

**Author**

**Licence**

Filippos Vaskoudis

CC BY 4.0

**New Vistas**

Volume 12, Issue 1, 2026, UWL Annual Doctoral Students' Conference 2025

**Abstract**

**Introduction**

Antibiotic-resistant infections represent a growing global health crisis. The World Health Organization has identified antimicrobial resistance as a major threat to public health. Bacteriophage therapy presents a promising alternative to antibiotics, particularly for multidrug-resistant (MDR) infections. This report describes a neonatal polymicrobial skin infection resistant to antibiotics, which resolved following bacteriophage therapy, breastfeeding cessation, and topical antiseptic treatment.

**Methods**

A case report format was used to describe the clinical course. Five samples were obtained from the mother and neonate and tested at the University of West London. Species identification and antibiotic susceptibility testing were performed using the VITEK® 2 COMPACT system. Whole-genome sequencing (WGS) was conducted using both Illumina (paired-end 2×150 bp) and Oxford Nanopore platforms. Hybrid genome assembly was performed with Hybracter. KmerFinder confirmed species identity, while PubMLST assigned sequence types. Antibiotic resistance genes (ARGs) were identified using ABRicate.

**Results**

A male neonate, born at 37 weeks via caesarean section on August 19, 2023, presented with erythematous pustular skin lesions consistent with pyoderma. The mother had a history of intrauterine hypoxia and SARS-CoV-2 infection during the second trimester. Oral amoxicillin/clavulanic acid failed to resolve the infection. Laboratory testing identified haemolytic, MDR *Staphylococcus* spp. Discontinuation of breastfeeding, an 11-day course of bacteriophage therapy, and local antiseptic treatment led to substantial clinical improvement by September 7, 2023. WGS revealed that the *Staphylococcus haemolyticus* isolate belonged to sequence type (ST) 29 and carried nine chromosomal ARGs, including *mecA*. A plasmid encoding the *cat* gene was also identified. Staphylophage® showed activity against the isolate in spot assays.

**Conclusions**

This case underscores the complexity of maternal–neonatal MDR infections and highlights the value of phage therapy, targeted diagnostics, and close clinical monitoring in managing antibiotic-resistant cases.

**Keywords**

Neonatal, antibiotic resistant polymicrobial skin infection, Case Report