

A Case Report: Isolation of *Cupriavidus pauculus* Bacteria from the High Vaginal Swab among A Girl with UTI in Duhok City, Iraq

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Abstract: A Gram-negative rod known as *Cupriavidus pauculus* usually survives alone in soil and water, but it has also been remarkably isolated from immunocompromised people. This case report reported cases of girls in Duhok City, Iraq, who had a urinary tract infection and confirmed positive for *Cupriavidus pauculus*. This bacterium's rarity and antibiotic susceptibility are highlighted in the case report, which could be helpful for future cases. *Cupriavidus pauculus* was sensitive to several antibiotics such as colistin, meropenem, imipenem, levofloxacin, tigecycline, piperacillin/tazobactam, tobramycin, and amikacin. While this bacterium was resistant to amoxiclav, amoxicillin, cefixime, ceftazidime, cephalothin, tetracycline, and co-trimethoprim using the VITEK System 2.

Keywords: *Cupriavidus pauculus*, UTIs, Isolation, Antibiotic susceptibility.

INTRODUCTION

Cupriavidus pauculus (*C. pauculus*) is a gram-negative, aerobic, non-fermentative, positive for both catalase and oxidase, motile proteobacterium that is rarely isolated (Almasy, E. *et al.*, 2016; Vandamme, P. *et al.*, 2004). These bacteria are commonly found in nature, mainly in soil and water (Gomes, I. *et al.*, 2021; Duggal, S. *et al.*, 2013), and can occasionally result in serious illnesses in patients who are immunocompetent or immunocompromised (Duggal, S. *et al.*, 2013). Additionally, it is the primary source of several hospital outbreaks, particularly in critical care units (Yahya, R. *et al.*, 2019). This bacterium can be transmitted through tap and bottled water (Oie, S. *et al.*, 2006; Aydın, B. *et al.*, 2012). Several infectious diseases from around the world have been linked to *C. pauculus*, including bacteremia, hospital and community-acquired pneumonia, tenosynovitis, peritonitis, meningitis, corneal ulcers, and septicemia (Duggal, S. *et al.*, 2013; Noyola, D. E. *et al.*, 1999). This case report was documented as the first case report of *C. pauculus* from a high vaginal swab in Duhok City and Iraq in general.

CASE PRESENTATION AND DISCUSSION

In this case report, we found the first case of *C. pauculus* among a healthy girl 29 years old who attended the Department of Microbiology at Shyrian Private Hospital in Duhok City, this girl was diagnosed with urinary tract infection (UTI). A high vaginal swab was cultured on the chocolate, MacConkey, and blood agar plates and it was positive for *C. pauculus*. The *C. pauculus*

infection was initially identified by Stovall *et al.*, who defined it as a nosocomial contamination spread using extracorporeal membrane oxygenation apparatus (Stovall, S. H. *et al.*, 2010; Taşbakan, M. S. *et al.*, 2010). In Turkey, another instance of ventilator-associated pneumonia brought on by *C. pauculus* was documented. By administering imipenem therapy at a dose of 2 grams per day for eleven days, the pneumonia was successfully resolved (Abdullah, B. H. *et al.*, 2025; Abdullah, B. H. *et al.*, 2024). *C. pauculus* was sensitive to several antibiotics such as colistin, meropenem, imipenem, levofloxacin, tigecycline, piperacillin/tazobactam, tobramycin, and amikacin. At the same time, this bacterium was resistant to amoxiclav, amoxicillin, cefixime, ceftazidime, cephalothin, tetracycline, and co-trimethoprim using the VITEK System 2. The antibiotic sensitivity and resistance within the line of a study was done by Almasy, *et al.* (2016).

We report the first case of the isolation of *C. pauculus* in the high vaginal swab among a girl with UTI in Duhok City, Iraq. According to our knowledge, this is the first report of isolation *C. pauculus*. This bacterium's rarity and antibiotic susceptibility are highlighted in the case report, which could be helpful for future cases.

CONCLUSION

This case report shows that the *C. pauculus* can infect healthy people and cause UTIs. This bacterium's rarity and antibiotic susceptibility are highlighted in the case report, which could be helpful for future cases.

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