



February 2015

[T. Herchline, Editor](#)

LOCAL NEWS

ID Fellows

Dr. Katelyn Booher will be at the VA Medical Center in February-March, at Miami Valley Hospital in April and at Ohio State University (for Transplantation) in May. Dr Shruti Patel will be at Miami Valley Hospital in February-March, at Children's Medical Center in April and at the VA Medical Center in May.

Local Disease Activity

There was a 2 year old boy and his 22 year old mother who were both diagnosed with Salmonella in December. No other contacts were identified with infection. An unrelated 2 month old was also diagnosed with Salmonella; other family members have had diarrhea, but have not been confirmed to have Salmonella. Through November, there have been 48 cases of Salmonella infection, as compared to 35 in 2013 for the same time period. There were numerous cases of Salmonella reported during January. Ages ranged from 6 months to 78 years old. Potential sources were varied and included international travel (1), turtle (1), undercooked eggs (1) and 3 with no probably source identified. None worked in sensitive occupations. No common sources have been identified.

There are been multiple travelers from Western Africa who have required monitoring for Ebola. Two travelers from Virginia returned from Guinea in Mid-January; they subsequently traveled to the Dayton area to visit family and were monitored by PHDMC for a total of 3 days. They were in tier 2 (low risk for developing Ebola). A soldier was returning from Liberia for emergency 10 day leave; he had no known contact with any Ebola patients. His monitoring was conducted via the base. PHDMC was notified by ODH of a patient who presented to Kettering Medical Center Emergency Department with respiratory symptoms after returning from Cameroon. He wanted testing for Ebola but it was not performed as Cameroon is not currently on list of suspect countries.

NATIONAL NEWS

Contributed by Shruti Patel, MD

Multi-state Measles outbreak

According to CDC, as of February 6, 2015, there have been 121 cases measles in 17 different states. It is linked to Disneyland resort theme parks in Orange County in California where the initial confirmed case reported visiting these parks from December 17 through December 20. An additional 51 confirmed cases reported visiting the same park in December and January. There was one confirmed case in a child from Mexico who visited park during same duration. No source case has been identified yet but it is likely that an infected traveler (or travelers) from overseas visited the park during those months. The age range of confirmed cases was from 10 months to 57 years. Out of the confirmed 52 outbreak associated cases, 28 were known to be unvaccinated and 6 were known to be vaccinated. Genotype was available for 9 measles patients and it was genotype B3 which was also associated with large outbreak in Philippines in

2014. Measles is declared eliminated from US in year 2000 with high population immunity achieved with MMR vaccine. However it is still endemic in other countries of world. Measles outbreak occurs in US when unvaccinated persons from these countries visit US when they are infected.

“Game Changer” Medications in market for Hepatitis C.

Several new hepatitis C drugs were approved by FDA last year. Viekira Pak, Harvoni and combination of Olysio and Sovaldi are now available in market. Viekira Pak which is combination of ombitasvir, paritaprevir, ritonavir, dasabuvir, was approved on December 19 2014. In phase 3 clinical trial including 2300 patients across 25 different countries, it was proven to work exceptionally well in Genotype 1 patients. On November 6 2014, FDA approved Olysio (Simeprevir) in combination with Gilead’s Sovaldi (Sofosbuvir) for treatment of Genotype 1. In a trial of cirrhotic and non-cirrhotic genotype 1 patients with 12 or 24 weeks of treatment showed significant cure rates. Another combination drug Harvoni (Ledipasvir plus Sofosbuvir) approved on October 10 2014. Harvoni is made by Gilead’s and is single pill regimen which is very effective against Genotype 1. In clinical trials it was shown to have high cure rates with short treatment durations including 8, 12 or 24 weeks with tolerable minimal side effects. While these medications are excellent and promise higher cure rates, they also come at a higher price. Viekira Pak costs \$83,319 for 12 weeks treatment. Harvoni costs \$94,500 for 12 weeks treatment. Most expensive amongst all is combination of Sovaldi and Olysio. Sovaldi alone costs \$ 85,000 for 12 weeks and Olysio costs \$66,000 totaling cost up to \$151,000 for 12 weeks. Insurance companies and government programs like Medicaid and Medicare are trying to figure out payment options hence it may not be affordable for everyone yet.

INTERNATIONAL NEWS

Aggressive form of HIV virus found in Cuba causing rapid progression to AIDS

Researcher from University of Leuven in Belgium started studying cases in Cuba when they found out that growing numbers of HIV positive patients were developing AIDS within just three years after diagnosis. They found a strain CRF19 which can rapidly progress to AIDS in 2-3 years compared to typical HIV virus strains which take roughly ten years to develop into AIDS. Researcher also found that infected patients have higher level of virus in their blood compared to typical strains. The theory behind rapid progression is that CRF19 strain exhausts CCR5 receptors much quicker and earlier in infection and start using CXCR4 which leads to progression to AIDS faster.

Update On EBOLA outbreak

According to CDC, as of February 10, 2015 total cases from three affected countries are 22,999, of which 13,955 are laboratory confirmed cases with 9253 death so far. Total weekly cases are increasing for second consecutive week. Guinea reported increase in incidence with 65 new confirmed cases compared with 39 week before. Sierra Leone reported 76 new confirmed cases. Liberia has relatively low number of new confirmed cases. Threats in UK and Mali has been cleared and all contacts of Ebola patients have completed 21 days follow up period. In one research study on monkeys in lab, Ebola virus remained viable for at least 7 days after death.

Case Conference

Contributed by Katelyn Booher, DO

A 64-year-old Caucasian male with a history of aortic insufficiency status post bioprosthetic aortic valve replacement in August 2012 was admitted October 2014 with a two-week history of intermittent episodes of expressive aphasia, loss of coordination, left-sided weakness, and associated subjective fevers, chills, generalized weakness and fatigue. He also complained of a persistent headache during this time. Review of systems was pertinent for a 15 pound unintentional weight loss over the preceding two months. Past medical history was notable for hypertension and hyperlipidemia. Social history was unremarkable. He was a previously very physically active gentleman who practiced and taught martial arts. On admission, the patient was febrile to 100.5°F, other vital signs were unremarkable. On physical exam, patient was alert and oriented to person, place and time; cranial nerves II-XII were intact; strength testing was 5/5 in all 4 extremities with mild drift in left upper extremity; coordination and sensory function were preserved; no abnormal movements were identified. A grade III/VI harsh systolic ejection murmur was identified at left second intercostal space. Lungs were clear to auscultation bilaterally. There were no cutaneous lesions, no stigmata of endocarditis, and no peripheral edema. Laboratory studies were remarkable for a white blood cell count of 12,800/ μ L with left shift demonstrated by 80.3% segmented neutrophils and an absolute segmented neutrophil count of 10,300/ μ L. Urinalysis was unremarkable for proteinuria, hematuria or bacteriuria. A head CT without contrast revealed an ill-defined mass within the right temporoparietal lobe with surrounding vasogenic edema. A follow up brain MRI with and without contrast revealed a well-circumscribed ring-enhancing lesion within the right temporal lobe/subinsular region with central cavitation and associated vasogenic edema suggestive of brain abscess. After seventy-two hours of admission, all blood cultures grew gram-negative bacilli, eventually identified as *Cardiobacterium hominis*. Neurosurgery was consulted and the patient underwent a stealth-guided right temporal craniotomy with excision of lesion on day three of admission. Histopathology eventually identified lesion as mycotic thrombosed aneurysm with acute inflammation. Post-operatively, patient was initially prescribed metronidazole and ceftriaxone. Following susceptibility testing, therapy was narrowed to ceftriaxone. Repeat blood cultures one week later were negative. A trans-esophageal echocardiogram revealed bioprosthetic aortic valve morphology concerning for endocarditis. Dense thickening of all three leaflets of the bioprosthetic valve with an immobile mass found attached to the non-coronary cusp; no paravalvular leak or annular abscess was seen. There was mild aortic regurgitation identified with normally functioning mitral, tricuspid and pulmonic valves. The aortic root was normal in caliber. Patient was discharged to inpatient rehabilitation one week after his craniotomy. He completed six weeks of intravenous ceftriaxone therapy administered through his peripherally inserted central catheter. The white blood cell count normalized and successive blood cultures obtained after completion of antibiotic therapy remained negative. Full neurologic function returned. Cardiothoracic surgery was consulted to evaluate patient but no intervention was performed in light of his recent craniotomy. Patient continues to follow up with both cardiology and cardiothoracic surgery with future plan of aortic valve replacement.

Discussion

In the United States, an estimated 10,000 to 15,000 new cases of infective endocarditis are diagnosed each year. Approximately 70 cases of *C. hominis* endocarditis have been reported in the English-language literature. *C. hominis* is a pathogen of relatively low virulence (1). The typical picture is subacute bacterial endocarditis, often feeling unwell for weeks to months before diagnosis (1). None of the physical findings clearly differentiates *C. hominis* endocarditis from other more common causes of endocarditis (1). Embolism is a frequent complication, and has been responsible for atypical presentations of *C. hominis* endocarditis (2). According to Chentanez et al., in a review of the literature, the most common neurological presentations included visual defects, muscle weakness, altered mental status, aphasia, and headaches (2). *C. hominis* prosthetic valve endocarditis has been associated with significant higher rates of stroke when compared to other pathogens (2); this may be related to the often delayed diagnosis. The prognosis of both native valve and prosthetic valve *C. hominis* endocarditis is favorable

(3). *C. hominis* is almost always susceptible to penicillin (3). Over a quarter of patients in the review by Malani et al. finished treatment with β -lactam monotherapy (3). However, because of reports of beta-lactamase-producing *C. hominis* strains causing endocarditis, third-generation cephalosporin is recommended as first-line treatment (3).

References

- Walkty, A. *Cardiobacterium hominis* endocarditis: A case report and review of the literature. *Can J Infect Dis Med Microbiol.* 2005;16(5):293-297.
- Chentanez, T., Khawcharoenporn, T., Chokrungravanon, N., & Joyner, J. *Cardiobacterium hominis* endocarditis presenting as acute embolic stroke: A case report and review of the literature. *Heart & Lung*, 2011. 40(3), 262-269.
- Malani, A.M. Aronoff, D. M., Bradley, S. F., & Kauffman, C. A. *Cardiobacterium hominis* endocarditis: two cases and a review of the literature. *Eur J Clin Microbiol Infect Dis.* 2006. 25:587–595.

Bug of the Quarter

Contributed by: W. Grant Starrett, M.D.

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

Organism: *Brevundimonas diminuta*

Clinical Data: A 29-year-old male with history of hypertension and morbid obesity presented with bilateral lower extremity swelling and was admitted for right leg cellulitis. He reported a chronic left leg wound that had been present since an episode of cellulitis three years prior. It had gradually enlarged until he was hospitalized two months previously for an infected wound and underwent excisional biopsy with split thickness skin graft. Surgical cultures grew Group B *Streptococcus*, *Brevundimonas diminuta*, *Citrobacter*, *Corynebacterium* and a coagulase negative *Staphylococcus*. Pathology was unremarkable, and the wound had almost completely healed with aggressive wound care prior to this hospitalization. A low grade fever was noted following admission, and he was initiated on broad spectrum antibiotics. Cultures of his blood and a left lower extremity wound were obtained. An infectious disease consultation was performed and the physical exam was significant for patchy erythema in the right pretibial area as well as inguinal lymphadenopathy. His left medial calf was notable for a large area of skin graft which had completely healed except for an irregular 2X2 cm scab with a small amount of serosanguinous drainage. His antibiotics were switched to vancomycin and cefazolin, and his cellulitis responded well. The patient was discharged on a 10-day course of cephalexin and doxycycline.

Taxonomy:

Family: *Caulobacteraceae*

Genus: *Brevundimonas*

Species: *diminuta*

Associated Diseases:

1. Bacteremia
2. Urinary tract infections

Description: *Brevundimonas* species are pseudomonads which are similar to *Burkholderia*, *Ralstonia*, *Acidovorax* and *Comamonas* in that they are aerobic, non-fermenting, non-spore forming gram-negative rods. They are found worldwide in the environment associated with water, soil and plants. *Brevundimonas diminuta* is one of two species of this genus that are isolated in clinical specimens. It was originally classified as a *Pseudomonas* (same species name) but earned its own genus based on rRNA hybridization studies and sequencing. *Brevundimonas* species are considered to be opportunistic pathogens in immunocompromised hosts, and most commonly cause bacteremia in patients with malignancy, although other comorbid illnesses which affect immunity are also reported. These species are intrinsically resistant to fluoroquinolones, and prophylactic use of these agents in patients on treatment for hematologic malignancies may lead to a higher incidence of infection with these organisms. *Brevundimonas* species also tend to be resistant to colistin. Anti-pseudomonas penicillins produce the most reliable susceptibility patterns for infections with this organism.

Resources:

1. Han XY, Andrade RA. *Brevundimonas diminuta* infections and its resistance to fluoroquinolones. *J Antimicrob Chemother.* 2005 Jun;55(6):853-9. Epub 2005 May 9.
2. Koneman's Color Atlas and Textbook of Diagnostic Microbiology, 6th ed.

3. Lee MR, *et al.* Bacteremia caused by *Brevundimonas* species at a tertiary care hospital in Taiwan, 2000-2010. *Eur J Clin Microbiol Infect Dis*. DOI 10.1007/s10096-011-1210-5.
4. Murray, *et al.* *Manual of Clinical Microbiology*, 7th edition.

Upcoming Events

February 2015

11	Journal Club	MVH 6NW
23-26	Conference on Retroviruses and Opportunistic Infections	Boston, MA
25	Case Conference	MVH Maxon Parlor

March 2015

11	Journal Club	MVH 6NW
25	Case Conference	MVH Maxon Parlor

April 2015

8	Journal Club	MVH 6NW
25-28	European Congress of Clin Micro & Inf Dis	Copenhagen, Denmark
29	Case Conference	MVH Maxon Parlor
30-5/2	ACP Internal Medicine 2015	Boston, MA

May 2015

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

June 2015

4-6	Refugee Health Conference	Toronto, Canada
10	Journal Club	MVH 6NW
24	Case Conference	MVH Maxon Parlor

July 2015

8	Journal Club	MVH 6NW
29	Case Conference	MVH Maxon Parlor

August 2015

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

September 2015

9	Journal Club	MVH 6NW
17-21	ICAAC	San Diego, CA
30	Case Conference	MVH Maxon Parlor

October 2015

7-11	IDSA/ID Week	San Diego, CA
14	Journal Club	MVH 6NW
28	Case Conference	MVH Maxon Parlor