ABSTRACT BOOK
LATE-BREAKING ABSTRACTS

24TH WORLD CONGRESS OF DERMATOLOGY
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INFECTIOUS DISEASES (BACTERIAL, FUNGAL, VIRAL, PARASITIC, INFESTATIONS)

HANDHELD DEVICE FOR RAPID REAGENT-LESS SCREENING OF INFECTIONS IN SKIN AND SOFT TISSUE PATIENTS

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Background: Skin infections are the most common communicable disease in India affecting 10-12% of Indian population. A variety of causative bacteria and fungi makes it harder to diagnose and propose an effective treatment immediately especially in rural areas due to lack of access to qualified dermatologists.
Management of skin and soft tissue infections requires early expert infection assessment and remains a major challenge for the clinicians. Assessment also necessitates culture-sensitivity/KOH staining of the swab.
Each bacteria/fungus has a characteristic emission fluorescence when excited with different wavelengths of light. A novel device, developed by us, leverages this auto-fluorescence property enabling us to develop a multispectral imaging platform.

Objective: A pilot study to assess the sensitivity of a novel contactless handheld device using fluorescence in detecting bacteria and fungi in patients presenting to the Dermatology department.

Material and methods: After taking ethical clearance, 64 patients with infections were imaged by a handheld, portable device for non-contact and non-invasive imaging. It captures the spectral signatures of metabolic growth markers along with markers released when a microbiome causes infection to detect and assess the bacterial gram type without the use of contrast agents.

Results: Of the 64 patients imaged, our device were able to detect pathogens both bacteria and fungi. The spectral results were compared against swab culture/koh staining as appropriate and the device was able to detect 30 bacterial sites, 31 fungal sites and no infection in 3 sites. The device was also able to pick up co-colonized wounds.

Conclusion: The device can be used as an important tool in guided swabbing, assessment of a wound and understanding its microbiome pattern. The device helps to differentiate infected from non-infected wounds, classifies the infected ones broadly according to gram type bacteria and fungus and also enables real time follow up of wounds.

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