Case Report

*Anaerobiospirillum succiniciproducens* sepsis in an autopsy patient: A troublesome diagnostic workup

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**ABSTRACT**

*Anaerobiospirillum succiniciproducens* is an uncommon yet potentially lethal gram-negative bacterium typically affecting patients with comorbidities. We report a case of *A. succiniciproducens* infection in an autopsy patient who had hepatitis C and type 2 diabetes and describe the difficulties in the laboratory identification of this pathogen.

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**Case report**

A 58-year old African American female presented to the emergency department with a chief complaint of sudden onset lower left abdominal pain described as cramping, sharp and stabbing in nature. She noted soft stools for the two previous days and some associated nausea. Abdominal examination revealed positive bowel sounds, diffuse abdominal tenderness greatest in the left lower quadrant, but no rebound tenderness or guarding. In 2011, she was diagnosed with a left sided, cystic ovarian mass that measured 13.5 cm × 8.7 cm × 7.4 cm with benign radiographic features. Other past medical history included chronic hepatitis C infection, type 2 diabetes mellitus, congestive heart failure, and morbid obesity. She had a hysterectomy in 1993 and had no other gynecologic history. On this admission, about 2 years after her initial diagnosis, a CT scan of her abdomen and pelvis showed a left sided, cystic ovarian mass that now measured 17.7 cm × 13.6 cm × 10.9 cm. There was no overt radiologic evidence of rupture. Her admission white blood count was 14,400 WBC/µL with a left shift.

Venous blood samples were drawn into Bactec™ FX bottles (BD Diagnostics, Cockeysville, MD) at the bedside and submitted to the clinical microbiology laboratory for aerobic and anaerobic cultures. After 24 h incubation, the anaerobic blood culture bottle flagged positive for bacterial growth (BD Bactec™ FX Blood Culture System; BD Diagnostics, Cockeysville, MD). An enhanced gram stain (Remel, Lenexa, KS) was performed from the positive blood culture, which showed curved gram-negative bacilli. An aliquot of the positive blood culture was inoculated onto Trypticase™ Soy Agar with 10% Sheep Blood (BD, BBL™ Sparks, MD) and incubated aerobically at 37 °C. Brucella Agar with 5% sheep blood, Hemin and Vitamin K1 (BD, BBL™ Sparks, MD) was also inoculated and incubated anaerobically at 37 °C. Following incubation, scant bacterial growth was observed on only the Brucella Blood Agar plate, at 48 h. The anaerobic culture was re-incubated in a Bio-Bag™ Type A Environmental Chamber (BD Diagnostics, Cockeysville, MD) at 37 °C, which provided improved bacterial growth. An additional aliquot of the positive anaerobic blood culture was inoculated onto a second Brucella Blood Agar plate, to ensure that the same organism could be recovered. Gram stain morphology of the subsequent bacterial growth revealed the same curved, gram-negative bacilli seen from the enhanced gram stain of the positive anaerobic blood culture. Figure 1. Growth from this second anaerobic culture was inoculated into Rapid™ ANA II System test panel (Remel, Lenexa, KS), in an effort to identify the isolate. Analysis by the Rapid™ ANA II System yielded no identification. The isolate was referred to the laboratory at the Centers for Disease Control and Prevention (CDC) in Atlanta, GA, where final identification of *Anaerobiospirillum succiniciproducens* was accomplished using 16S RNA sequencing.

The patient was treated with broad spectrum antibiotics for the bacteremia. Immediately after a ventilation perfusion scan which

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