

## Letter to the Editor ( Viewer's Choice)

**BACILLUS CEREUS ENDOCARDITIS IN A 5-YEAR-OLD GIRL WITH ACUTE LYMPHOCYTIC LEUKEMIA**

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**Key words:** Central line infection, Endocarditis, Bacillus cereus.

A 5- year-old Caucasian girl with pre-B-Cell acute lymphocytic leukemia on maintenance chemotherapy presented with fever, chills and vomiting after her scheduled infusion of chemotherapeutic agent vincristine through a port. The physical examination was unremarkable. Blood cultures drawn from the port grew *Bacillus cereus* (*B.cereus*) that was susceptible to clindamycin, vancomycin and imipenem. Appropriate intravenous therapy with vancomycin and meropenem was initiated. Since blood cultures continued to be positive even after a week into appropriate antimicrobial therapy, the port was removed. A transthoracic echocardiogram at this time revealed vegetation at the junction of the superior vena cava and right atrium confirming the diagnosis of endocarditis. She was continued on antimicrobial therapy for six weeks and recovered uneventfully with complete resolution of the vegetation on follow up echocardiogram.

Prolonged central venous access has become necessary for acute leukemia patients for administration of chemotherapy, blood products, or antimicrobial therapy. Central venous access is usually achieved through the use of tunneled catheters or subcutaneously placed ports. In most catheter-associated infections, the causative bacterial pathogens are *Staphylococcus aureus* or coagulase-negative *Staphylococci*. (1) Infrequently Bacillus species are isolated and invasive *B.cereus* infections in these patients are being increasingly reported. (1)

*B.cereus* is a gram-positive, facultative aerobic, spore-forming bacillus that is ubiquitous in the environment and occasionally causes serious infections. *B.cereus* are inherently resistant to penicillin and cephalosporins; exhibit varying resistance to aminoglycosides and clindamycin; fairly susceptible to vancomycin and mostly susceptible to the carbapenems. *B.cereus* endocarditis has been reported in adult patients with history of intravenous drug abuse, underlying valvular disease, prosthetic valves (2) or a permanent pacemaker. (3) In 2008, Abusin et al reported 14 cases of *B.cereus* endocarditis in adults. (3). We found only one reported case of *B.cereus* endocarditis in a child where the patient had associated ulcerative colitis without immunosuppressive therapy. (4)

Patients with acute leukemia may be susceptible to serious infections due to immuno-suppressed state that is enhanced after chemotherapy. In pediatric

patients with acute leukemia there have been reports of *B.cereus* causing serious infections including central nervous system infections, fulminant sepsis and fatal pneumonias but no endocarditis. In adults with acute leukemia there has been only one reported case of *B.cereus* endocarditis in a 38 year-old man with acute lymphoblastic leukemia who presented with a skin lesion. (5) Our patient was at risk for *B.cereus* endocarditis due to her immunosuppressed state attributable to underlying leukemia and chemotherapy and the presence of a port.

**REFERENCES**

1. Centers for Disease Control and Prevention. Guidelines for the prevention of intravascular catheter-related infections. MMWR. 2002; 51 (RR-10):1-29.
2. Steen MK, Bruno-Murtha LA, Chaux G, Lazar H, Bernard S, Sulis C. Bacillus cereus endocarditis: report of a case and review. Clin Infect Dis. 1992; 14:945-6.
3. Abusin S, Bhimaraj A, Khadra S. Bacillus cereus Endocarditis in a permanent pacemaker: a case report. Cases J 2008; 1: 95.
4. Tomomasa T, Itoh K, Matsui A, Kobayashi T, Suzuki N, Matsuyama S, Kurome T. An Infant with Ulcerative Colitis Complicated by Endocarditis and Cerebral Infarction. J Pediatr Gastroenterol Nutr. 1993; 17: 323-325.
5. Cone LA, Dreisbach L, Potts BE, Comess BE, Burleigh WA. Fatal Bacillus cereus endocarditis masquerading as an anthrax-like infection in a patient with acute lymphoblastic leukemia: case report. J Heart Valve Dis. 2005; 14: 37-39.

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