

Use of the MolecuLight *i:X*TM Imaging Device can help to guide clinical decision making in the management of burns and traumatic wounds

Use of the MolecuLight *i:X* Device contributed to successful wound closure in two amputees and may help to reduce the risk of skin graft failure



Study overview

- A literature review of the utility of the MolecuLight *i:X* Device in the management of burns and traumatic wounds plus two cases demonstrating its use in patients who developed abscesses 6 weeks after a lower limb amputation
 - Patient 1 – male, aged 36 years, with osteomyelitis of the tibia that required above knee amputation
 - Patient 2 – male, aged 47 years, with burns to the right leg that required amputation above the knee



Key results

Literature review

The MolecuLight *i:X* Device was used successfully to help:

- Target swabs in burns with no clinical signs and symptoms of infection
- Map bacterial burden to guide wound debridement with real-time feedback on the quality of debridement
- Inform clinical decision making on appropriate use of antibiotics in acute and chronic wounds

Patient 1

- Six days after irrigation negative pressure wound therapy of the abscess (NPWT; octenidine hydrochloride solution), the wound was assessed visually and using the MolecuLight *i:X* Device, with no evidence of bacterial fluorescence (confirmed by swab testing)
- Images from the MolecuLight *i:X* Device provided confidence that the wound could be closed safely

Patient 2

- An abscess on the amputation stump was cleaned and treated with irrigation NPWT (1 week); the wound granulated well without clinical signs and symptoms of infection
- Grafting was delayed after bacterial fluorescence was detected on the lower wound edge using the MolecuLight *i:X* Device (Figure; within dotted line)
 - Swab testing confirmed the presence of *Escherichia coli* and *Proteus mirabilis*

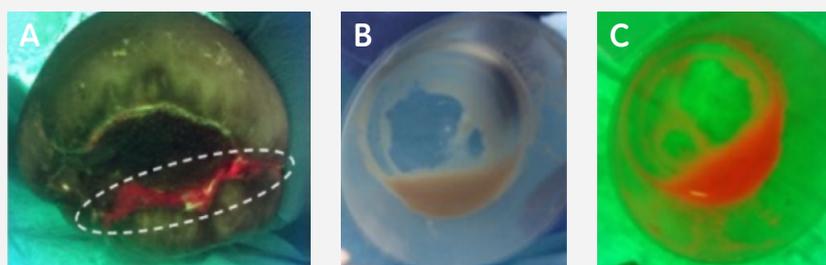


Figure. MolecuLight *i:X* Device imaging of an asymptomatic lower limb amputation stump (Patient 2) that was scheduled for skin graft showing area of red fluorescence (A), which resulted in graft delay. In addition, standard (B) and MolecuLight *i:X* images (C) of pus drained from the wound are shown.

Continued P2 >>

Evidence in focus (continued)



Conclusion

Use of the MolecuLight *i:X*TM Device can help to guide swabbing and debridement, as well as facilitate antimicrobial stewardship practices. In two patients with lower limb amputations, images from the MolecuLight *i:X* Device supported clinical decision making and may have helped to avoid a skin graft failure.



Considerations

- The authors commented that a failed skin graft operation could have cost the hospital ~£3,500 (plus costs of treating a failed infected skin graft)



Study citation

*Jeffery S. The utility of MolecuLight bacterial sensing in the management of burns and traumatic wounds. Proc SPIE 10863, Photonic Diagnosis and Treatment of Infections and Inflammatory Diseases II, 1086304 (7 March 2019).

Available at: [SPIE Digital Library](#)

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