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Images in Infectious Diseases

Diabetic foot ulcers with myiasis: a potential route for resistance gene dissemination for enterococci?

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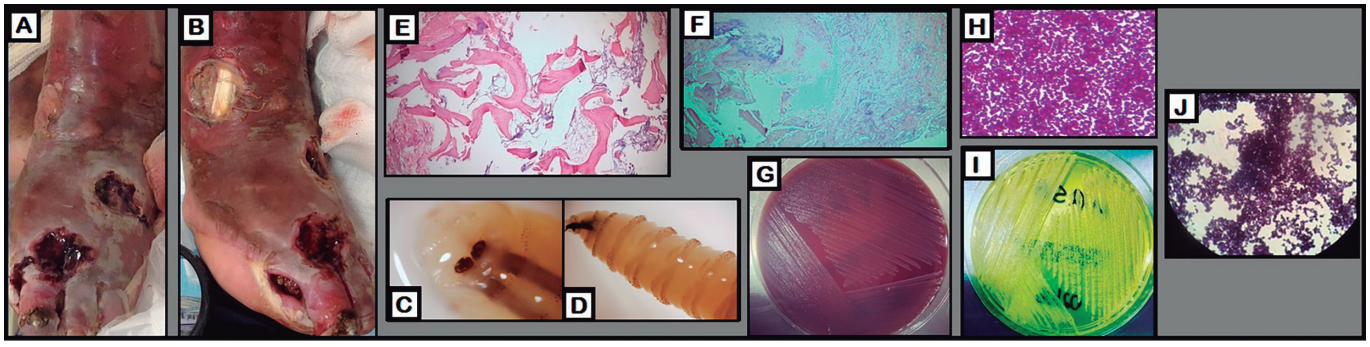

FIGURES (A, B): Diabetic foot with multiple infected wounds showing exposed part of the extensor digitorum longus tendon, typical erysipelas (wine-colored) with epidermis peeling, and necrotic areas. **(C):** A *C. hominivorax* larva in the third instar of development with anterior respiratory spiracles and dark tracheal trunks. **(D):** A *C. hominivorax* larva showing characteristic thorn-like spines. **(E, F):** Bone phalange biopsy exhibiting typical bone architecture disorganization, with dead bone areas (sequestrum), chronic inflammatory infiltrate, fibrosis, and suppurative exudates in the medullary region; hematoxylin-eosinstaining, 40x magnification. **(G):** Enterococci culture on sheep blood-containing agar. **(H):** Gram-positive diplococci, 40x magnification. **(I):** *S. aureus* culture on agar-containing petri plate. **(J):** Gram positive *S. aureus,* 40x magnification.

A 63-year-old man with uncontrolled insulin-dependent diabetes mellitus was admitted with fever, mental confusion, signs of peripheral artery disease, and deep wounds filled with myiasis larvae and emitting a fetid odor (**Figures A, B**). Eight larvae of *Cochliomyia hominivorax* (Coquerel, 1858), which feed on living tissues, were isolated from the lesion and identified based on a taxonomic key[1] (**Figures C, D**). Biopsy samples confirmed osteomyelitis (**Figures E, F**). Bone culture detected vancomycin-resistant strains of *Pseudomonas aeruginosa*, *Enterococcus gallinarum,* and *Enterococcus faecalis;* an erythromycin-resistant (MIC >8 µg/mL) and vancomycin-susceptible (MIC >2 µg/mL) *Staphylococcus aureus* strain was also detected (**Figures G, H, I, J**). Previously, lesion cultures have only detected methicillin-resistant *S. aureus* strains with MICs of 0.5-1µg/mL. Despite the use of *piperacillin*/tazobactam and carbapenem regimens, ischemia was irreversible; Syme's amputation was performed successfully.

S. aureus and *P. aeruginosa* are virulent bacteria that are frequently resistant to common antibiotics. However, vancomycin-, tigecycline-, and linezolid-resistant *S. aureus* strains are rare. Various studies have identified a link between vancomycin- (MIC ≥16 µg/mL) and erythromycin-resistant *S. aureus* and enterococci, mediated by the acquisition of the transposon Tn1546[2,3]. Antibiotic abuse is most likely responsible for increased resistance; this article highlights the potential of gene exchange between enterococci and *S. aureus* in clinical scenarios during their co-existence in chronic wounds for long time periods.

Conflict of interest

The authors declare that there is no conflict of interest.

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