20 mL/min, albeit in combination with a nephrotic range proteinuria (between 18.3 and 6.8 g/24 h). After reviewing all the cases published until then, we proposed continuing the treatment with corticosteroids in a regimen similar to the one used in the treatment of a primary focal and segmental glomerulosclerosis. The maximum improvement obtained was MDRD-4 eGFR 28 mL/min with a slight fall in proteinuria (5, 6 g/day). The treatment with corticosteroids was gradually reduced until it was discontinued after six months, without full recovery of renal function being achieved (Fig. 2).

Hitherto, four cases of collapsing focal and segmental glomerulosclerosis related to a *Plasmodium falciparum* infection have been published. Two of them improved, a 12-year-old boy who required 28 haemodialysis sessions, but not corticosteroids,[5] and a 37-year-old man who was given corticosteroids for six months, in addition to acute haemodialysis.[6] The other two cases, a 72-year-old man[7] and a 62-year-old woman[8] required treatment with chronic haemodialysis. Trimethoprim/sulfamethoxazole is used for its antibacterial and antimalarial activity, as well as to avoid a potential artemisinin resistance, although in our case it was deemed responsible for an immunoallergic tubulointerstitial nephritis. The corticosteroid treatment produced a certain improvement and allowed the patient to leave the haemodialysis programme. Although the corticosteroid treatment was prolonged for several months, we did not obtain significant results. The patient is currently being followed up in the outpatient department, with an MDRD-4 eGFR of around 17 mL/min.

With this case, we emphasise the need to consider a diagnostic renal biopsy in patients with malaria and acute renal failure.

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Letter to the Editor

Bacteremia outbreak due to Pantoea agglomerans in hemodialysis, an infection by an unexpected guest☆

Brote de bacteriemia por *Pantoea agglomerans* en hemodiálisis. Una infección por un invitado no esperado

Dear Editor:

The comorbidity of patients on haemodialysis is directly related to the type of vascular access. The risk of complications increases with the use of central venous catheters compared to arteriovenous fistulas.[1] Infections are the most frequent and serious complications associated with them.[2] They tend to be the cause of withdrawal and of serious events such as osteomyelitis, endocarditis, thrombophlebitis and death among between 5% and 10% of patients with catheters.[3] The common pathogens that cause infections in haemodialysis tend to be gram-positive cocci (*Staphylococcus epidermidis* and *Staphylococcus aureus*).[4] Gram-negative organisms and fungi are less frequent. Below, we describe an epidemic outbreak in a haemodialysis centre caused by an unusual pathogen, namely *Pantoea agglomerans* (PA). Cases caused by this bacillus have been recorded in oncology units[5] and in patients with chronic kidney disease on peritoneal dialysis, but not outbreaks in haemodialysis patients.

We present a PA bacteraemia epidemic outbreak in a haemodialysis centre. Suspicion arose following the appearance, in the same week, of three cases of bacteraemia caused by a microorganism not described in haemodialysis, in patients from different shifts, on different dialysis machines and with different nursing staff.

Of a total of 30 patients, three people (two women and one man) were affected, with a mean age of 50 ± 15 years (clinical description of the patients in Table 1). All of them were carriers of permanent jugular venous catheters. In view of the striking clinical symptoms, with onset during the first hour of treatment, with poor general condition, fever of up to 40 °C, severe hypertension accompanied by vomiting in two of the cases, haemodialysis was disconnected and vancomycin 1 g and gentamicin (3–5 mg/kg/post-session) were administered empirically and intravenously. In view of the lack of clinical improvement, the patients were transferred to the referral hospital.

Peripheral blood cultures were taken from the catheters, as was a sample from the vascular access orifice, pharyngeal and perianal exudates, growing only in peripheral blood cultures of all the PA cases, replacing the empirical antibiotic therapy given to the patients with meropenem 1 g post-dialysis for a total of 10 days, with resolution of the infectious symptoms and no complications during hospitalisation. The cases were reported to the healthcare authorities. An epidemiological investigation and microbiological study were undertaken of the unit, cultures of treated waters for haemodialysis, dialysis liquid, bicarbonate buffer, dialyser and vascular line connections, of the connections between these and the drainage tubes (hansens), of the drainage tubes and the anti-reflux valves of the dialysis machines, as well as of the mains water drains, the last link in the chain, where PA was ultimately found to be growing. The hypothesis was that nursing staff were the vector of the pathogenic microorganism, after being in contact with the mains water and then handling the vascular accesses. In view of the results obtained, and following a proper disinfection of the unit's entire haemodialysis circuit and water drains, and after the nursing protocols for the handling of venous accesses had been updated, no further cases were recorded.

PA is a gram-negative bacillus of the *Enterobacteriaceae* family which is normally isolated in plants, fruit, vegetables, soil and sometimes in human and animal faeces. It tends to cause nosocomial infections in immunodepressed, elderly and dialysis patients (as described hitherto, peritonitis in peritoneal dialysis and very rarely affects haemodialysis).[6–8]

Bacteraemias caused by non-conventional germs should warn us to investigate possible outbreaks. The contamination of mains water drains and contact between the latter and the nursing staff who subsequently manipulate vascular accesses

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Table 1 – Clinical description of the patients.

Patients	Age	Chronic kidney disease aetiology	Time on dialysis	Vascular access	Immunodepression status
Case 1, woman	48 years old	Chronic pyelonephritis	14 years	TCVT	Yes
Case 2, woman	84 years old	Angiosclerosis	7 years	TCVT	No
Case 3, man	70 years old	Angiosclerosis	22 years	TCVT	Yes

TCVT: tunnelled central venous catheter.

provided a route for the bacteraemia. The general recommendation for catheter-related bacteraemia is the removal of the catheter, although in dialysis conservative treatment is initially acceptable to attempt to maintain venous access if there are no signs of infection. In our experience, the early detection of PA, the focal point of the pathogen, the proper disinfection of mains water and the haemodialysis circuit, together with an update of adequate asepsis measures among nursing staff in the handling of the catheters and correct antibiotic treatment enabled an excellent outcome for patients, averting the need to change the jugular venous catheters, with no further cases detected.

Conflicts of interest

The authors declare that there are no conflicts of interest.

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