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### A Novel Case of Bacterial Meningitis in a Patient with Loeys-Dietz

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# A NOVEL CASE OF BACTERIAL MENINGITIS IN A PATIENT WITH LOEYS-DIETZ Colvin, Lacey MS, DO and Fagg, Christy DO, FACP, FACO LewisGale Montgomery Hospital

Infectious meningitis is a central nervous system infection characterized by inflammation of the meninges caused by bacteria, fungi or viruses in the cerebrospinal fluid. Immunocompromised patients are susceptible to opportunistic infections related to their specific immune defect. A recent retrospective study on bacterial meningitis reported that 82% of patients presented with at least two of five symptoms including fever, neck stiffness, altered mental status, headache and nausea. Whether immunocompromised or immunocompetent, bacterial meningitis has historically been caused by one microorganism. Here we present an atypical case of multi-organism meningitis in a patient with Loeys-Dietz syndrome.

## Case Report

The patient was a 19 year old caucasian female with history of Loeys-Dietz syndrome and mild intermittent asthma. She presented with a four day history of fever, headache, myalgia, nausea, emesis and watery diarrhea. Her symptoms started after arrival to a local music festival where she inhaled marijuana and consumed captured rain water and vendor provided beverages. Physical exam revealed an ill appearing, febrile (102.9F), welldeveloped and well-nourished white female with tachypnea and tachycardia. Her abdomen was tender to palpation in the upper right quadrant. Neurologic assessment was positive for nuchal rigidity with flexion induced nausea. There was paraspinal muscle tenderness in the cervical and lumbar region. Laboratory studies showed no leukocytosis. Procalcitonin was 8.5 ng/mL, lactic acid was 0.7 mmol/L. IgE was elevated at 303 IU/mL. Blood and stool cultures were negative. Lumbar puncture was performed in the emergency room with initially negative cerebrospinal fluid (table 1).

Cerebrospinal fluid	Result	Normal Reference
Appearance	Clear	Clear
Color	Colorless	Colorless
WBC (/uL)	2	0-5
RBC	0	<1
Glucose (mg/dL)*	62	40-70
Total protein (mg/dL)	23	15-45
*Coinciding serum glucose was 112 mg/dl		

Table 1. Cerebrospinal fluid obtained in emergency room

Patient responded to Piperacillin/Tazobactam and Doxycycline with resolution of fever, but her myalgia, headache, diarrhea and abdominal pain persisted. Preliminary cerebrospinal fluid cultures returned with gram negative cocci the afternoon of hospital day two, despite zero WBC on initial fluid analysis. Ceftriaxone was then added for treatment of possible meningitis. Culture samples sent to the state laboratory concluded that the causative species were Alkanindiges illinoisensis and Barrientosiimonas humi.

### Introduction





lage 2. Scanning electron micrography o

### Discussion

Alkanindiges illinoisensis is a gram-negative coccobacilli initially identified in oil fields. Barrientosiimonas humi is a gram-positive rod, initially collected from soil samples. Neither species has been identified as a human pathogen. Loeys-Dietz is a rare autosomal dominant connective tissue disease affecting collagen and connective tissue growth. This mutation predisposes patients to vascular abnormalities including aneurysm and dissections. Patients also show a predisposition for recurrent respiratory infections. Research still needs to be conducted to determine whether these recurrent infections are due to underlying defect in the mechanical barriers or deficiency in immune response. Whether or not her underlying connective tissue disease contributed to her condition is to be determined. Possible sources of infection could be tied to inhalation, consumption of rain water or unintentional soil consumption.

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