Case Report: Raoultella Planticola Liver Abscess

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Introduction: Raoultella planticola may be a Gram-negative, aerobic, non-motile, encapsulated rod-shaped bacterium belonging to the Enterobacteriaceae. It is closely related to Klebsiella bacteria species and thus is easily misidentified as Klebsiella pneumoniae or Klebsiella oxytoca. The bacterium is commonly found in water, soil and damp environments. It is an uncommon pathogen and has rarely been reported to infect humans. To the simplest of our knowledge, this is often the primary reported case of a liver abscess caused by R. planticola. Case Report: A 62-year-old male patient with a history of diabetes mellitus type 2, hypertension and benign prostatic hypertrophy presented with complaints of fatigue, increased urinary frequency, mild epigastric tenderness and nausea and vomiting for 5 days. On confirmation, physical examination revealed a mildly ill-appearing white male, alert and oriented, and in moderate distress. Vital signs revealed a temperature of 37 °C, pulse of 127 beats per minute and a blood pressure of 117/76mmHg. His physical exam was unremarkable except for tenderness to palpation in the right upper quadrant. Laboratory data on admission were notable for the following (reference ranges provided parenthetically): Creatinine 3.1 mg/dL (0.8-1.3 mg/dL) with a baseline of 1.4 mg/dL, glucose 500 mg/dL, WBC 12 k/mm3 with 93% neutrophils. Liver action results were: Alkaline phosphatase 351 unit/L (50-100 U/L) and bilirubin 2.1 mg/dL (0.3 to 1.9 mg/dL). There was an anion gap of 26 with carboxylic acid of 1.74mmol/L (0.5-1 mmol/L). Urinalysis revealed +2 proteins, large bacteria, negative nitrites, positive leukocyte esterase and 3 white blood cells per hpf. Treatment was initiated for diabetic ketoacidosis secondary to underlying sepsis with intravenous fluid resuscitation, insulin drip and empiric antibiotic therapy with piperacillin-tazobactam. Initial blood and urine accomplishment grew Gram-negative bacilli later identified as R. planticola. An abdominal CT scan revealed a complex multicystic mass in the medial left hepatic lobe suggestive of a hepatic abscess. Based on these findings, antibiotics were changed to ceftriaxone to provide better biliary and hepatic penetration and the patient underwent a percutaneous drainage of the hepatic abscess, during which 80 ml of purulent fluid was removed. A sample of the fluid was sent for Gram's Method and culture. Aerobic and anaerobic cultivation of the aspirate revealed only R. planticola. The organism was found to be susceptible to ciprofloxacin, cephalosporin, tobramycin and aminoglycosides. The patient's drainage tube was removed after 8 days and therefore the patient discharged home to finish a 2-week course of IV ceftriaxone 2 g daily followed by ciprofloxacin 500 mg BID for an additional 28 days. Follow from the patient at 2 months post treatment revealed resolution of his symptoms and improvement of his liver abscess on a CT scan. Raoultella planticola may be a gram-negative, aerobic, nonmotile mostly found in environments with high prevalence in soil and water. It had been first described within the 1980s as Klebsiella planticola and Klebsiella trevisanii.1 it had been reclassified into a replacement genus in 2001 as Raoultella planticola.2 This organism may be an appropriate rare human pathogen as only 29 cases of R planticola–related infections are reported until 2017, with only 7 cases within the us. Only 3 cases of tract infection secondary to R planticola are reported, 1 during a pediatric patient and a couple of in adults. We present a case of R planticola tract infection in 65-year-old male with immunoglobulin a nephropathy. Raoultella planticola is an encapsulated, nonmotile, aerobic, gram-negative rod predominantly found in water and soil. Although R planticola is especially an aquatic and soil bacterium, it's been clinically isolated from human sputum, stool, wound, and urine. To date, 29 cases of human infection with R planticola has been reported with only 3 tract infections. R planticola is difficult to isolate and to spot, because it can easily be confused with other genera, especially klebsiella.5 R planticola rarely cause infection in healthy individuals. Malignancy, transplant recipients, dialysis-dependent patients, DM, and immunocompromised state also put them at high risk.

Raoultella planticola has been related to cases of pneumonia, tract infection, cholangitis, conjunctivitis, peritonitis, necrotizing fasciitis, bacteremia, cellulitis, and soft tissue infection. On literature review of 29 reported cases, 3 patients died, 22 patients had full recovery, and 4 patients had an unknown outcome. Mortality is high in immunocompromised patients.3 the primary reported human infection thanks to Klebsiella trevisanii (later reclassified as R planticola) was in 1986, including bacteremia during a 69-year-old patient. In 2014, a case of R Planticola bacteremia during a 56-year-old female was reported following consumption of seafood salad containing squid and octopus.

As there's limited data regarding this pathogen, especially in humans, the mechanism of its pathogenesis remains unclear. Immunocompromised state, proton pump inhibitor use, and chemotherapy increase the probabilities of infection. R planticola has the power to vary histidine to histamine resulting in scombroid poisoning when poorly cooked sea food eaten during a large quality. Sort of human organ systems had been affected, with no predilection for a specific organ system.

Culture alongside VITEK-2 (bioMerieux) automated bacterial identification system not only help in identification of R planticola but is additionally sensitive in differentiating between Raoultella and Klebsiella. Treatment of R planticola tract is especially empiric antibiotic for gram-negative coverage and will be narrowed accordingly when further microbiologic information is out there. Usually R planticola is sensitive to all or any main-line gram-negative covering antibiotics; however, multidrug-resistant strains of R planticola are isolated from both patients and therefore the environment. Our patient didn't show resistance to any antibiotic.

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