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Variation in microscopic and colony morphology and biochemical and antibiotic resistance properties in isolates of *Burkholderia pseudomallei* in Sri Lanka

E Corea*

Department of Microbiology, University of Colombo, Colombo

B. pseudomallei is the cause of melioidosis. As the clinical presentation is highly variable and melioidoisis rare, diagnosis hinges on accurate identification of isolates from clinical specimens in the microbiology laboratory. *B. pseudomallei* is characterised as an oxidase positive, bipolar staining Gram negative rod. Colonies are initially smooth but become wrinkled after prolonged incubation and have a distinctive sweet, earthy odour. *B. pseudomallei* is resistant to gentamicin, polymyxin and colisitin. Isolates tend to form a pellicle in broth culture.

Five isolates of *B. pseudomallei*, from clinical specimens of patients with melioidosis, which had their identity confirmed by PCR (Inglis TJJ et al. Comparison of diagnostic laboratory methods for identification of *Burkholderia pseudomallei.* Journal of Clinical Microbiology 2005; 43:2201-6) were included. Pure cultures were sub-cultured on human blood agar and sheep blood agar and inoculated into brain heart infusion broth. Colony morphology and Gram stain appearance after 48 hours and 96 hours was recorded. Time for the oxidase test to become positive was recorded. Presence of a pellicle in BHI after 48 hours was noted. Sensitivity to gentamicin, polymyxin and colistin was tested using the standard CLSI antibiotic sensitivity method.

Only 2 had the typical Gram stain appearance. Only 2 had identical chalky white, dry wrinkled colonies. The others varied from frankly moist to dry and from tiny, pinpoint to large. Although beta haemolysis on blood agar is not described as a feature of this bacterium 2 isolates showed beta haemolysis on human blood agar but not on sheep blood agar. Four isolates had the characteristic earthy odour. Four isolates gave rapid oxidase positivity but in one isolate this was delayed for more than 20 seconds and subsequently completely lost. Three isolates gave heavy pellicles on BHI broth and one had none. Only two isolates showed gentamicin, polymyxin and colistin resistance. Two tested sensitive to all the antibiotics. Variation in morphology and biochemical properties in *B. pseudomallei* is common and may lead to misidentification and misdiagnosis.

enokacorea@hotmail.com Tel: 0777808 439