

Background:

- *Stenotrophomonas maltophilia* – a gram-negative bacillus which is considered as a newly emerging pathogen of concern⁽¹⁾.
- It is recognized by WHO as underestimated Multi-Drug Resistant organism in hospitals⁽²⁾.

Mechanism of Resistance:

- Formation of Biofilm
- Two inducible enzymes; the class B zinc-dependent penicillinase (L1) and the class A serine cephalosporinase (L2)
- Target site modification
- genes *sul1* and *dfrA* through class 1 integrons utilizing different virulence exoenzymes

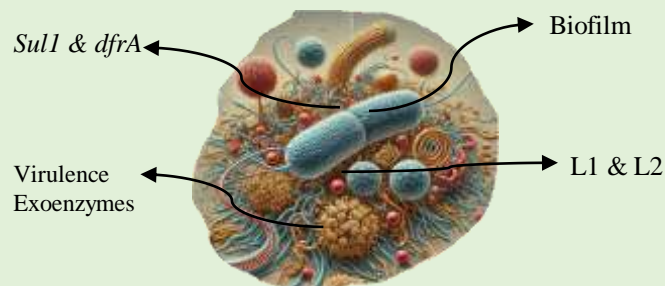


Figure 1: Mechanism of Resistance

Case History & Findings:

- A male patient of 19 years presented with a case of fever since 3 days with 3-4 episodes of vomiting and breathing difficulty.
- The patient was a known case of Pulmonary Artery hypertension with Hypothyroidism. Surgical history included PDA device closure.

Abstract:

This case involves a 19-year-old male with pulmonary artery hypertension and hypothyroidism, admitted with acute pulmonary edema and sepsis. *Stenotrophomonas maltophilia*, a multidrug-resistant pathogen, was isolated. Initially treated with empirical antibiotics, the patient was switched to intravenous levofloxacin based on culture results, leading to clinical improvement and discharge. The case highlights the importance of timely diagnostics and targeted therapy for resistant infections. The transition to oral antibiotics after IV therapy underscores effective treatment and the need for antimicrobial stewardship in managing hospital-acquired infections.

Culture Sensitivity: Organism Isolated: *Stenotrophomonas maltophilia*

Intrinsic Resistant drug

Ampicillin-Sulbactam, Amoxicillin-Clavulanate, Piperacillin, Ticarcillin, Piperacillin-Tazobactam, Cefotaxime, Ceftriaxone, Aztreonam, Imipenem, Meropenem, Ertapenem, Aminoglycosides and Trimethoprim

Susceptible

Co-trimoxazole and Levofloxacin (Not to be given as monotherapy)

Diagnosis :

- Acute Pulmonary oedema
- Sepsis

Table 2 : Definitive Therapy - Enhancement

Drug	Dose
Co-trimoxazole	400mg/2g BD
Levofloxacin	750mg OD

Table 1: Empirical Antibiotic regimen

Drug	Dose
Meropenem	1g TDS
Linezolid	600mg BD
Doxycycline	Mg BD

Discussion:

This case highlights the importance of timely diagnostics and tailored antibiotic therapy in managing bacterial infections. Despite the culture test being conducted six days after admission, the definitive treatment with IV levofloxacin began promptly following the culture report. Levofloxacin, known for its broad-spectrum activity, particularly against multi-drug resistant pathogens like *Stenotrophomonas maltophilia*, was an appropriate choice. The step-down to oral therapy underscores the effective transition from IV antibiotics, promoting outpatient management and minimizing complications associated with prolonged IV use. Complete reporting is essential for antimicrobial stewardship and improving outcomes, particularly in managing resistant infections. The patient's recovery and discharge highlight the successful outcome of this targeted therapeutic approach.

References:

1. Johnson AP, Duckworth GJ. The emergence of *Stenotrophomonas maltophilia*. *BMJ*. 2008 Jun 14;336(7657):1322.
2. Said MS, Tirthani E, Lesho E. *Stenotrophomonas Maltophilia*. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2024 [cited 2024 Oct 22]. Available from: <http://www.ncbi.nlm.nih.gov/books/NBK572123/>