Intrapleural colistin for pleural empyema caused by extensively drug-resistant *Pseudomonas aeruginosa*: A case report

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**BACKGROUND AND IMPORTANCE**

- Pleural empyema (PE) is a collection of pus in the pleural space → **High morbimortality** if it’s caused by **multidrug-resistant (MDR)** bacteria.
- The most common cause of empyema is a primary pneumonic process.
- **Intrapleural administration** of antimicrobials makes it possible to reach therapeutic concentrations at the pleural cavity, **limiting the adverse effects** associated with systemic treatment.

**AIM AND OBJECTIVES**

Describe the use of **intrapleural colistin (IpC)** in one patient with PE.

**RESULTS**

- Respiratory failure (necrotizing pneumonia) → **Retransplantation**
- Culture positive for *Pseudomonas aeruginosa* → intravenous (IV) ceftazidime 2g every 8 hours (h)
- *Pseudomonas aeruginosa* resistant to ceftolozane/tazobactam and ceftazidime–avibactam (MIC>250 μg/mL)
- IV ciprofloxacin 400 mg/12h
- IV amikacin 15 mg/kg/24h
- Nebulized colistin 5 MIU/8h
- Pleural empyema → *Pseudomonas aeruginosa* resistant to carbapenems → ceftolozane/tazobactam 2g/1g every 8h
- Persistence of **extensively drug-resistant (XDR)** *Pseudomonas aeruginosa* in the pleural fluid
- **Intrapleural colistin (IpC)** 0.5 MIU of colistimethate sodium were diluted in 50 mL of 0.9% physiological saline and instilled through the pleural drains every 12h (clamped for 2h)

**CONCLUSION AND RELEVANCE**

- The persistence of XDR *Pseudomonas aeruginosa* in our patient motivated the search for alternatives and IpC was chosen on the basis of a single case.
- **However, the efficacy could not be determined due to its poor tolerance.**
- Despite the limited amount of published data, the administration of intrapleural antibiotics may constitute a therapeutic option.

**MIU**: million international units; **MIC**: minimal inhibitory concentration