 h growth was detected in the aerobic flask. A Gram stain was performed where Gram-negative bacilli were visualised and blood was inoculated onto BA, MK and chocolate media. Non-haemolytic, oxidase and catalase positive, whitish colonies were observed on BA and chocolate (not on MK), incubated at 37°C in CO_2 atmosphere and identified by MALDI-TOF MS (Bruker® Daltonics), as *Elizabethkingia anophelis*, with a score of 2.17.

The growth of the same pathogen in the pleural fluid, and in a second round of blood cultures at 26 h, confirmed the aetiology, as well as the significance of the bacteraemia, ruling out contamination.

The sensitivity study was performed by Epsilon diffusion test method on Mueller-Hinton BD® (MH) agar medium with a 0.5 McFarland suspension and interpretation of the sensitivity according to CLSI M100 2022 32nd edition cut-off points for other non-Enterobacteriaceae, and is shown in Table 1.

Table 1
Antibiotics tested for *E. anopheles*.

Antibiotic	MIC	Interpretation	CLSI cut-off points (S)
Piperacillin/tazobactam	256/64	R	≤16/4
Ceftazidime	64	R	≤8
Ceftolozane-tazobactam	256/4	R	[a]
Ceftazidime/avibactam	24/0.37	R	[a]
Cefiderocol	1	S	[a]
Aztreonam	256	R	≤8
Ciprofloxacin	0.5	S	≤1
Levofloxacin	0.25	S	≤2
Trimethoprim/sulfamethoxazole	0.38/7.22	S	≤2/38

CLSI: *Clinical and Laboratory Standards Institute*; MIC: minimum inhibitory concentration.

[a] No CLSI cut-off points. Interpretation according to cut-off points for *Pseudomonas aeruginosa*.

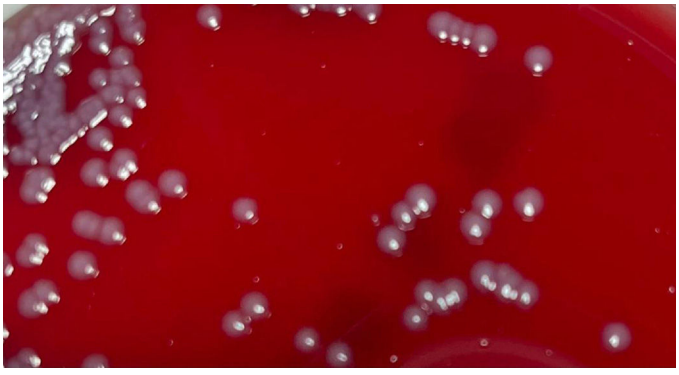

Figure 1. *E. anophelis* colonies on blood agar.

A synergy test was performed for ceftazidime-avibactam plus aztreonam using the concentration gradient strip method cross-streaked at right angles on MH agar plate, and the ratio between fractional inhibitory concentrations (FIC) was 0.46 (<0.5), making it synergistic (Fig. 1).

After learning the results of the antibiogram, the regimen was changed to trimethoprim-sulfamethoxazole 300/1,600 mg in four doses, suspended due to skin rash, plus ciprofloxacin 400 mg/12 h. Given the persistence of fever and inflammatory markers, it was decided to modify the treatment to ceftazidime-avibactam 2 g/0.5 g/8 h plus aztreonam 2 g/8 h for 14 days, achieving clinical improvement and discharge from hospital.

The genus comprises three medically important species, *Elizabethkingia anophelis*, subsp *endophytica* and subsp *anophelis*, *E. meningoseptica* and *E. miricola*.[1,2]

Elizabethkingia spp. have been isolated in bacteraemias in both neonates and immunocompromised adults, with *E. meningoseptica*

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being associated with neonatal meningitis and *anophelis* species with nosocomial infection in adults, both in the context of pneumonia and catheter infection, and is considered as an emerging species. It has been increasingly reported to cause life-threatening infections and even outbreaks in humans.[3,4]

Predisposing risk factors for infection are intensive care unit admission, prolonged hospitalisation, use of immunosuppressants, presence of invasive devices, chronic diseases and previous use of antimicrobials.[5]

In our case, it could be a healthcare-associated bacteraemia, perhaps in the context of the patient's recent hospital admission.

The genus often exhibits resistance to multiple antibiotics, both through biofilm formation[3,6] and through the expression of chromosomal beta-lactamases in the periplasmic space, namely an Ambler class A extended-spectrum serine beta-lactamase, which confers resistance to βlactams and class B metallobetalactamases, which hydrolyse carbapenems.[7–9]

In conclusion, *E. anophelis* is a pathogen which should be monitored because of its involvement in nosocomial infections[9,10] and its resistance to multiple antibiotics.

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Tubercular longitudinally extensive transverse myelitis: An unmissable zebra grazing the Indian medical field

Mielitis transversa tuberculosa de gran extensión longitudinal: una cebra imposible de ignorar pastando en el campo médico de la India

Longitudinally extensive transverse myelitis (LETM) is characterized by the involvement of the spinal cord spanning three or more vertebral segments and appearing as hyperintense lesions on T2 weighted-imaging magnetic resonance imaging (MRI).[1–5] The most well-known cause of LETM is primarily neuromyelitis optica spectrum disorders and, recently, the novel severe acute respiratory syndrome coronavirus infection.[1–3]

We herein present a rare case of LETM where a search for the etiology revealed a previously undiagnosed pulmonary tuberculosis.

A 17-year-old male from suburban India was admitted to the emergency department presenting with two weeks of back pain, numbness, and tingling in both lower limbs, accompanied by increased urinary frequency. He complained of headaches and low-grade fever for the past two months and had recently developed a productive cough. His personal history was significant for smoking 3–4 beedis per day.

A neurological exam revealed spastic paraplegia and patchy loss of pain, touch, and temperature sensation below the D4 spinal level. Joint and vibration senses were lost. The patient had difficulty in performing the finger nose test and dysdiadochokinesia. The remaining of the neurological examination was normal.

A diagnosis of non-compressive myelopathy with cerebellar dysfunction was made. Routine laboratory investigations were normal findings except for mild anemia. Digital chest X-ray revealed cavities and infiltrates throughout both lungs, accompanied by enlargement of the hilar lymph nodes (Fig. 1). The sputum sample tested for acid-fast bacilli was negative. However, a subsequent cartridge-based nucleic acid amplification test detected Mycobacterium tuberculosis in the sputum sample. The cerebrospinal fluid (CSF) study results were as follows: cell count was 4 cells per mm^3, the protein level was 60 mg/dl, the glucose level was 74 mg/dl, the adenosine deaminase level was 1.3 U/L, and the acid-fast bacilli Ziehl–Neelsen stain was negative. In addition, the CSF analysis was negative for anti-myelin oligodendrocyte glycoprotein and anti-aquaporin 4 antibodies, as well as herpes simplex virus types 1 and 2. Anti-nuclear antibody (ANA), ANA profile, and autoimmune vasculitis profile were negative; serum C3 and C4 were slightly elevated, with 297 mg/dl and 48 mg/dl, respectively. HIV, HBsAg, anti-HCV, and VDRL were negative. A contrast-enhanced MRI of the brain and spine revealed non-enhancing altered intensity from the D4-D5 level to the distal end of the spinal cord (Fig. 2A). In addition, an altered intensity, perilesional lesion with edema and ring enhancement (granuloma) in the left cerebellar hemisphere was observed (Fig. 2B).

The patient received a three-day regimen of intravenous methylprednisolone at 1 gram daily, which led to significant clin-