



UNCOMMON BUT LURKING: THE IMPENDING THREAT OF COMMUNITY-ACQUIRED ACINETOBACTER MENINGITIS

Internal Medicine

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ABSTRACT

Introduction: Acinetobacter baumannii, a predominant nosocomial pathogen, is an uncommon cause of community acquired meningitis. This article has been put forward to sensitize the physicians towards the potential threat of community acquired Acinetobacter meningitis. **Case presentation:** An elderly male presenting with fever and altered sensorium was finally diagnosed to have community acquired Acinetobacter meningitis. Unlike the multidrug resistant nosocomial strains, the community acquired strain responded to sensitive antibiotics. **Clinical discussion:** Community acquired Acinetobacter meningitis is an emerging infectious disease with broad range of therapeutic choices. Timely diagnosis and treatment is crucial. **Conclusion:** Community acquired Acinetobacter can cause meningitis in immunocompromised patients. Rational prescription of antibiotics is mandatory to prevent emergence of resistance in such, yet not resistant strains.

KEYWORDS

Meningitis, Community Acquired, Acinetobacter Baumannii

INTRODUCTION:

According to literature, CNS infections caused by community acquired *A. baumannii* strains are uncommon, and usually associated with pre-existing chronic illnesses and comorbidities^[1]. *A. baumannii* is a Gram-negative, opportunistic coccobacilli with various mechanisms of resistance, resulting in the emergence of strains that are typically resistant to most commercially available antibiotics^[2]. However, our case presented with an organism that was sensitive to most antibiotics, which allowed for a wide range of therapeutic choices for successful treatment. The poor penetration of most antibiotics into the CNS poses a challenge for treatment. The emergence of community-acquired strains of *A. baumannii* causing CNS infections is a growing concern, and it is crucial for clinicians to recognize and appropriately manage these infections. Timely diagnosis, culture-directed antibiotic treatment, and judicious use of antibiotics can prevent the emergence of highly resistant strains.

Case Presentation:

A 66-year-old male with a known case of Type II Diabetes Mellitus with poor treatment compliance, and a reformed smoker, presented to the emergency department with complaints of a high-grade fever for 10 days that was associated with chills and rigor. It was followed by shortness of breath, graded as MMRC (Modified Medical Research Council) Grade II at onset, which rapidly progressed to MMRC Grade III. There was no associated chest pain, palpitation, syncope, pedal oedema, or orthopnoea. The patient developed acute onset of altered mental status for last 3 days, presenting as hypoactive delirium, decreased responsiveness, and excessive drowsiness. There were no associated abnormal body movements, vomiting, focal weakness, headache, vision problems, trauma to the head, abdominal pain, jaundice, altered bowel habits, rashes, joint pain, or bleeding manifestations.

Upon examination, the patient was found to have a GCS of E4V2M5 with no signs of meningeal irritation. Chest examination revealed bilateral coarse crepitation and bronchial breathing, indicating respiratory distress. The patient's condition deteriorated further on day four of admission with a fall in GCS to E2V1M4 and worsening respiratory status, requiring intubation and transfer to the intensive care unit (ICU) for further management. The patient was empirically started on Meropenem, Vancomycin, and Doxycycline. Initial investigations revealed leucocytosis with mild transaminitis. The tropical fever workup came back negative, and chest imaging showed active infective changes in bilateral lungs. CSF analysis was performed to evaluate the altered mental sensorium, revealing bacterial meningitis picture (Table 1a), that eventually grew

Acinetobacter baumannii with a sensitivity pattern different from nosocomial infections (Table 1b). A diagnosis of acute bacterial meningitis by Community acquired *Acinetobacter baumannii* was made. A Contrast Enhanced Magnetic Resonance Imaging (CEMRI) Brain scan was conducted, revealing Pachymeningitis (Fig 1). The patient continued to receive Meropenem, as the organism was sensitive to it, and the other antibiotics were de-escalated. Workup for tuberculosis came back negative. Over the course of the patient's stay, there was an improvement in their hemodynamic status and sensorium.

Table 1a : CSF analysis report

Opening Pressure	18cm of H2O
Colour	Crystalline White /Transparent
Total Leucocyte Count	50 cells/Cumm
Differential Leucocyte Counts	80% Polymorphs/ 20% Monomorphs
Protein (mg/dl)	191 mg/dl
Sugar(mg/dl)	109 mg/dl (Corresponding Blood Sugar: 220mg/dl)
Gram Stain	Few Gram negative bacilli seen

Table 1b: CSF culture report comparison

Community acquired strain (of patient)		Nosocomial strain
Antibiotics	Sensitivity	Sensitivity
Piperacillin-Tazobactam	Resistant	Sensitive
Amikacin	Resistant	Sensitive
Gentamicin	Resistant	Sensitive
Cefepime	Resistant	Intermediate Sensitive
Meropenem	Resistant	Sensitive
Imipenem	Resistant	Sensitive
Cotrimoxazole	Resistant	Sensitive
Ciprofloxacin	Resistant	Sensitive
Levofloxacin	Resistant	Sensitive
Colistin	Intermediate Sensitive	Intermediate Sensitive

Microorganism grown: *Acinetobacter baumannii*

Treatment and Follow Up:

The antibiotic therapy was optimized based on the cerebrospinal fluid culture and sensitivity report, which showed improvement in the patient's clinical condition. There was substantial improvement in the patient's sensorium following antibiotic therapy.

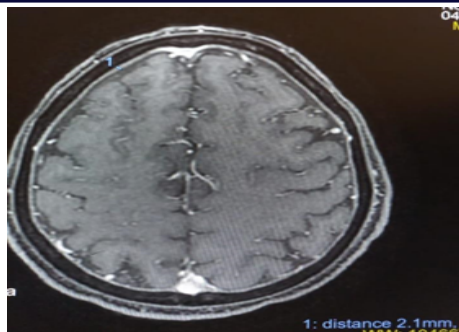


Figure legend: Figure 1: CEMRI (Contrast Enhanced Magnetic Resonance Imaging) Brain showing pachymeningeal enhancement suggestive of pachymeningitis

DISCUSSION:

Pyogenic meningitis caused by *A. baumannii* is a life-threatening condition that is mostly related to neurosurgical procedures and is known to be resistant to most commercially available antibiotics.^[3] However, community-acquired strains of *A. baumannii* are generally sensitive to many empirical antibiotics, providing a wide range of therapeutic options.^{[4][5]} Although *Acinetobacter* meningitis is mostly seen in paediatric patients, few cases have been reported in adults, and those typically involve nosocomial strains.

The review article by W N Chang et al. documented eight cases of community-acquired *Acinetobacter* meningitis. Of these cases, seven out of eight patients had no underlying comorbidities. The presenting complaints were fever and impaired consciousness, and the age range was between 19 and 63 years old. The severity of the cases varied, with two patients developing Waterhouse-Friderichsen syndrome. Unlike nosocomial strains, the isolates in these cases did not show multiple antibiotic resistance.^[6] This highlights the potential for *A. baumannii* to become a significant community pathogen in the future. While *A. baumannii* has been documented as a cause of pseudo-meningitis secondary to contamination during sample collection and transport, our patient's clear evidence of bacterial meningitis raises concerns about the organism's ability to adapt and cause severe infections in the community setting.^[7]

CONCLUSION:

Acinetobacter baumannii meningitis is a life-threatening condition, and community-acquired strains are a growing concern. It is important for clinicians to be aware of this potential pathogen and to use antibiotics judiciously to prevent the development of highly resistant strains. Timely diagnosis and culture-directed antibiotic treatment remain the best approach to managing these infections.

Conflict of Interest:

The author has no conflict of interest.

Consent:

Informed consent was taken from the patient after the improvement of sensorium.

Financial support: Nil

Key message:

Acinetobacter is emerging as a cause of community acquired meningitis.

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