Conflict of interest statement. Dr PA Kalra has received an educational grant from Pharmacosmos and has given educational lectures on behalf of Pharmacosmos in the past.

[1]Department of Renal Medicine
Salford Royal NHS Foundation Trust, Salford
[2]Department of Renal Medicine
City Hospitals Sunderland NHS Foundation Trust, Sunderland
[3]Department of Pharmacy, Salford Royal NHS Foundation Trust
Salford, UK
E-mail: Philip.kalra@srft.nhs.uk

Smeeta Sinha[1]
Diana Y. Y. Chiu[1]
George Peebles[2]
Shabeer Kolakkat[1]
Elizabeth Lamerton[3]
Sean Fenwick[2]
Philip A. Kalra[1]

1. Auerbach M. Ferumoxytol as a new, safer, easier-to-administer intravenous iron: yes or no? *Am J Kidney Dis* 2008; 52: 826–829
2. Auerbach M, Winchester J, Wahab A *et al*. A randomized trial of three iron dextran infusion methods for anemia in EPO-treated dialysis patients. *Am J Kidney Dis* 1998; 31: 81–86
3. Bhandari S, Naudeer S. Improving efficiency and value in health care: intravenous iron management for anaemia associated with chronic kidney disease: linking treatment to an outpatient clinic, optimizing service provision and patient choice. *J Eval Clin Pract* 2008; 14: 996–1001

doi: 10.1093/ndtplus/sfp073

Advance Access publication 6 July 2009

Catheter-related *Chryseobacterium meningosepticum* bacteraemia in a haemodialysis patient

Sir,

Chryseobacterium meningosepticum (*C. meningosepticum*), an unusual opportunistic pathogen resistant to multiple antimicrobial agents, was rarely reported to be a cause of bacteraemia in haemodialysis patients.

A 77-year-old female with end-stage renal disease was admitted with fever, chills and tenderness on the insertion site of the femoral double-lumen catheter 2 weeks after the start of haemodialysis. Her body temperature was 38.4°C. Erythema and swelling were present around the exit site of the double-lumen catheter. Laboratory evaluation revealed a haemoglobin of 7.6 g/dL and a C-reactive protein of 7.3 mg/dL. A provisional diagnosis of catheter-related bacteraemia was made. The double-lumen vein catheter was removed along with empiric antimicrobial agents with intravenous vancomycin (2 g/week) plus oral rifampin (450 mg/day). Blood cultures grew *C. meningosepticum* that was resistant to gentamicin, amikacin and all cephalosporins, but only susceptible to ciprofloxacin and vancomycin. Cultures of the exit site and the tip of catheter also grew *C. meningosepticum*. Despite 1-week antibiotic therapy, blood cultures still grew the same pathogen. At this time, an echocardiogram was normal. The addition of oral ciprofloxacin (250 mg q12 h) to vancomycin for another 2 weeks achieved uneventful recovery without subsequent growth of this organism. Cultures for tap water and dialysate were also negative for this pathogen.

Chryseobacterium spp. are of low virulence but give rise to severe infections in neonate and immunocompromised hosts. *C. meningosepticum* was the most common species of human pathogens. In neonates, *C. meningosepticum* meningitis is the most common infection, whereas pneumonia and sepsis were the most common infections in adults with impaired immunity [1]. Patients with uraemia are at a risk for *C. meningosepticum* infection due to their compromised T- and B-cell immunity. To date, there were only few reports regarding *C. meningosepticum* infections in uraemic patients on dialysis (Table 1) [2–5]. Among 42 episodes in 41 dialysis patients, a majority (37/42, 88%) of episodes were related to peritoneal dialysis (PD) catheter peritonitis and a minority (5/42, 12%) of episodes had bacteraemia in patients on haemodialysis. Initial antibiotics to eradicate *C. meningosepticum* infections were usually inappropriate, leading to the necessity of removal of the catheter in most patients. Four (4/41, 10%) patients died from *C. meningosepticum* infection. In *C. meningosepticum* bacteraemia, the exact port of entry was unknown in three episodes. *C. meningosepticum* was isolated from sink water in only one episode. Although *C. meningosepticum* was not identified in tap, tank and dialysis water, in our patient it was also isolated from the exit site and the tip of the double-lumen catheter, suggesting that the port of entry be the disruption of skin integrity by internal placement of the catheter. Our case is the first report of *C. meningosepticum* bacteraemia associated with catheter-related infection in a haemodialysis patient.

Although vancomycin has been previously recommended as the drug of choice for *C. meningosepticum* infection, recent reports and our case revealed that *C. meningosepticum* infection failed to respond to vancomycin administration alone [6]. Vancomycin should not be used alone to treat *C. meningosepticum* infections, especially associated with bacteraemia [6], as shown in the patient.

In conclusion, *C. meningosepticum* should be considered as a causative pathogen of gram-negative bacilli catheter-related bacteremia in haemodialysis patients. Early recognition of this pathogen with appropriate antimicrobial agent administration will avoid the loss of the catheter and even mortality.

Conflict of interest statement. None declared.

[1]Department of Pediatrics
[2]Division of Nephrology
Department of Medicine
Tri-Service General Hospital
National Defense Medical Center
Taipei, Taiwan
E-mail: shihhualin@yahoo.com

Min-Hua Tseng[1]
Liang-Kuang Diang[2]
Yi-Chen Su[2]
Shih-Hua Lin[2]

1. Gungor S, Ozen M, Akinci A *et al*. A *Chryseobacterium meningosepticum* outbreak in a neonatal ward. *Infect Control Hosp Epidemiol* 2003; 24: 613–617
2. Lothuvachai T, Likittanasombat K, Milindankura S *et al*. *Chryseobacterium meningosepticum* infection and cardiac tamponade in a long-term hemodialysis patient. *Am J Kidney Dis* 2006; 48: 49–53

Table 1. Demographic data of the reported patients on dialysis with *Chryseobacterium meningosepticum* infection

Reference	Gender/ age	Dialysis modality	Access for dialysis	Source of infection	Consequence	Initial antibiotics	Outcome
[2]	F/33	CAPD[a]	Tenckhoff catheter	Dialysate effluent	Peritonitis	Not respond (TOB + VAN)	Not remove access, survival
[3]	F/76	CAPD	Tenckhoff catheter	Dialysate effluent Blood	Peritonitis; bacteraemia	Not respond (CTZ + GM + VAN)	Remove access, died
[3]	UA/14	CAPD	Tenckhoff catheter	Blood	Sepsis	Not respond (NAF + GM)	Remove access, died
[3]	F/63	CAPD	Tenckhoff catheter	Dialysate effluent	Peritonitis	Not respond (AZT+ PIP)	Remove access, survival
[3]	F/45	CAPD	Tenckhoff catheter	Dialysate effluent	Peritonitis	Not respond (IMI and TOB)	Not remove access, survival
[4]	M/54	CAPD	Tenckhoff catheter	Dialysate effluent	Peritonitis	Not respond (CZL + GM)	Remove access, survival
[2]	33 cases	CAPD (30 episodes) HD[b] (4 episodes)	Tenckhoff catheter NA	Dialysate effluent Blood	Peritonitis bacteraemia	NA	Remove access: NA 1 died, 31 survival.
[2]	M/74	HD	Arteriovenous graft	Blood	Bacteraemia; purulent pericarditis	Not respond (MER)	Remove access, died
[5]	M/78	CAPD	Tenckhoff catheter	Dialysate effluent	Peritonitis	Respond (CIP + RIF)	Not remove access, survival
Our case	F/77	HD	Femoral vein catheter	Tip of the catheter	Bacteraemia	Not respond (VAN + RIF)	Remove access, survival

[a]CAPD; continuous ambulatory peritoneal dialysis.
[b]HD: haemodialysis.
NA: not available; TOB: tobramycin; VAN: vancomycin; CTZ: ceftazidime; NAF: nafcillin; AZT: aztreonam; PIP: piperacillin; IMI: imipenem; CZL: cefazolin; GM: gentamicin; MER: meropenem; RIF: rifampin; CIP: ciprofloxacin.

3. Korzets Z, Maayan MC, Bernheim J. Flavobacterial peritonitis in patients treated by peritoneal dialysis. *Nephrol Dial Transplant* 1995; 10: 280–283
4. Aki ZA, Stern L, Romagnoli MF *et al*. Flavobacterium group IIb peritonitis in a patient on chronic ambulatory peritoneal dialysis. *Perit Dial Int* 1996; 16: 331–332
5. Wu VC, Tsai TJ, Wang R *et al*. Peritonitis caused by *Chryseobacterium meningosepticum* in a patient undergoing continuous ambulatory peritoneal dialysis. *J Formos Med Assoc* 2003; 102: 270–272
6. Chang JC, Hsueh PR, Wu JJ *et al*. Antimicrobial susceptibility of flavobacteria as determined by agar dilution and disk diffusion methods. *Antimicrob Agents Chemother* 1997; 41: 1301–1306

doi: 10.1093/ndtplus/sfp080

Advance Access publication 8 July 2009

Altered mental status in a case of multiple myeloma not related to a metabolic cause

Sir,
Altered mental status (AMS) in a patient with multiple myeloma (MM) is generally attributed to uremia, hypercalcemia, hyperviscosity and/or increased serum ammonia. We present an unusual case of altered mental status that could not be attributed to metabolic encephalopathy.

Our patient was a 68-year-old African American male who was admitted for AMS. The patient was asymptomatic 1 week prior to admission. On examination, no focal neurologic deficit other than altered sensorium was found. The rest of his physical examination was normal. Routine laboratory analysis revealed elevated BUN of 58 mg/dl (7–25 mg/dl), creatinine of 4.9 mg/dl (0.7–1.4 mg/dl), calcium of 12.1 mg/dl (8.5–10.3 mg/dl), total protein of 9.6 g/dl (5.5–9 g/dl) and serum ammonia of 65 mcg/dl (35–65 mcg/dl) with normal liver function tests. A toxicology screen was negative. Intravenous hydration with normal saline was initiated. Magnetic resonance imaging (MRI) of brain showed chronic microvascular ischaemic changes with no acute infarct. On cerebrospinal fluid (CSF) analysis, he was found to have elevated protein of 172 g/dl (15–45 g/dl), no pleocytosis and a negative gram stain. Polymerase chain reaction on CSF for herpes simplex was negative. Electroencephalogram (EEG) showed no seizure activity. Though all metabolic parameters normalized by the third day (creatinine of 1.3 mg/dl and calcium of 9.3 mg/dl), there was no improvement in his sensorium. To rule out paraneoplastic syndrome of unknown aetiology, a whole body CT scan was done. It showed a soft tissue mass in the pre-sacral area with multiple diffuse lytic bone lesions. The bone marrow was diagnostic for plasma cell myeloma. Serum immunofixation revealed 5050 mg/dl (700–1600 mg/dl) of monoclonal IgG. The serum viscosity was normal. A repeat lumbar puncture revealed a CSF with negative cytology, but abnormal bands of high intensity in the immunoglobulin region identical to the serum electrophoresis pattern. Four days after the normalization of all his metabolic parameters, there was still no improvement in his sensorium. The patient was started on intravenous dexamethasone for MM. After the first cycle, his sensorium returned to normal.

The most common cause of AMS in a patient with MM and acute renal failure (ARF) is metabolic encephalopathy.