

## A RARE CASE OF MULTIDRUG RESISTANT PSEUDOMONAS MENDOCINA INFECTION, CASE REPORT

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### ABSTRACT

a rare case of multidrug-resistant *Pseudomonas mendocina* infection in a 71-year-old male patient was reported at general medicines medical ward. *Pseudomonas mendocina* is a gram-negative bacillus commonly found in soil and water and rarely infects the humans. the patient presented with symptoms of fever, breathing difficulty, and drowsiness. the infection was initially treated with intravenous piperacillin/tazobactam and metronidazole, based on culture and sensitivity report piperacillin/tazobactam changed to meropenem, but due to difficulties in administration of iv therapy, the patient was switched to oral faropenem. the patient slowly improved and discharged after 12 days with antibiotic and supportive therapy for 5 days. this case highlights the challenges of treating multidrug-resistant infections and provides valuable information for future reference.

### INTRODUCTION

*Pseudomonas mendocina* is a gram negative aerobic motile, rod-shaped bacillus belongs to the family pseudomonadaceae (Gani et al.,2019) mainly found in soil and water with an adaptive temperature range of 25<sup>o</sup>c to 42<sup>o</sup>c. it usually does not infect humans, but once infected, the case requires hospitalization due to exhibited severity (Gani et al.,2019). till now the *p. mendocina* is not been reported with a multidrug resistance. the first case of human infection was reported in Mendoza, Argentina in 1992 (Vo et al.,2022) and the infection was rarely being reported, with just 21 cases till date including the first case (Goldberg et al.,2020).

### CASE

A 71 years old male presented at general medicine with chief complaints of fever, breathing difficulty, noisy breathing and drowsiness for two days. his past history showcased seizure, hypertension, chronic kidney disease, and diabetes and was receiving corresponding medicines.

on the day of admission his temperature was 100<sup>o</sup>f, heart rate 130 beats per minute, bp 160/90 mmhg, random blood sugar 183mg/dl and oxygen saturation 93% in room air, thus saturation was maintained to 98% by oxygen therapy. on physical examination kreps were positive.

laboratory investigation (table-1) revealed leukocytosis (14,100 cells/mm<sup>3</sup>), elevated level of crp (58.7mg/dl), increased serum creatinine (1.8mg/dl) along with hyponatremia (127meq/l). a urine analysis was performed and no significant pathology was determined. chest x-ray indicated a bilateral opacity in the lower region of the chest. based on the above details the patient was diagnosed as a case of lower respiratory tract infection. the therapy was initiated with iv piperacilline/tazobactum, along with treatment for hyponatremia (hypertonic saline) and symptomatic treatment for breathing difficulty (nebulization and

corticosteroid). poor prognosis of patient on second day of admission led to addition of another antimicrobial agent metronidazole.

**Table: Laboratory Investigation**

S.No	Test	Day 1	Day 4	Day 6	Day 10
1	CRP (mg/dL)	58.7	44.42	143.3	28.0
2	TLC (cells/mm <sup>3</sup> )	14,100	18,000	23,600	12,000
3	Na <sup>+</sup> (mEq/L)	127	129	135	-
4	K <sup>+</sup> (mEq/L)	4.6	3.1	-	-
5	Ca <sup>2+</sup> (mEq/L)	8	-	-	-
6	SCr (mg/dL)	1.8	-	-	1.1

A serum culture report came on day 3 after admission, it showed a multidrug resistant *Pseudomonas mendocina* with resistance to various antibiotics (table 2). based on the culture report, the therapy was changed to iv meropenem along with iv metronidazole after stopping piperacilline/tazobactum. metronidazole was discontinued after 7 days. the therapy with iv meropenem was responsive to the patient, but as the patient developed recurrent thrombophlebitis, on seventh day the meropenem was converted to another drug in same class (faropenem) having oral availability by switch therapy. patient was discharged a day after oral conversion, and based on the improvement noted (day 10) as lowering of CRP (28 mg/dl) and TLC (12000 cells/mm<sup>3</sup>) with normal temperature (98.5<sup>0</sup>f) and completely relieved from oxygen therapy with oxygen saturation of 97% in room air. the antibiotic and supportive therapy was included in discharge medication for 5 days.

**Table: Culture and sensitivity test**

Culture yields multidrug resistant <i>Pseudomonas mendocina</i> <b>RESISTANT</b> <ul style="list-style-type: none"> <li>• Ampicilline</li> <li>• Cefoperazone sulbactum</li> <li>• Cefotaxim</li> <li>• Cephalexine</li> <li>• Piperacilline/Tazobactum</li> <li>• Ticarcilline/Clavulanic acid</li> </ul>
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## RESULTS AND DISCUSSION

*Pseudomonas mendocina* is a rare cause of infection in humans with various serious conditions. Till date only 21 cases are reported (Goldberg ME *et al.*,2020) excluding this case and all of the reported cases are having a favorable antibiotic susceptibility profile. Even though *P. mendocina* causes serious or severe infection, treating the infection was much simpler due to availability of favorable antibiotic sensitivity. In this case the major challenges were immunocompromised patient with multidrug resistance towards microorganism. Hence empirically selected antibiotic for treating lower respiratory tract infection was found to be resistant. There by an increased hospital stay was inevitable for the patient. Based on previous published reports, this is the first observed case with multidrug resistant *P. mendocina*. Unfortunately, the source or route of infection was not identified.

## CONCLUSION

*Pseudomonas mendocina* is a gram-negative bacillus having environmental origin, causing rare but serious infections in humans. This case report highlights a rare and significant infection caused by multidrug-resistant *Pseudomonas mendocina*. The patient, an immunocompromised individual, presented with severe

symptoms and required hospitalization. Despite initial challenges with antibiotic resistance, the patient was successfully treated with a switch therapy approach, leading to improvement and eventual discharge. This case serves as a valuable reference for future *Pseudomonas mendocina* involved cases with multidrug-resistant.

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