

Rapid Organism Identification From Vitek 2 Compact- CAPD Fluid Culture And Antimicrobial Susceptibility Test

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Abstract- To collect CAPD fluid sample from patient. Identify the specific microbe in VITEK 2 system. To determine the antibiotic susceptibility for *Raoultellaornithinolytica* isolated from CAPD Fluid , to study the drug resistance pattern. This isolates studied for antibiotic susceptibility pattern using VITEK 2 rapid method. Among 18 drugs screened only 2 drugs were resistance to this microbe. The study also shows that appropriate methods of detecting drug resistance for use of antibiotics in managing these infections.

Keywords- Collection , Identification ,
Raoultellaornithinolytica , Antibiotic susceptibility,

I. INTRODUCTION

Raoultellaornithinolytica is a gram negative, non-motile, encapsulated, aerobic bacillus formerly named *Klebsiellaornithinolytica*. It belongs to the family *Enterobacteriaceae*, and has been isolated from insects, fish, and brackish water. This bacterium, along with the closely related species *R. planticola*, has been shown to be the causative agent of histamine toxicity from fish (also known as scombroid syndrome), but is frequently misidentified as *Klebsiella pneumoniae*. Histamine toxicity results from the expression of histidine decarboxylase, which enables the bacterium to convert histidine, and produces symptoms that include flushing, pruritus, headache, and abdominal cramping⁽¹⁾.

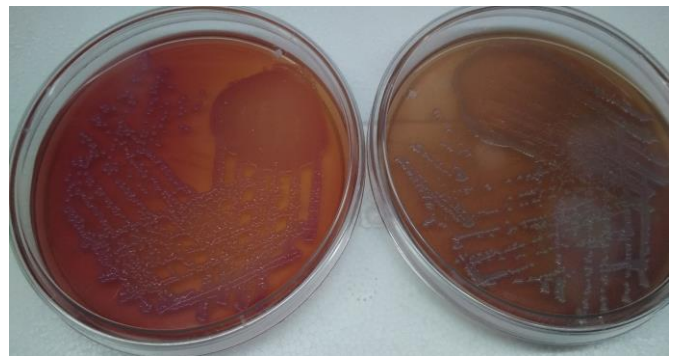
Raoultellaornithinolytica is an uncommon human pathogen. This organism can be misdiagnosed as *Klebsiella pneumoniae* or *Klebsiellaoxytoca*, and its expression of β -lactamase confers resistance to ampicillin and other commonly used antibiotics. *R. ornithinolytica* is emerging as a causative agent of community-acquired UTIs which pose a potential challenge to the identification and treatment of these infections. Over the past decade, *R. ornithinolytica* has emerged as an infrequent, but important causal agent of human infections⁽²⁾.

Case report

This is a 56-year-old Indian Man, with a history of CKD patient (Chronic Kidney Diseases), he done by Continuous Ambulatory Peritoneal Dialysis (CAPD) 10 years before, review of this time he associated with fever , abdominal pain and observe colour changes in fluid. Collect the CAPD Fluid and sented culture and sensitivity performed during the hospital visit.

Streak Plate technique

Sterilize the inoculating loop in the bunsen burner by clicking on the loop and dragging it to the burner. Put the loop into the flame until it is red hot. Allow it to cool. Pick an collected sample from the sterile culture bottle and spread quadrant parallel streaks. Invert the plate and incubate at 37°C for 24 hr.



Picture 1 -*Raoultellaornithinolytica*

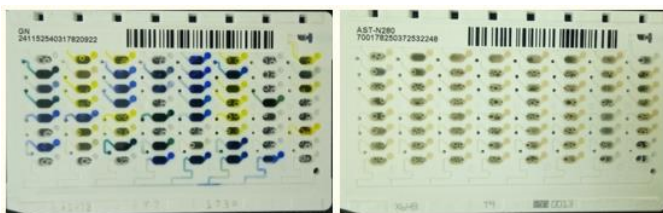
Suspension Preparation

A sterile swab or applicator stick is used to transfer a sufficient number of colonies of a pure culture and to suspend the microorganism in 3.0 ml of sterile saline solution (aqueous 0.45% to 0.50% NaCl, pH 4.5 to 7.0) in a 12 x 75 mm clear plastic (polystyrene) test tube. The turbidity is adjusted accordingly and measured using a turbidity meter called DensiChekTM.

Antibiotic susceptibility testing

Use 24 hours culture of organism(Picture 1).Inoculate organism into 3ml Vitek saline tube, vortex and insert the tube 2 to 3 times to uniformly suspend inoculum.Card types include Identification (ID) 2GN (Picture 2)and Antimicrobial susceptibility (AST) N280 (Picture 3)testing cards.The VITEK 2 is an automated microbial identification and antibiotic susceptibility system that provides highly accurate and reproducible results.

Its colorimetric reagent cards, and associated hardware and software advances, the VITEK 2 offers a state of the art technology platform for phenotypic identification methods.



Picture 2 - ID Card (2GN)

Picture 3 – AST Card (N280)

Table 1 - CAPD Fluid antibiotic sensitivity report for the patient –Vitek2

ANTIBIOTIC	SENSITIVITY	MIC
Piperacillin/Tazobactam	Susceptible	<4µg/mL
Ampicillin	Resistant	>32 µg/mL
Amoxicillin/Clavulanic acid	Resistant	>32 µg/mL
Cefuraxime	Susceptible	2 µg/mL
Ceftiazoxone	Susceptible	<1 µg/mL
Cefoperazone/Sulbactam	Susceptible	<8 µg/mL
Cefepime	Susceptible	<1 µg/mL
Imipenem	Susceptible	1 µg/mL
Ertapenem	Susceptible	<0.5 µg/mL
Meropenem	Susceptible	<0.25 µg/mL
Amikacin	Susceptible	<2 µg/mL
Gentamicin	Susceptible	<1 µg/mL
Nalidixic acid	Susceptible	4 µg/mL
Ciprofloxacin	Susceptible	<0.25 µg/mL
Tigecycline	Susceptible	1 µg/mL
Colistin	Susceptible	<0.5 µg/mL
Trimethoprim/Sulfamethoxazole	Susceptible	<20 µg/mL
Nitrofurantoin	Intermediate Susceptible	64 µg/mL

II. CONCLUSION

Human infections related to *R ornithinolytica* are exceedingly rare. Here, we report *R ornithinolytica* isolated from the CAPD Fluid in a patient with predialytic chronic kidney disease (CKD). CAPD Fluid culture and sensitivity returned positive for *Raoultellaornithinolytica*, Heavy growth, resistant to ampicillin and susceptible to all other tested antibiotics (Table 1). On follow-up three days after completion of the course of Cefoperazone/Sulbactam500mgoral, the

patient reported resolution of symptoms. However, repeat culture continued to show no growth. At that time, the patient was started on oral ciprofloxacin 500 mg for 5 days.

REFERENCES

- [1] YalcinSolak, Enes Elvin Gul, HuseyinAtalay, NejdetGenc, and Halil Z. Tonbul.A rare human infection of *Raoultellaornithinolytica* in a diabetic foot lesion. Published Online:3 Feb 2011https://doi.org/10.4103/0256-4947.75794
- [2] Elizabeth S Nakasone, PhD, MSIII, Ricky Kaneshiro, BS, MSIII, Kathleen Min, BA, MSIII, and JinichiTokeshi, MD. Emergence of *Raoultellaornithinolytica* on O‘ahu: A Case of Community-acquired *R. ornithinolytica* Urinary Tract Infection. Hawaii J Med Public Health. 2015 May;74(5):174,175.PMCID: PMC4443617,PMID: 26019987.