

The Use of MolecuLight in Hidradenitis Suppurativa: A Case Series Exploring Point-of-Care Bacterial Imaging

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Background

- Hidradenitis suppurativa (HS) is a chronic inflammatory skin disease that commonly affects intertriginous areas such as the axillae, groin, and anogenital region.¹⁻³
- HS wounds are known to be heavily colonized by bacteria and most commonly *Staphylococcus aureus* (*S. aureus*) (≈45%).¹
- Because infection can impede healing in chronic wounds, early and accurate identification of bacterial burden is needed for timely intervention.

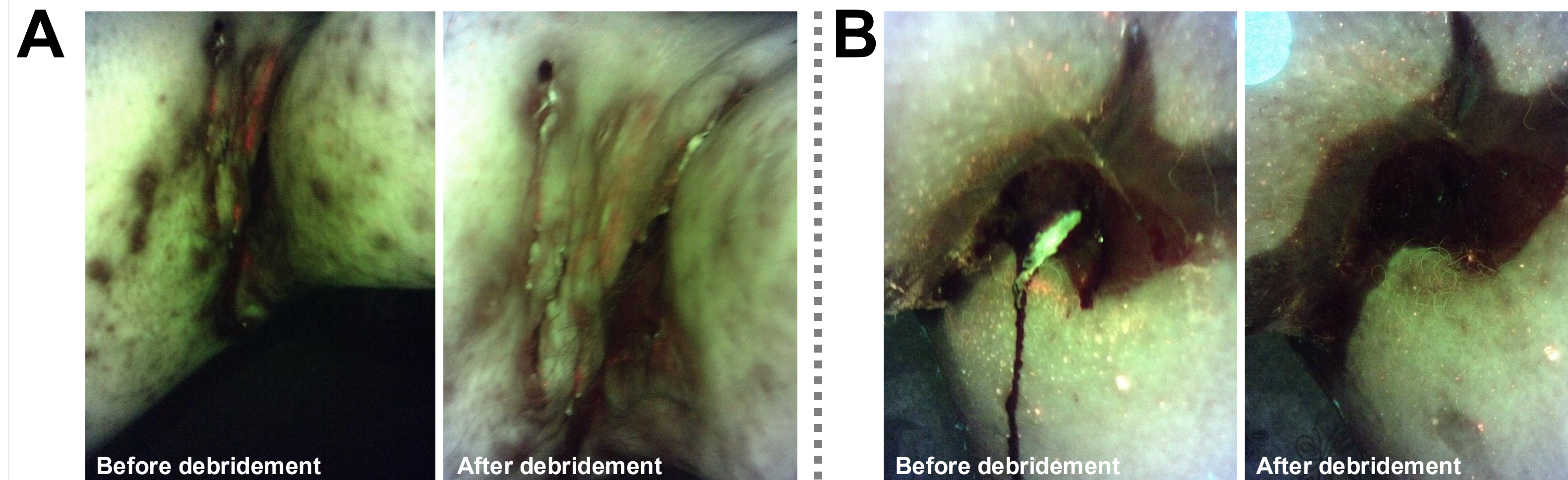
Aims

- To assess how real-time bacterial fluorescence imaging (BFI) can support detection of clinically significant bacterial burden and inform wound cleansing and treatment decisions in patients with chronic HS wounds.

Methods

- Study type:** Case series evaluating point-of-care BFI in HS wounds.
- Patients:** Two patients with chronic axillary HS wounds followed in an outpatient wound clinic for ~1 year.
- Imaging protocol:** At each visit, wounds were assessed using the MolecuLight i:X (MolecuLight Inc., Toronto, Ontario, Canada) device before and after standard wound cleansing to visualize bacterial fluorescence in real time.
- Clinical data:** Wound characteristics, symptoms, treatments, and imaging findings were documented longitudinally during routine follow-up visits.

Case 1: Fluorescence-Guided Management of Bilateral Axillary HS Wounds



Case summary: A 17-year-old male with bilateral axillary HS underwent staged surgical and wound management supported by BFI. (A) Fluorescence imaging showed red fluorescence in the left axilla, consistent with elevated bacterial burden. Following wound cleansing, the fluorescence signal persisted, indicating that washout alone was insufficient. Mechanical debridement was performed, resulting in a reduction in fluorescence signal, demonstrating decreased bacterial burden. (B) At follow-up (7 weeks after last visit), the left axillary wound had remained persistent. Fluorescence imaging again showed red fluorescence. As in the prior visit, cleansing alone did not reduce fluorescence, while mechanical debridement resulted in a visible decrease in fluorescence signal, reinforcing the role of targeted debridement when washout alone was insufficient. At the last visit (~30 weeks of follow-up), the wound showed gradual improvement with intermittent drainage and pain during care. The patient was longitudinally monitored for infection risk using bacterial fluorescence imaging with the MolecuLight i:X, with ongoing debridement and antimicrobial wound care as needed.

Finding: Fluorescence imaging provided point-of-care visualization of bacterial burden and showed that mechanical debridement rather than cleansing alone was required to effectively reduce bacterial fluorescence in this HS wound.

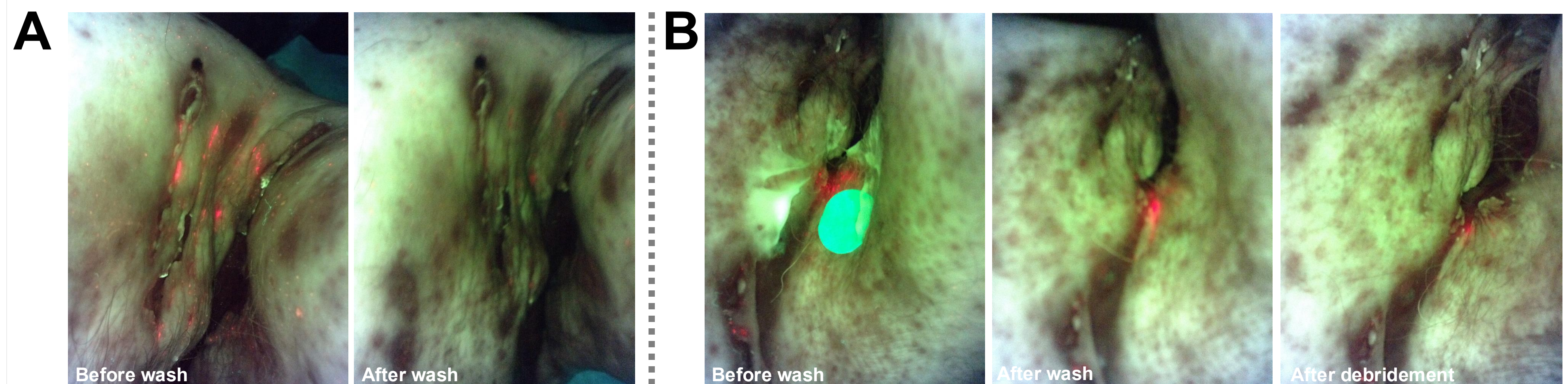
Clinical Relevance

- Real-time BFI provided point-of-care visualization of bacterial burden, enabling clinicians to determine whether routine cleansing was sufficient or if escalation to mechanical debridement was required.
- Comparing fluorescence images before and after washout or debridement provided immediate feedback on wound hygiene effectiveness, supporting targeted intervention and more informed management of complex HS wounds.

Conclusions

- Across both HS cases, BFI consistently identified clinically significant bacterial burden and showed observable reductions in fluorescence following targeted wound care interventions.
- Serial fluorescence imaging enabled objective monitoring of bacterial burden over time, providing visual evidence of treatment response during wound care management.
- These cases illustrate the value of fluorescence imaging as an adjunct tool for evaluating bacterial burden and supporting management of complex HS wounds.

Case 2: Fluorescence-Guided Management of Chronic Left Axillary HS Wound



Case summary: 44-year-old male with chronic hidradenitis suppurativa presented with a persistent left axillary wound with areas of undermining and pain during wound care. (A) Fluorescence imaging showed red fluorescence in the left axilla, consistent with elevated bacterial burden. The wound was cleansed and scrubbed with Vashe, which led to a visible reduction in fluorescence, demonstrating the effectiveness of targeted cleansing in reducing bacterial burden. (B) At follow-up (7 weeks after last visit), fluorescence imaging again showed red and cyan fluorescence in the left axilla. Washing removed the cyan fluorescence but did not reduce the red signal, whereas mechanical debridement decreased the red fluorescence, indicating reduction of bacterial burden following escalation of intervention. At the last visit (12 months of follow-up), the wound had gradually improved with continued hygiene, antimicrobial dressings, and periodic debridement, while bacterial burden and infection risk were longitudinally monitored using fluorescence imaging with the MolecuLight i:X device.

Finding: Fluorescence imaging provided point-of-care visualization of bacterial burden and helped determine when cleansing was sufficient versus when escalation to mechanical debridement was required to reduce bacterial fluorescence.



References: [1] Sandru F, et al. *Antibiotics*. 2025;14(1):53. [2] Chu CB, et al. *Chin J Physiol*. 2021;64(6):257–265. [3] Goldberg SR, et al. *J Am Acad Dermatol*. 2020;82(5):1045–1058.

Abbreviations: BFI, bacterial fluorescence imaging; HS, hidradenitis suppurativa.