Prosthetic Mitral Valve Endocarditis Due to \textit{Ochrobactrum anthropi}: Case Report

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We describe a case of infective endocarditis in a prosthetic mitral valve due to \textit{Ochrobactrum anthropi}. Although \textit{O. anthropi} is an emerging pathogen in immunocompromised patients, infections with the bacterium have very rarely been documented in healthy hosts, and endocarditis is rare. To our knowledge, only two cases of \textit{O. anthropi} endocarditis have been reported in the medical literature.

\textbf{CASE REPORT}

A 65-year-old woman was admitted to our hospital in November 2002 with a 3-day history of fever, abdominal pain, and dyspnea. Her past medical history was significant; she had hypertension and rheumatic heart disease with severe mitral insufficiency developed some years after a commissurotomy in 1967. In June 2000, the patient had received a 29-mm (diameter) Omnicarbon metallic mitral valve replacement. No other underlying disease was found. Her medical history revealed no predisposing event, such as dental procedures or intravenous injections. On physical examination, her blood pressure was 110/60 mm Hg, her pulse rate was 93 beats per min, and her body temperature was 37.7°C. Cardiac examination revealed pansystolic murmur. She also showed diminished breathing sounds in both lungs and hepatomegaly. Laboratory tests showed a hematocrit of 27%, hemoglobin concentration of 9.7 g/dl, leukocyte count of 6,130 \(\mu\)l, platelet count of 127,000 \(\mu\)l, serum creatinine level of 1.5 mg/dl, C-reactive protein level of 85 mg/liter, erythrocyte sedimentation rate of 117 mm/h, and lactic dehydrogenase level of 1,110 UI/liter. Chest radiography revealed a greatly increased cardiothoracic ratio and bilateral interstitial infiltrates, while the electrocardiogram showed rapid atrial fibrillation. The transthoracic echocardiogram demonstrated suspicious vegetations on the prosthetic mitral valve and severe mitral regurgitation. A transesophageal echocardiogram was done, and it showed multiple vegetations on the anterior leaflet of the mitral annulus as well as severe periprosthetic mitral regurgitation (Fig. 1). Three blood cultures were drawn. The patient began an intravenous regimen of vancomycin (1 g every 12 h), gentamicin (60 mg every 8 h), and rifampin (300 mg every 8 h) before the sensitivity report.

Emergency mitral valve replacement surgery became necessary 7 days after she was admitted to the hospital because of septic shock. A vegetation on the anterior leaflet was removed and sent for culture, and a new 29-mm (diameter) Omnicarbon mechanical valve was inserted.

A few days after surgery, all three blood cultures (ESP culture system II; Trek Diagnostic Systems, Inc.) yielded a gram-negative bacillus. The cardiac vegetation was cultured in sheep blood agar, chocolate agar, and MacConkey agar, the plates were incubated at 37°C in an atmosphere enriched with 5% CO\textsubscript{2}, and a pure growth of gram-negative bacillus was obtained after 48 h of incubation. The biochemical profile determined by the API 20NE strips (BioMérieux, Marcy l’Etoile, France) gave excellent identification of \textit{Ochrobactrum anthropi} (API 20NE number 0244767). The organism was sent to the Spanish National Centre of Microbiology, which confirmed the \textit{O. anthropi} identification by using the Biolog GN Panel (Biolog, Inc., Hayward, Calif.) and the 16S ribosomal DNA sequence analysis method previously described (9). The species identification was revealed by comparison of the obtained sequence to the GenBank database using the BLAST program available at the National Center for Biotechnology Information.

Susceptibility testing was performed with the Wider System (Francisco Soria Melguizo, Madrid, Spain). The isolate was

\textbf{FIG. 1.} Transesophageal echocardiogram showed a vegetation attached to the rim of the prosthetic mitral valve.
sensitive to meropenem, aminoglycosides, and quinolones but resistant to co-trimoxazole (trimethoprim-sulfamethoxazole) and β-lactams, particularly cephalosporins and penicillins. Treatment was accordingly changed to meropenem (1 g every 6 h; given intravenously) and gentamicin.

The patient’s subsequent hospital stay was uneventful except for gentamicin-related ototoxicity. She developed an intermittent low-grade fever, and three new blood specimens were sent for culture. Antibiotic treatment was continued for 6 weeks. The blood cultures remained negative. Two weeks after the operation, an echocardiogram showed normal prosthetic mitral valve function. On follow-up as an outpatient, she remains well.

**Discussion.** *Ochrobactrum anthropi* is an aerobic, gram-negative, motile, non-lactose-fermenting, oxidase-producing, and urease-positive bacillus; it was formerly classified as an *Achromobacter* species or CDC group Vd, but it belongs to the new genus *Ochrobactrum* (6, 12). The organism has been isolated from various environmental and human sources (15).

*O. anthropi* has low virulence, occasionally causing human infection. Most human disease reported in the literature is a consequence of central venous catheter line infection (8, 10). The host is frequently immunocompromised (8, 13), but not always (5, 11). This organism has also been reported as a cause of pancreatic abscess (1), catheter-related bacteraemia (5, 10), puncture wound osteochondritis (2), endophthalmitis (4), urinary tract infection (17), and meningitis (7). To our knowledge, only two cases of *O. anthropi* endocarditis have been reported in the medical literature (14, 16).

We report the case of a patient with prosthetic mitral valve endocarditis caused by *O. anthropi*. The patient was initially treated with an empirical therapy using vancomycin, gentamicin, and rifampin. An emergent mitral valve replacement surgery was performed because of severe mitral regurgitation and septic shock.

In the case reported here, our patient was a woman with a prosthetic mitral valve and no other underlying disease. She had not received intravenous injections in more than 2 years, and we could not find any other predisposing condition. We suppose that the organism had colonized some cavity, such as the throat or mouth, before producing bacteraemia and endocarditis. Nevertheless, no oral specimens had been sent for culture, although she had some pieces with caries that were preventively removed. To our knowledge, *O. anthropi* has never been isolated in a dental caries, but it has been isolated from a number of sources in humans, including blood, urine, wounds, feces, throat, and vagina (12).

Most *O. anthropi* isolates reported in the literature are widely resistant to chloramphenicol and β-lactams, particularly cephalosporins, and penicillins. Co-trimoxazole (trimethoprim-sulfamethoxazole), quinolones, and aminoglycosides, particularly amikacin and gentamicin, appear to be the most active antibiotics (3).

We report what we believe to be the first case in which *O. anthropi* has been repeatedly isolated from the blood and cardiac vegetation of a patient with endocarditis. In the case reported in 1988 (12), the bacillus was isolated from blood but not from cardiac vegetation and was classified as *Achromobacter* group B, but it was not genetically identified. In the case reported in 2000 (14), the bacillus was isolated from cardiac vegetation and embolus tissue but not from blood, and it was identified only on the basis of biochemical procedures (Table 1).

Therefore, awareness of the potential role of *O. anthropi* in causing bloodstream infections, especially in seriously ill patients with intravenous devices but also in nonimmunocompromised patients without an evident focus of infection is important, given the serious morbidity associated with disseminated *O. anthropi* infections and the resistance of this organism to a wide variety of antibiotics.

**REFERENCES**


