



Toxigenic *Corynebacterium diphtheriae* in Two Patients with Divergent Outcomes: Evidence of Nosocomial Transmission

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INTRODUCTION

- Diphtheria, caused by toxigenic *Corynebacterium diphtheriae*, remains a concern among unvaccinated populations.
- Although the incidence in Malaysia is low due to successful immunisation programs, sporadic cases still occur.
- Nosocomial transmission is infrequently reported but can have severe consequences.
- We report two temporally linked diphtheria cases with differing outcomes, raising concern for hospital-acquired transmission.

CASE 1

- 44-year-old detainee, unresponsive on arrival and succumbed shortly after.
- Post-mortem findings:** Diphtheritic pseudomembranes
- Tracheal/laryngeal swabs C&S:** *C. diphtheriae* (MALDI-TOF)
- Antimicrobial susceptibility testing (AST):** Intermediate to penicillin (MIC 0.50 µg/mL), Susceptible to erythromycin, gentamicin and vancomycin



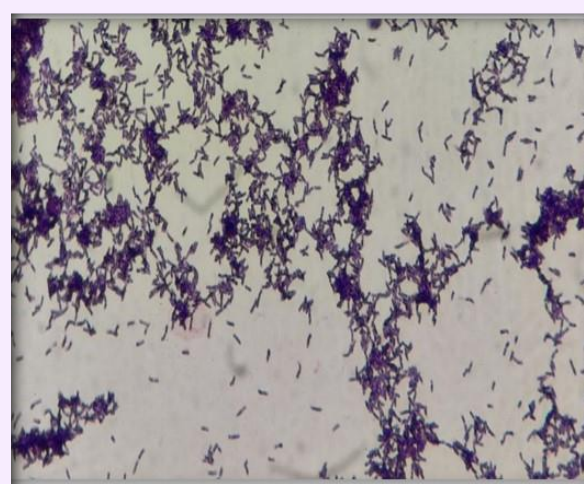
Extension of the pseudomembrane into the trachea



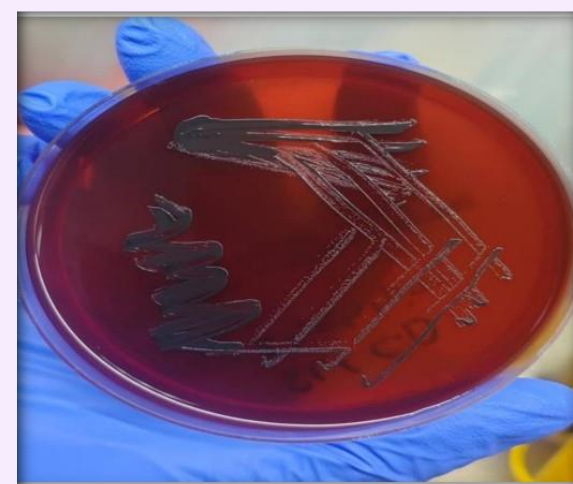
Oedematous epiglottis with pseudomembrane

CASE 2

- 4-month-old Rohingya refugee with only birth vaccinations presented with respiratory distress, fever, and poor feeding for 3 days.
- Required intubation and PICU admission
- Tracheal aspirate C&S:** *C. diphtheriae* (MALDI-TOF), AST similar to Case 1
- Recovered following administration of diphtheria antitoxin and antibiotic therapy



Gram positive rods, irregularly shaped ('coryneforms')



Small black colonies on Hoyles Tellurite Agar

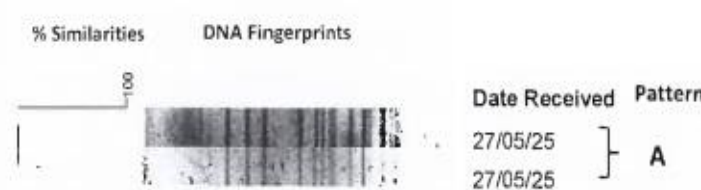
BOTH CASES



Positive Elek Test

- C. diphtheriae* confirmed **toxigenic** by Elek Test & PCR
- Pulsed-field gel electrophoresis (PFGE): 100% genetic similarity → Evidence of nosocomial transmission**
- Both had **overlapping exposure to the same healthcare personnel and setting.**

Dendrogram:



PFGE: 100% genetic similarity

CONCLUSION

- This report highlights a **probable case of diphtheria transmission within a healthcare setting**, emphasizing the need for **heightened clinical awareness and strict infection control**.
- It also marks the vulnerability of unvaccinated groups, including refugees and detainees.
- Continued molecular surveillance and prompt public health response are essential, even in low-incidence settings.

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