



February 2017

T. Herchline, Editor

LOCAL NEWS

ID Fellows

Dr Alpa Desai will be at the VA Medical Center in February, at Dayton Children's Hospital in March, and at Miami Valley Hospital in April. Dr Luke Onuorah will be at Miami Valley Hospital in February and March, and at Dayton Children's Hospital in April.

Local Disease Activity

Recent investigations by Public Health include five cases of Pertussis (ages 3 to 15 years) – there were no connections other than its occurrence in two youth in the same family. All cases had received a Pertussis vaccine. Other reportable diseases include giardiasis (two unrelated cases) and one case each of Legionnaire's Disease, Varicella, and Shigella. Outbreak investigations included a Norovirus outbreak at a long-term care facility involving more than 20 residents and staff. Norovirus was confirmed in two cases. Ongoing investigations involve Norovirus at another long-term care facility and the occurrence of Scabies at multiple health care facilities.

Influenza Activity

According to the Centers for Disease Control and Prevention (CDC), influenza is now widespread in Ohio and 28 other states. The CDC has determined that this year's vaccine is a good match for the circulating influenza virus. In the 10 county regional area, there have been 982 cases of influenza A and 77 cases of influenza B since November, with 267 influenza-related hospitalizations (172 of those hospitalizations were in January).

NATIONAL NEWS

Contributed by Luke Onuorah, MD

Seoul Virus Outbreak

As of Jan 26, 2017, two epidemiologists from the CDC were working with the Illinois and Wisconsin departments of health to investigate an outbreak of Seoul virus among eight people who worked in several rat-breeding facilities across those states. Seoul virus is part of the hantavirus family of rodent-borne viruses, spread by contact with bodily fluids of rats. Transmission is prevented by handwashing and disinfection of surfaces that have made contact with rats.

Multidrug resistant *Salmonella* Heidelberg infections outbreak

Between Jan 11, 2016 and October 24, 2016, twenty-one people across 8 states were infected with a multidrug resistant strain of *Salmonella* Heidelberg. Eight people were hospitalized, and there were no

EIN Query: Management of *S. aureus* Bacteremia

Overall response rate: 723 of 1,286 (56%) physicians with an adult infectious disease practice responded from 01/05/17 to 01/30/17.

Question 1 was about management of MRSA bacteremia due to a skin abscess which was treated with I&D; patient rapidly improved on vancomycin and TTE was negative. The preferred treatment plan was 14 days of IV vancomycin (chosen by 73%); 13% would transition to oral antibiotics to complete a 14 day course of treatment. The remainder chose various other strategies.

Question 2 was about a 70 yo woman with CHF and 1 of 2 blood cultures positive for MSSA. She is afebrile with normal WBC. Repeat blood cultures are negative and TEE is negative. The preferred treatment plan was 14 days of IV antibiotics (chosen by 67%); 10% would stop antibiotics suspecting initial culture was a contaminant; 10% would transition to oral antibiotics to complete a 7-14 day course of treatment. The remainder chose various other strategies.

Other questions pertained to specific preferences: 90% request TTE on every patient with MSSA bacteremia (19% follow-up with TEE on every patient with a negative TEE). In a patient with MRSA bacteremia and vancomycin MIC = 2, 51% would use vancomycin if patient was showing evidence of response (37% would use daptomycin). For treatment of Lt-sided MSSA endocarditis, 32% would use cefazolin, 29% would use nafcillin and 32% consider those choices equal. If using daptomycin for MRSA bacteremia, the preferred dose was 8 mg/kg/day (43%) followed by 6 mg/kg/day (38%) and 10 mg/kg/day (16%).

The full report for this survey is available at:

http://www.int-med.uiowa.edu/Research/EIN/FinalReport_SABmanagement.pdf .

Case Conference

Contributed by Alpa Desai, MD

The patient is a 60-year-old female with history of COPD on 2L of oxygen at home and status post left mastectomy, radiation & chemotherapy for breast cancer in 2003, who presented with spontaneous opening in her left precordial area after having a coughing spell. Patient reported chronic productive cough but denied SOB or chest pain. She denied fever, chills or night sweat. There was no history of recent thoracic procedure or bronchoscopy. There was no known exposure to TB. She reported creamy discharge from chest wall opening intermittently. On admission, patient was afebrile, on 2 L oxygen with saturation in the mid-90s. Physical exam was remarkable for significant clubbing, very cachectic appearance with prior mastectomy scar on left side of chest. She was noted to have approximately 1 cm opening in middle of the left chest with a visible pleural cavity, 3 x 3 cm erythema surrounding opening without obvious drainage or bleeding. Laboratory data was significant for mild leukocytosis. CT chest showed mass like consolidation in left lingular segment involving the left pleural and extending into the left chest wall anteriorly and subcutaneous air noted overlying this consolidation with subcutaneous defect. Patient was diagnosed with broncho-pleuro-cutaneous fistula. Patient received lung mass biopsy and discharged home with a plan to follow cardiothoracic and plastic surgery for definitive surgical plan based on biopsy results. Patient was readmitted a couple of weeks later for surgical intervention and received left anterior chest wall irrigation & debridement with rib resection; left posterolateral thoracotomy with empyectomy and decortication; latissimus dorsi flap reconstruction and anterior chest wall tissue biopsy and rib biopsy. Patient tolerated surgery well but muscle flap developed vascular congestion so she was started on leach therapy. Microbiology and pathology results were positive for *Histoplasma capsulatum* from anterior lung mass, intercostal muscle as well as rib biopsy. Patient was started on itraconazole for chronic pulmonary histoplasmosis complicated by broncho-pleuro-cutaneous fistula. Patient's clinical condition got worse due to persistent air leak despite flap coverage and developed hypoxic respiratory failure and required intubation. Patient was switched to voriconazole. She underwent endobronchial one-way valve placement for bronchopleural fistula at University of Cincinnati for bronchopleural fistula. Patient ended up requiring tracheostomy due to recurrent respiratory failure and was discharged on voriconazole with plan to treat for several months to a year.

Discussion

Review of available literature has revealed only a single case report of bronchopleurocutaneous fistula related to *Histoplasma capsulatum* (1). Other infectious causes of bronchopleurocutaneous fistula reported in the literature are Tuberculosis and Aspergillosis. *Histoplasma capsulatum* cause a spectrum of clinical diseases including acute pulmonary infiltration, chronic cavitary lung disease, rheumatologic symptoms including arthralgia and arthritis, pericarditis, fibrosing mediastinitis, granulomatous mediastinitis, and widespread disseminated infection including involvement of the skin, liver, spleen, adrenal, and occasionally the central nervous system (2). Review of 46 patients with serology or cultured documented chronic pulmonary histoplasmosis showed that most common presenting symptoms are chronic cough and weight loss/decreased appetite followed by fever/chills/night sweats (3). Endemic fungal infections in the United States due to *Histoplasma capsulatum*, *Blastomyces dermatitidis*, and *Coccidioides immitis* are generally treated with amphotericin B formulations, itraconazole, or fluconazole (4,5). Each of these standard antifungals has limitations that preclude its use by some patients. Voriconazole is a well-tolerated, orally bioavailable newer triazole antifungal and it has in vitro activity against *H. capsulatum*, *B. dermatitidis*, and *Coccidioides* species (6,7). Review of 9 patients with histoplasmosis treated with voriconazole either primarily or due to failure or intolerance of other antifungals either improved or remained clinically stable following initiation of Voriconazole (8).

References

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6. González, G. M., A. W. Fothergill, D. A. Sutton, M. G. Rinaldi, and D. Loebenberg. 2005. In vitro activities of new and established triazoles against opportunistic filamentous and dimorphic fungi. *Med. Mycol.* 43:281–284.
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8. Freifeld, Alison, et al. "Voriconazole use for endemic fungal infections." *Antimicrobial agents and chemotherapy* 53.4 (2009): 1648-1651.

Bug of the Quarter

By: W. Grant Starrett, M.D.

This article reviews the more obscure organisms which are less commonly isolated in clinical specimens. Please contact me at wgstarrett@premierhealth.com if you come across an isolate that may fit in this category.

Organism: *Bifidobacterium*

Clinical Data: A 54 year-old male with history of familial polyposis and abdominal desmoid tumor presented to an outside hospital with fevers and rigors. Blood cultures were obtained, and he was discharged from the emergency room on empiric ciprofloxacin and metronidazole. His blood cultures ultimately grew *Escherichia coli*, and he was admitted to the hospital five days later for further workup. The patient had many prior endoscopies for removal of enteric polyps, and eventually underwent a proctocolectomy with ileostomy many years prior. Recent symptoms included watery stools and minor weakness for about a month, but the fevers and rigors were acute. A CT of the abdomen and pelvis on admission was significant for an unchanged large right lower abdominal desmoid tumor with possible associated ileitis. Ceftriaxone was initiated, and follow-up blood cultures on admission grew a gram-positive rod in one of two anaerobic bottles. He was discharged on ceftriaxone and metronidazole prior to identification of the organism, which turned out to be a *Bifidobacterium* species that was not further identified. A third bloodstream infection (with *Enterococcus faecalis*) occurred following an outpatient EGD less than one month later. He ultimately was hospitalized by his surgeon at an academic center and underwent resection of an eight centimeter mesenteric tumor involving small bowel, and has since had no recurrent bacteremias.

Taxonomy

Division: Bacteria
Phylum: Actinobacteria
Class: Actinobacteria
Order: Bifidobacteriales
Family: Bifidobacteriaceae
Genus: *Bifidobacterium*

Associated Diseases:

1. Dental caries
2. Pleuro-pulmonary infections
3. Intra-abdominal abscess
4. Bacteremia
5. UTI

Description:

Bifidobacterium species are commensal organisms of the human mouth and gastrointestinal tract. This organism is an anaerobic, non-spore forming gram-positive bacillus, characteristics it shares with other enteric flora including *Actinomyces*, *Eubacterium*, *Lactobacillus*, and *Propionibacterium*. The morphology of *bifidobacterium* is not uniform, but consists of irregular rods with characteristic bifid and branching forms. This organism can produce a significant amount of acetic acid and lactic acid, and some studies have suggested a protective effect of *lactobacillus* and *bifidobacterium* against potential pathogens in the GI tract. It is an uncommon pathogen, but has been found in polymicrobial infections of the lower respiratory tract as well as the blood. Bloodstream infections are usually a result of a predisposing factor such as malignancy or trauma, including childbirth. Its low rate of recovery from clinical specimens is likely due to a combination of low virulence and improper specimen handling, as *Bifidobacterium* species

are among the most numerous organisms in the gastrointestinal tract. It is susceptible to a variety of antibiotics including penicillins, clindamycin and tetracyclines.

Resources:

1. Bourne KA, *et al.* Bacteremia due to Bifidobacterium, Eubacterium or lactobacillus; twenty-one cases and review of the literature. Yale J Biol Med. 1978 Sep-Oct; 51(5): 505-512.
2. Koneman's Color Atlas and Textbook of Diagnostic Microbiology, 6th ed.
3. Mandell, *et al.* Principles and Practice of Infectious Diseases, 6th edition.
4. Murray, *et al.* Manual of Clinical Microbiology, 7th edition.

Upcoming Events

February 2017

8	Journal Club cancelled	
13-16	Conference on Retroviruses and Opportunistic Infections http://www.croiconference.org/	Seattle, WA
22	Case Conference	MVH Maxon Parlor

March 2017

8	Journal Club	MVH 6NW
29	Case Conference	MVH Maxon Parlor
29-31	Society for Healthcare Epidemiology http://sheaspring.org	St Louis, MO

April 2017

22-25	European Congress of Clin Micro & Inf Dis http://www.eccmid.org	Vienna, Austria
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May 2017

10	Journal Club	MVH 6NW
31	Case Conference	MVH Maxon Parlor

June 2017

16-18	Refugee Health Conference http://www.northamericanrefugeehealth.com/	Toronto, Canada
16-20	ASM Microbe (ASM/ICAAC) http://asmmicrobe.org	Boston, MA

July 2017

12	Journal Club	MVH 6NW
26	Case Conference	MVH Maxon Parlor

August 2016

9	Journal Club	MVH 6NW
30	Case Conference	MVH Maxon Parlor

September 2016

13	Journal Club	MVH 6NW
27	Case Conference	MVH Maxon Parlor

October 2016

4-8	ID Week http://www.idweek.org/	San Diego, CA
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