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Staphylococcus haemolyticus palm infection in an apparently healthy adult

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ABSTRACT

A *Staphylococcus haemolyticus* strain has been isolated from the palm infection of an allied-health professional aged 35, who was otherwise healthy and without any known health issues. Microbial culture, MALDI-TOF species identification and susceptibility tests were included. The isolated strain was resistant to ampicillin and amoxycillin; however, the patient quickly responded after commencement of treatment with sulfamethoxazole and trimethoprim.

Keywords: amoxycillin resistance, ampicillin, antibiotic susceptibility, coagulase negative, commensal, culture, MALDI-TOF, palm infection, *Staphylococcus haemolyticus*.

Staphylococci are Gram-positive bacteria that are phenotypically diverse and contribute to the normal microbiota of skin and mucosal membranes of humans. Many Staphylococci are catalase positive, which differentiates them from streptococci, and are generally divided into coagulase-negative staphylococci (CoNS) and coagulase-positive staphylococci (CoPS) based on the production of the clotting enzyme coagulase. Coagulase positivity is often the confirmation test for *Staphylococcus aureus,* a CoPS that has been recognised as an important pathogen for decades while in general CoNS are considered commensals and mostly regarded as contaminants (or irrelevant 'by-standers') when found in infections.[1,2] However, in recent years, CoNS have been recognised as major opportunistic nosocomial pathogens and are a threat to immuno-compromised patients and patients with indwelling medical devices.[3,4] *S. haemolyticus* is a coagulase-negative staphylococcus that is receiving greater attention in recent years causing infection in the hospital and other clinical settings.[1,5]

Here, we report a *S. haemolyticus* infection of the palm of an allied health professional aged 35 who worked as a phlebotomist in a private pathology lab. Skin scrapings were presented for microscopy, culture, and sensitivity for bacterial and fungal infection. The person presented with cracked skin on the left palm followed by a general practitioner referral and indicated that the skin rash had been present for 2 months, that it was itchy and had spread over time to a wider area on the left palm. The use of nitrile gloves was suggested for work, assuming that the rash could have been due to a latex glove allergy. The scraping was cultured on horse blood agar, chocolate agar and mannitol salt agar (PathWest Media, Perth, WA, Australia) for methicillin-resistant *S. aureus* (MRSA) detection with cefoxitin (Oxoid, ThermoFisher Scientific, Australia) at 35°C for 24 h. A portion of the skin scraping was sent to Pathwest Laboratory, Perth, WA, Australia. Blood agar showed *beta* haemolytic off-white colonies, chocolate agar showed off-white colonies and mannitol salt agar with a cefoxitin disc did not show any growth. The beta haemolytic colonies from blood agar and colonies from Chocolate agar were tested for catalase activity with 3% hydrogen peroxide and tested for coagulase activity using Staphurex (ThermoFisher Scientific) latex agglutination test. The colonies from both media were positive for catalase activity and negative for coagulase activity. The cultures were then subjected to rabbit plasma (STAPH-ASE, Biomérieux, France, supplied by Blackaby Diagnostics, Australia) tube coagulation test and were negative for the tube test. The colonies were tested by MALDI-TOF biotyper (Bruker) and identified as *S. haemolyticus*. Antimicrobial susceptibility testing was carried out following the Kirby–Bauer disc diffusion method.[6] The antimicrobials tested included ampicillin, trimethoprim and sulfamethoxazole, cephalothin, erythromycin, and tetracycline, oxacillin and cefoxitin (Oxoid, ThermoFisher). The isolate showed resistance to ampicillin and was susceptible to the rest of the antibiotics. There were no fungal elements seen by microscopy and the specimen was negative by fungal culture as reported by PathWest Laboratory.

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To the best of our knowledge, this is the first reported infection of *S. haemolyticus* in an apparently healthy individual. The individual was treated with topical cotrimoxazole 1% and hydrocortisone 1% and the infection and the spread subsided in 1 week. Neither the degree of contagiousness of the *S. haemolyticus* skin infections nor the prevalence of infections in apparently healthy adults are known, so further research is required to study the infectivity and contagiousness of this pathogen among healthy adult individuals.

Participant consent

The patient has consented for this investigation to be published to create public health awareness about this pathogen.

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Data availability. There are no additional data, the data presented in the methods of this manuscript are presented in the paper.

Conflicts of interest. The authors declare that they have no conflicts of interest.

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Biographies

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Clay Golledge is the Executive Director at Infections West, Hollywood Medical Centre. Clay has worked as a Senior Consultant in microbiology at the Health Department Western Australia and PathWest Sir Charles Gairdner Hospital (SCGH).

Jonathan Grasko is a chemical pathologist and managing director of Saturn Pathology. Jonathan has expertise in toxicology and served in different pathology services as a chemical and toxicology expert for more than a decade.

Yael Grasko is a chemical pathologist and has a business management specialisation. Yael is the medical director of Saturn Pathology and has worked as a chemical pathologist at QML Pathology Services and other pathology facilities for more than a decade.