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Tissierella praeacuta bacteremia secondary to fecal exposure

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Introduction

Tissierella praeacuta is a rod-shaped, non-spore forming, Gram-negative strict anaerobe that has been isolated from soil and human feces (1), and it shares 99.9% genomic similarity to the Gram-positive, spore forming *Clostridium hastiforme* (2). Although it is a normal component of the human gastrointestinal microbiota, *T. praeacuta* is a rare cause of human infection with only two previous cases reported. Identification of the bacterium using 16S rRNA sequencing has demonstrated that it is susceptible to beta-lactams, chloramphenicol, rifampicine, and metronidazole (3).

Case Description

HPI and Hospital Course:

- A 49 year old female presented as a transfer to HFH with several stage 2-4 decubitus ulcers involving the back, buttocks, and right lower extremity, secondary to prolonged inactivity from severe depression.
- Prior to transfer, she had presented to an outside hospital in undifferentiated shock after being found unresponsive in her home and covered in feces, maggots, and animal hair.
- At the outside hospital, she had required vasopressors and endotracheal intubation and was found to have extensive pressure ulcers. Labs were remarkable for WBC 28 K/uL, K+ 6.3 mmol/L, and ammonia 235 umol/L. Piperacillin-tazobactam, vancomycin, and fluconazole were initiated. CT abdomen/pelvis was negative from intra-abdominal abscess.
- She underwent large wound debridement resulting in a 12x14x14 cm wound on her right calf. The outside hospital was unable to create a surgical flap for amputation, and the patient was thus transferred to HFH.
- Blood cultures speciated *Tissierella praeacuta*. Antibiotics were de-escalated to piperacillin-tazobactam only.
- Her course at HFH was complicated by refeeding syndrome, so she was appropriately supplemented with phosphorus, K+, and Mg++.
- She underwent right lower extremity ulcer debridement for source control, and she improved clinically with a two week course of antibiotics, remaining afebrile and hemodynamically stable throughout her hospital stay.
- She was also evaluated by psychiatry and began a regimen of escitalopram.
- The patient was discharged to a subacute rehabilitation facility with plans to follow with plastic surgery as an outpatient and continue management for her depression with her primary care provider.

Past Medical History:

Major depressive disorder, varicose veins of bilateral lower extremities

Past Surgical History:

None

Social History:

Former smoking history of 25 pack years

Review of Systems:

- (+) recent 100-lb weight loss, fatigue, depression
- (-) nausea, vomiting, diarrhea
- (-) chest pain, palpitations, shortness of breath
- (-) headaches, vision changes, changes in sensation
- (-) urinary frequency, dysuria

Physical Exam:

Blood pressure 152/72, 36.6 °C (97.9 °F), RR 18, SpO2 96%, weight 134.3 kg (296 lb), BMI 41.3

Constitutional: well-developed and well-nourished

Eyes: sclera anicteric, left eye normal, right eye normal, mild R sided ptosis, PERRL

Ears/Nose/Mouth/Throat: hearing normal and external ear normal, oropharynx grossly normal without exudates or lesions

Cardiovascular: regular rate and rhythm, normal S1/S2, no S3/S4, no clicks or rubs

Respiratory: clear to auscultation bilaterally, no wheezes, no rales and no rhonchi

Gastrointestinal: soft, non-tender; bowel sounds normal; no masses, no organomegaly

Musculoskeletal: R ankle and calf wrapped in dressing, muscle bulk and tone intact

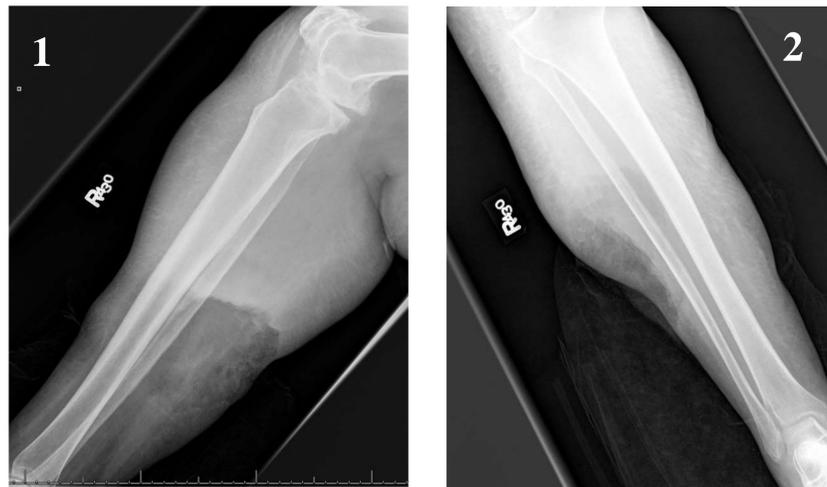
Skin: multiple decubitus ulcers on backside starting on back and into buttocks and posterior calves with skin redness, excoriation, peeling, R calf and ankle wrapped

Neurologic: alert and oriented x 4, appropriate tone and movement

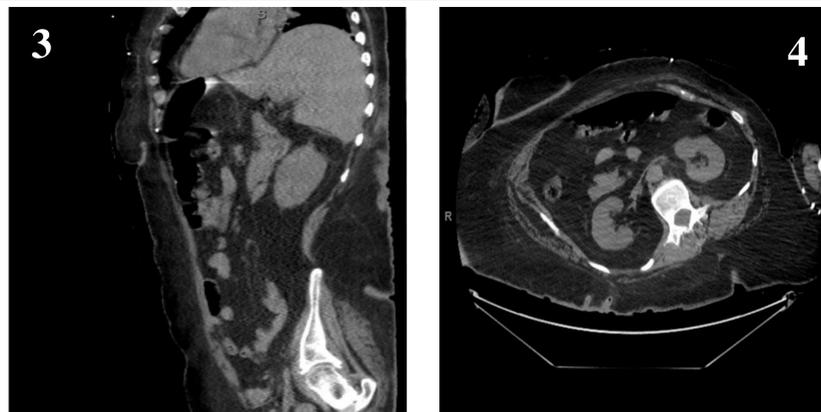
Psychiatric: Tangential speech, depressed mood

Hematologic/Lymph/Immunologic: No edema or lymphadenopathy

Imaging Studies



Figures 1 and 2. Lateral and anterior-posterior X-rays of R tibia and fibula, showing soft tissue involvement of right lower leg.



Figures 3 and 4. Parasagittal and transverse CT abdomen-pelvis images, demonstrating lack of intra-abdominal abscess.

Laboratory Values

K+	6.3 mmol/L (H0)
WBC	28 K/uL (H)
Ammonia	235 umol/L (H)
Lactate	7.8 mg/dL (H)
pH	7.07 (L)
LDH	321 IU/L (H)
Fe	17 ug/dL (L)
Albumin	2.0 g/dL (L)
Cr	0.71 mg/dL
Glucose	153 mg/dL (H)

Discussion

- *T. praeacuta* may be a more common source of human infection than previously expected and should be considered when fecal contamination of wounds is present, as it is normally found in the human gastrointestinal tract.
 - Two other previous cases of *T. praeacuta* have been reported:
 - A case of *T. praeacuta* septic pseudoarthrosis of the left femur was successfully treated with piperacillin-tazobactam and metronidazole (3)
 - A case of *T. praeacuta* bacteremia complicated by pyonephrosis and hepatic abscess was successfully treated with meropenem (3)
- It is important to treat patients' underlying psychiatric disease and understand their psychosocial situation in order to prevent disease recurrence and promote overall wellness

References

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3. Camelena F, Pilmis B, Mollo B, Hadj A, Le Monnier A, Mizrahi A. (2016). Infections caused by *Tissierella praeacuta*: A report of two cases and literature review. *Anaerobe*, 40:15-7. doi: 10.1016/j.anaerobe.2016.04.015