A rare case of *Ochrobactrum anthropi* bacteremia in an immunocompetent patient

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LEARNING OBJECTIVES

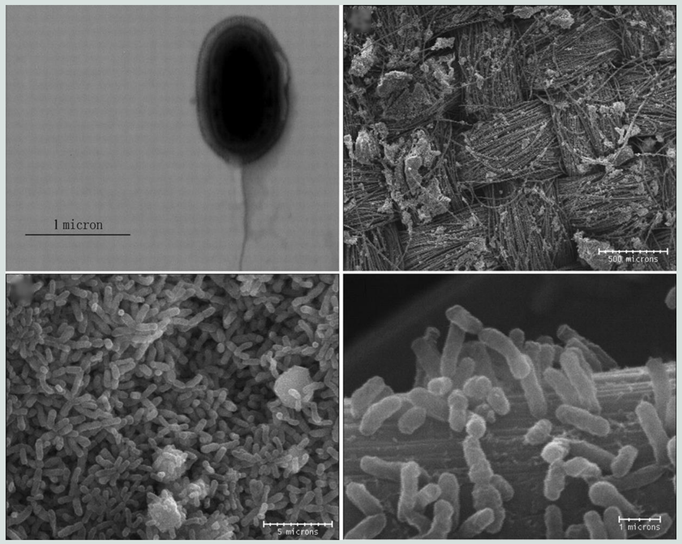
- Recognize the increasing rates of *Ochrobactrum anthropi* infection in immunocompetent patients
- Understand the management of patients with an *Ochrobactrum anthropi* infection

CASE

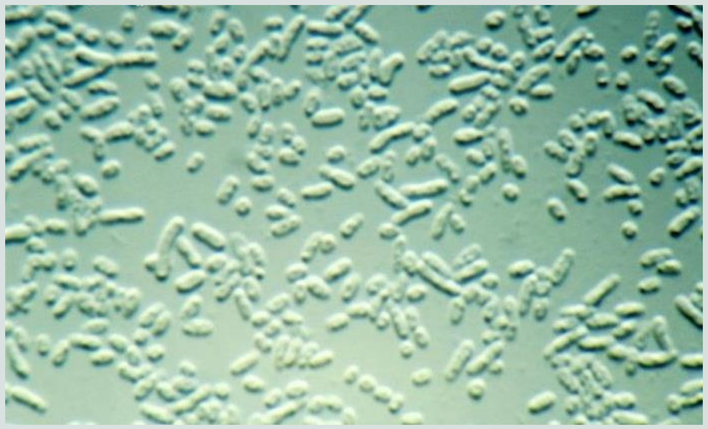
- 60 year old male with a past medical history of squamous cell carcinoma of the larynx s/p radiation therapy (April 2008) followed by a relapse and total laryngectomy (December 2010), as well as a history of non-squamous cell carcinoma of the lung s/p chemotherapy (2011) with left arm Medi-port still in place.
- Presented to the hospital after a tracheoscopy via stoma at an outpatient ENT clinic visit showed mucous plugging of the right mainstem bronchus.
- The patient was not initially symptomatic while in the ED but soon became severely dyspneic, febrile, and tachycardic.
- He was admitted to the ICU and improved symptomatically over the next 2 days with IV fluids and tracheal suctioning and stoma care.
- Empiric antibiotic therapy (vancomycin, cefepime, azithromycin) was initiated while initial blood cultures were pending.
- Blood cultures eventually grew *Ochrobactrum anthropi* with the likely source being the 6 year old Medi-port.
- The Medi-port was subsequently removed and the patient was started on a 7 day course of meropenem.
- Repeat blood cultures on D#3 of meropenem were negative. Patient remained stable and was discharged.

DISCUSSION

- *Ochrobactrum* species belong to *Brucellaceae*. Their name is derived from the Greek *ochros*, meaning pale yellow, for the characteritstic color of their colonies.
- *Ochrobactrum anthropi* is a gram negative, aerobic, motile, oxidase positive, urease positive, non-lactose fermenting bacillus that is a rare cause of human infection.
- Most infections occur in immunocompromised patients and most cases of human disease have been associated with central venous catheter infection.
- Nosocomial & opportunistic infections are increasingly being reported.



Transmission electron microscopy of O. anthropi. (Zuo et al, 2008)



Light microscopy of O. anthropi. (http://www.visualphotos.com/image/1x6586364/ochrobactrum_anthropic)

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DISCUSSION (cont.)

- The first case of human infection with *O. anthropi* was described in 1980 in a debilitated patient with a pancreatic abscess.
- The organism has also been reported as a cause of infective endocarditis, pelvic abscess, UTI, osteomyelitis, meningitis, and endophthalmitis.
- Exoelectrogenesis (electricity production), a common characteristic of P. aeruginosa and Ochrobatrum spp., has been implicated as a selective property for opportunistic pathogens.
- In one study, children with positive blood cultures presenting with fever, non-specific respiratory or gastrointestinal manifestations, leukocytosis and neutrophilia recovered rapidly and had subsequent negative culture even without specific treatment – this suggests that although the O. *anthropi* can be pathogenic in critically ill or immunocompromised patients, it has relatively low virulence.
- Most clinical isolates are resistant to chloramphenicol and all β-lactams due to expression of the AmpC β-lactamase OCH-1.
- *O. anthropi* is considered susceptible to carbapenems, fluoroquinolones, TMP-SMX, gentamicin, colistin and amikacin.
- Ciprofloxacin should be used cautiously due to high reported failure rate. However even in proven resistant cases patients have recovered without sequelae, again most likely due to the organism's low virulence.
- In another study, even the majority of transplant recipients with *O. anthropi* bacteremia experienced resolution of bacteremia without antibiotics.
- IDSA recommendations for the management of catheter-related bloodstream infections highlights prompt source control (catheter removal).
- The most common reported duration of antibiotic therapy varies from 1-2 weeks. It is generally recommended that antibiotics be continued for at least a week after removal of the indwelling line.
- There have also been a few reported cases of *O. anthropi* infection that resolved with catheter removal alone, without concurrent antibiotics.
- Currently, the recommended antibiotic therapy for *O. anthropi* bacteremia consists of TMP-SMX 3 to 5 mg/kg q8 or cefepime 1 to 2 gm q8 or q12.
- The preceding case is a rare instance of *O. anthropi* bacteremia in an immunocompetent patient and highlights the importance of recognizing this uncommon organism as a possible pathogen in CRBSI.