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CASE REPORT

Endocarditis due to *Burkholderia cepacia* and an intracardiac foreign body in a renal transplant patient☆

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KEYWORDS
Burkholderia cepacia;
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Abstract The authors describe the case of a renal transplant patient who developed late infective endocarditis associated with an intracardiac fragment of a catheter inserted 16 years before. Clinical presentation was anemia of undetermined cause and weight loss. Three blood cultures were positive for *Burkholderia cepacia*. Transesophageal echocardiography revealed a foreign body in the right atrium and right ventricle, confirmed by computed tomography. The patient underwent intravenous antibiotic therapy, followed by cardiac surgery to remove the foreign body. There were no postoperative complications, with improvement of anemia and stabilization of renal function.

PALAVRAS-CHAVE
Burkholderia cepacia;
Cateter venoso central;
Corpo estranho intracardíaco;
Endocardite

Endocardite por *Burkholderia cepacia* e corpo estranho intracardíaco

Resumo Os autores descrevem o caso de paciente com transplante renal que desenvolveu endocardite infecciosa tardiamente associada com fragmento de cateter intracardíaco implantado 16 anos antes. A apresentação clínica foi anemia de causa indeterminada e perda de peso. Três hemoculturas foram positivas para *Burkholderia cepacia*. O ecocardiograma transesofágico revelou um corpo estranho no átrio e ventrículo direitos, que foi confirmado por tomografia computadorizada. A paciente foi submetida a antibioticoterapia intravenosa e posterior cirurgia cardíaca, com remoção do corpo estranho. Evoluiu sem complicações pós-operatórias, com correção da anemia e estabilização da função renal.

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Introduction

Peripherally inserted central catheters (PICCs) are used in clinical practice for administration of fluids or drugs that cannot be administered via the peripheral veins and are generally safe.[1] However, catheter fragments that enter the circulation can cause embolisms, the most frequently affected locations being the right atrium, the superior vena cava and the left pulmonary artery.[1,2] There is one report of an intracardiac foreign body that remained in place for 17 years without causing complications,[3] but such material should be removed as soon as possible to avoid the risk of arrhythmias, myocardial perforation, septicemia or endocarditis.[1–4] Infective endocarditis is relatively uncommon in the general population, although its incidence is increasing in patients with PICCs; in-hospital mortality ranges from 9.6% to 26%.[5] *Burkholderia cepacia* (formerly *Pseudomonas cepacia*) belongs to the *B. cepacia* complex, which is currently divided into 10 genomic species.[6] It rarely causes endocarditis in the absence of predisposing conditions, which include immunodeficiency, intravenous drug use, prosthetic valves and indwelling catheters.[5,6] It can contaminate water supplies and disinfectant, antiseptic and anesthetic solutions, as well as intravenous fluids.[6]

The aim of this case report is to raise the index of suspicion regarding this rarely described condition.

Case report

A 40-year-old white woman was admitted for general malaise, anorexia, and weight loss (5 kg in two months), together with stomach pain and postprandial vomiting that had begun the day before. Her daily medication included immunosuppressants (azathioprine 100 mg, tacrolimus 4 mg and prednisone 5 mg) and antihypertensives (atenolol 100 mg and clonidine 0.4 mg).

At the age of 24, she had been diagnosed with hypertension and stage 5 chronic renal disease of undetermined cause, and chronic hemodialysis was begun. Four months later she became pregnant, and a cesarean section was performed in the eighth gestational month due to severe preeclampsia. In the postpartum period, she suffered severe gynecological bleeding, septicemia and shock. She remained in the intensive care unit for 15 days, with a PICC. Following progressive improvement in her clinical condition, the patient returned to her regular hemodialysis program.

Eight years later, the patient underwent renal transplant from a cadaver donor, but developed acute steroid-resistant rejection, which was treated with OKT3. She was discharged 30 days after transplantation, clinically well, with creatinine stabilized at 2.0 mg/dl. Her renal function remained normal during outpatient follow-up, but she developed late complications (under treatment for herpetic eye infection for the last seven years and for thrombophlebitis of the arteriovenous fistula for the last three years). No other PICC was inserted during the transplant procedure or in the immediate or late postoperative period.

On admission, the patient was in reasonable general health, pale and apyretic, with a body weight of 65.5 kg. Pulmonary auscultation revealed no abnormalities; her blood pressure was 110/60 mmHg and heart rate 108 bpm, with normal regular heart sounds and a faint non-radiating systolic murmur in the right parasternal region. There was no palpable visceromegaly, and the extremities were well perfused, with no edema. Initial laboratory tests showed low hemoglobin, unexplained by gastrointestinal or gynecological blood loss, hematocrit 22%, hemoglobin 7 g/dl, mean corpuscular volume 93 fl, mean corpuscular hemoglobin concentration 32%, white cell count $2.7\times10^3/mm^3$ (neutrophils 64%, eosinophils 3%, lymphocytes 24%, monocytes 8%) and platelet count $238\times10^3/mm^3$. Creatinine (2.1 mg/dl) and urea (73 mg/dl) were elevated, with normal electrolyte levels; C-reactive protein (6.8 mg/dl) and ferritin (1043 μg/l) were also elevated. Prothrombin time (13.4 s), prothrombin activity (81.9%) and INR (1.14) were normal. Urine analysis showed no significant alterations and urine cultures were negative. Blood cultures (on three samples) identified *B. cepacia* sensitive to meropenem and trimethoprim (TMP) with sulfamethoxazole (SMZ) only. The latter combination was administered intravenously (TMP 160 mg and SMZ 800 mg every 12 hours).

The chest X-ray was normal, but transesophageal echocardiography revealed the presence of a foreign body in the right atrium and ventricle. Thoracic computed tomography (CT) showed a dense, elongated image extending from the right atrium through the tricuspid valve into the right ventricle, ending in tangled loops within the ventricular cavity (Figure 1A and B). The incorrectly positioned, and probably fragmented, catheter was removed percutaneously. However, control CT showed a dense intracardiac

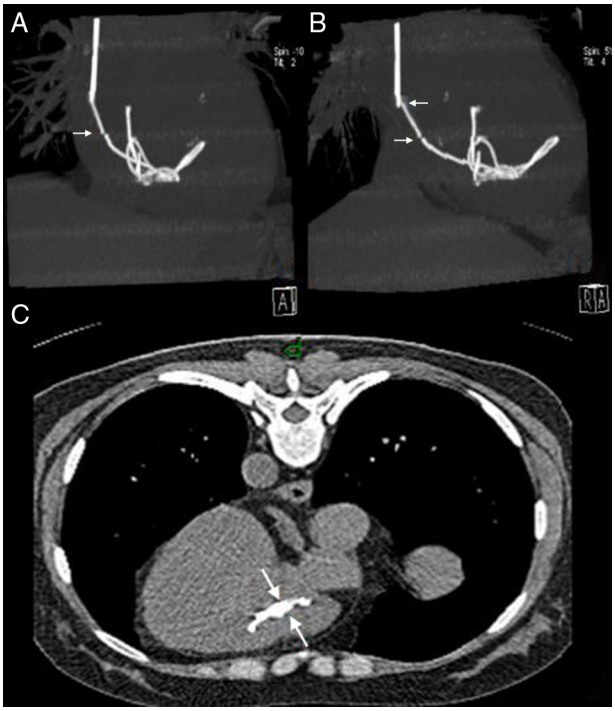

Figure 1 Thoracic computed tomography. (A) and (B) Dense, elongated image extending from the right atrium to the right ventricle, ending in tangled loops within the ventricular chamber, and apparent fragmentation (arrows); (C) control exam after removal of the catheter, showing what appears to be an intracardiac fragment (arrows).