

Superabsorbent Dressing Impact on Fluorescing Bacteria in the Real-World Setting

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Background

- Wound exudate contains bacteria, matrix metalloproteases, and other related biofilm material.¹ The use of wound dressing technology to remove and sequester these materials are thought to improve wound outcomes.
- Although there is increased use of superabsorbent polymer (SAP) dressings to control exudate and reduce dressing changes, most bacterial sequestration data are limited to in vitro^{1,2} or focus on in vitro dressing failure and strikethrough as surrogates for bacterial contamination of the wound or patient environment.³
- It is unclear if SAP dressings can demonstrate wound surface bacterial reduction or environmental sequestration in the real-world setting.

Purpose

- Evaluate the impact of a SAP dressing* on bacterial sequestration by performing real-time visualization of bacterial fluorescence (BF) of the wound bed prior to and after removal of the SAP. Additionally, bacterial transfer to the environment via leakage or strikethrough was assessed via BF.

Outcome

- The SAP dressings were found to uptake and sequester exudate containing fluorescing bacteria with positive impacts on the wound bed in ten highly exudative wounds. The SAP did not demonstrate leakage or strikethrough that would indicate bacterial transfer returning to the wound, its surrounding skin or into the patient's environment. Representative **Cases 1 and 2** are shown below.

Conclusion

- SAP dressings can improve the wound bed environment by impounding exudate including fluorescing bacteria that can be impede wound improvement.

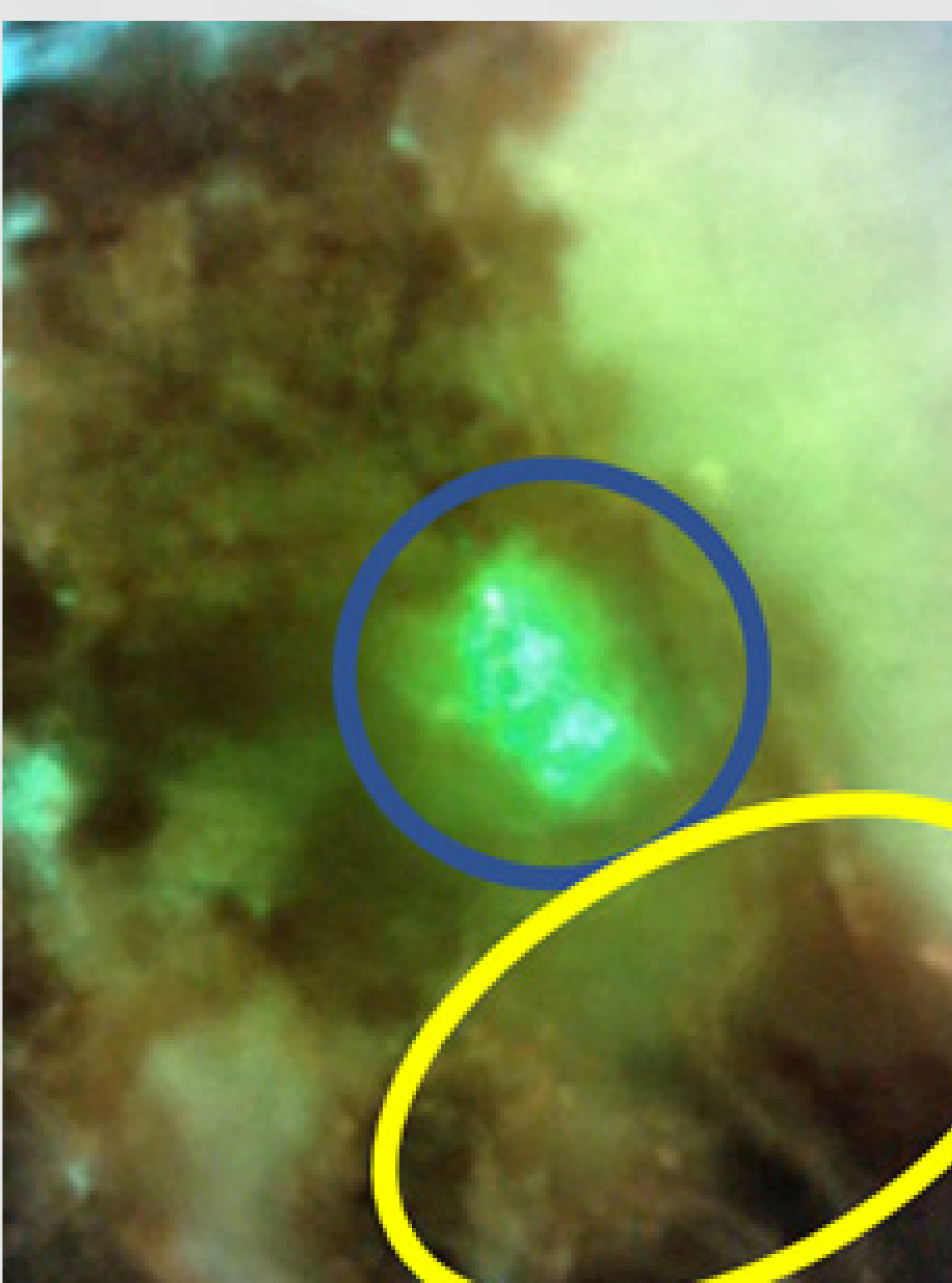
References

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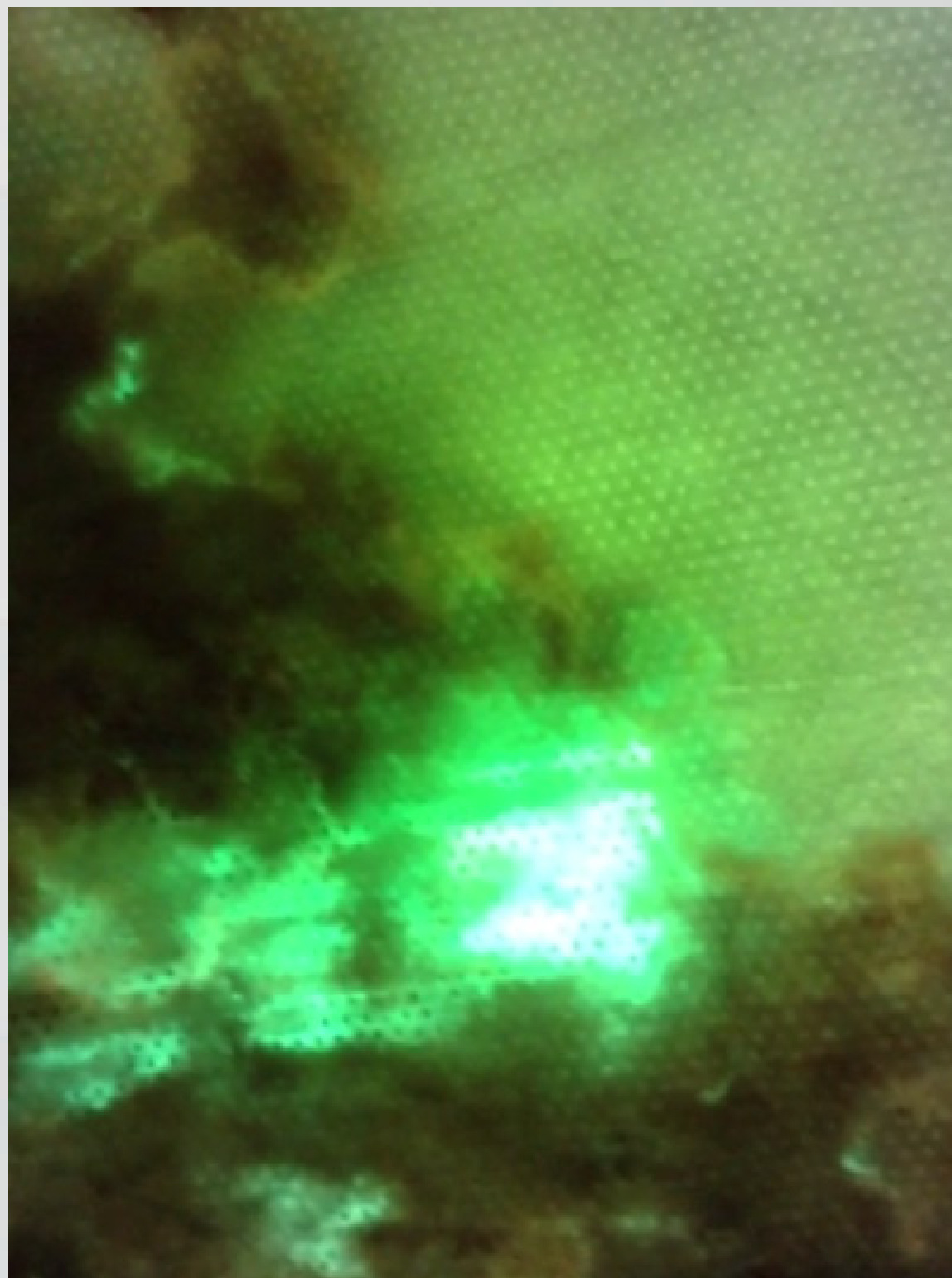
Case 1. Venous leg ulcer exudate on superabsorbent dressing.



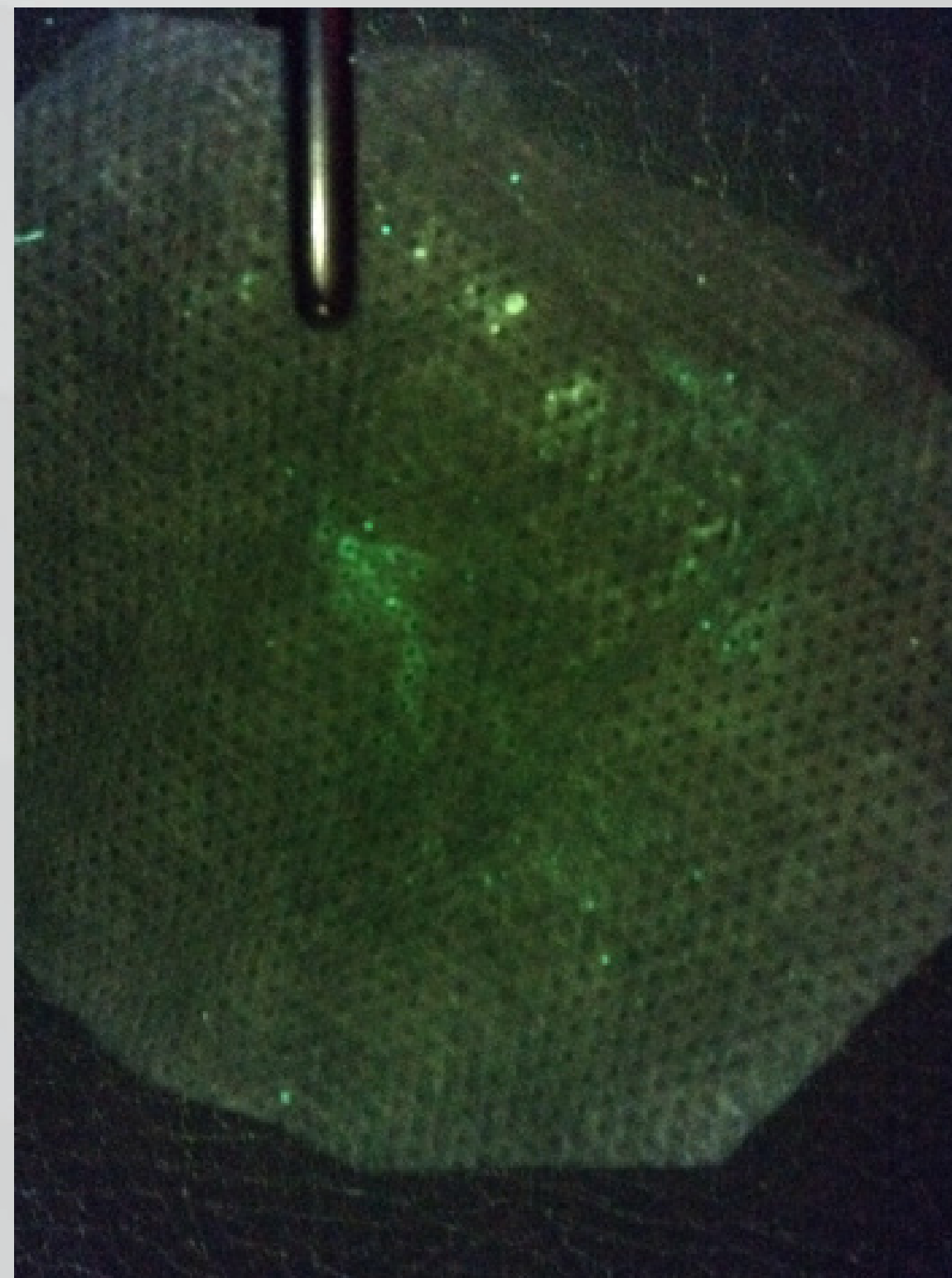
A. Appearance of SAP dressing when removed. Image shows wound contact side.



B. Dressing under bacterial fluorescence showing cyan fluorescence indicating *Pseudomonas aeruginosa* (blue circle) and red fluorescing bacterial species (yellow circle)



C. Close up of wound contact side of superabsorbent dressing under bacterial fluorescence.

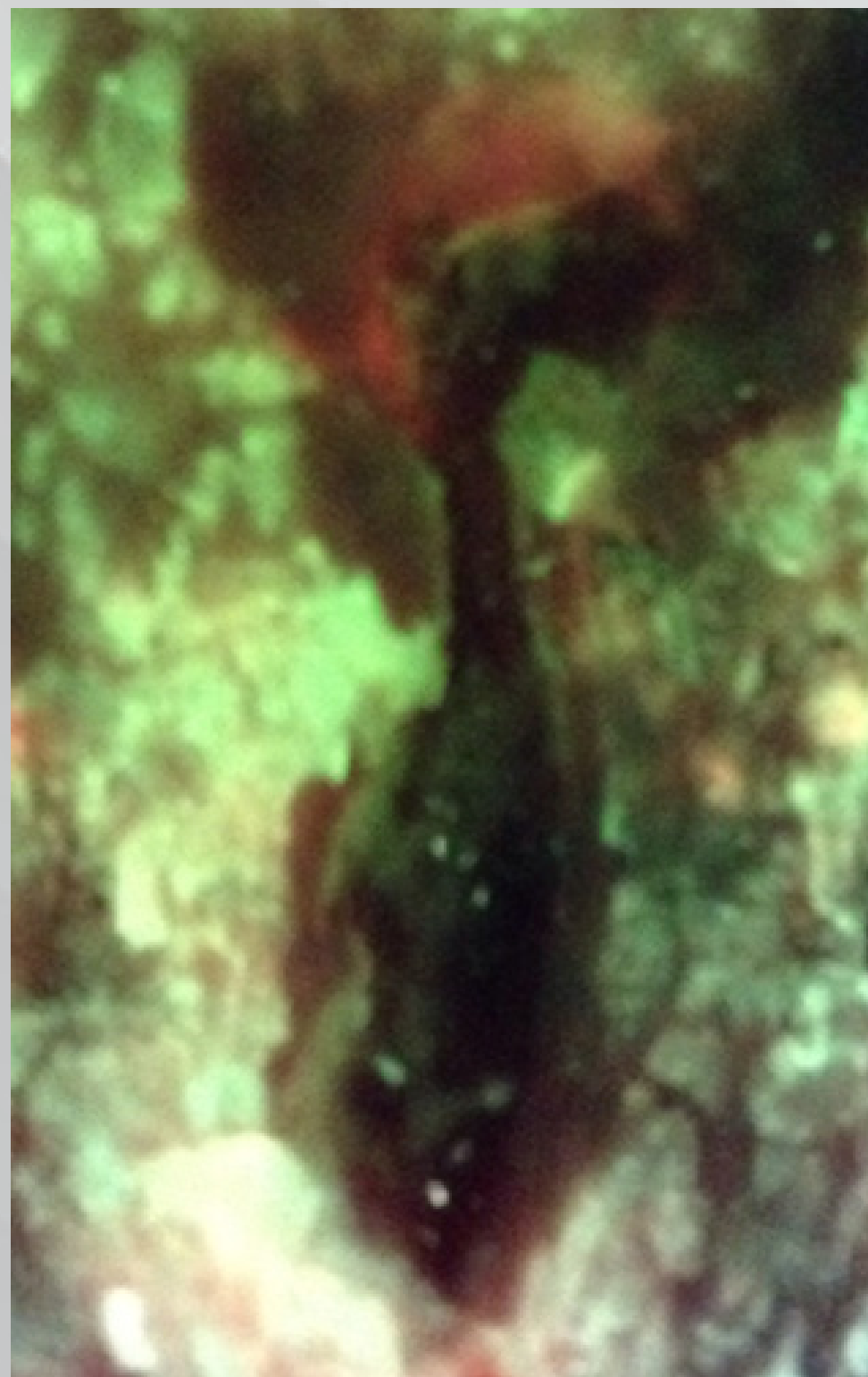


D. Removal of contact layer from superabsorbent dressing (wound side) revealing no fluorescence, suggesting that bacteria are “wicked through” this layer and sequestered into the dressing.

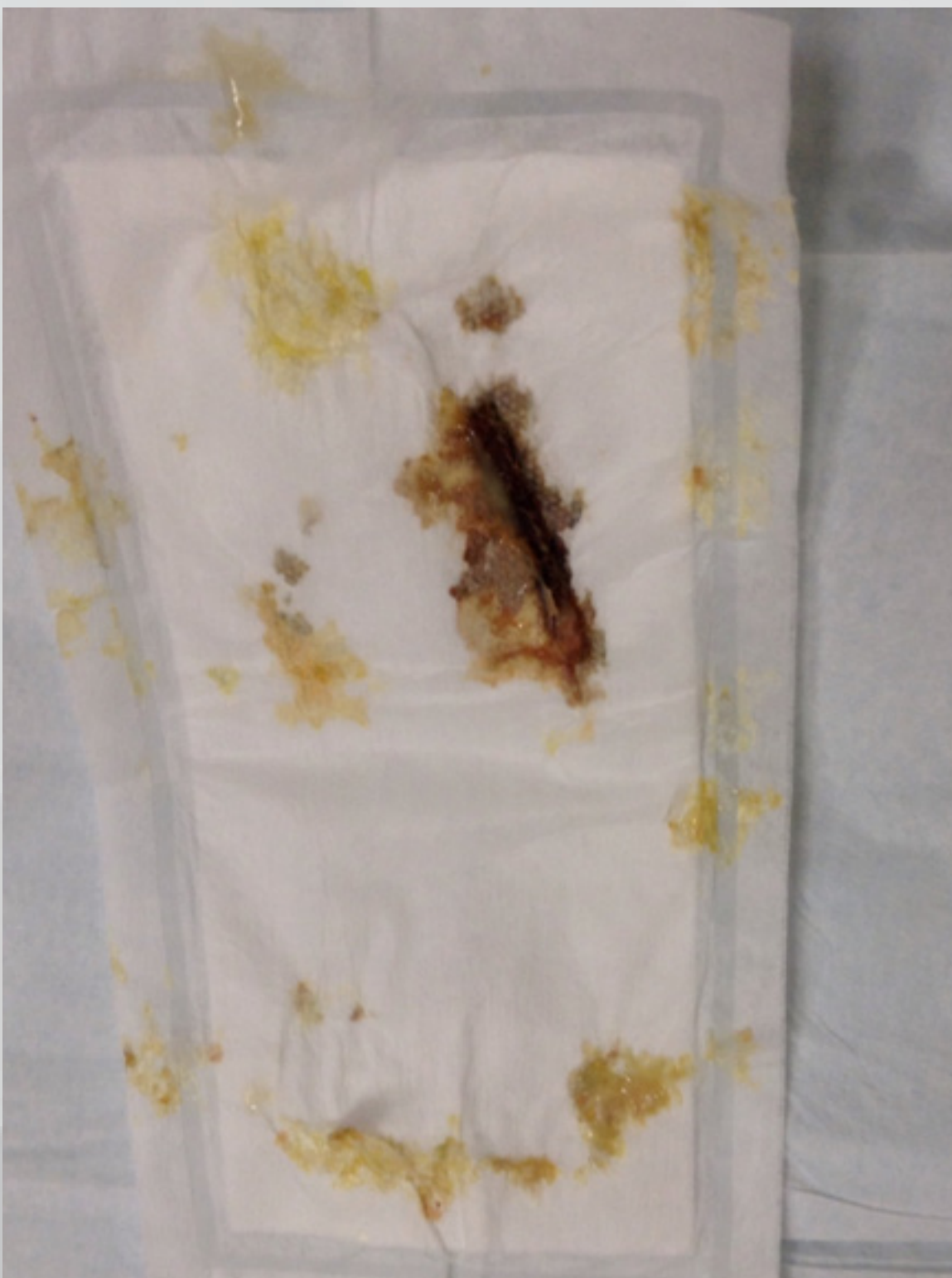
Case 2. Highly exudative left lower leg wound with venous insufficiency and lymphedema.



A. Wound appearance upon removal of compression dressing.



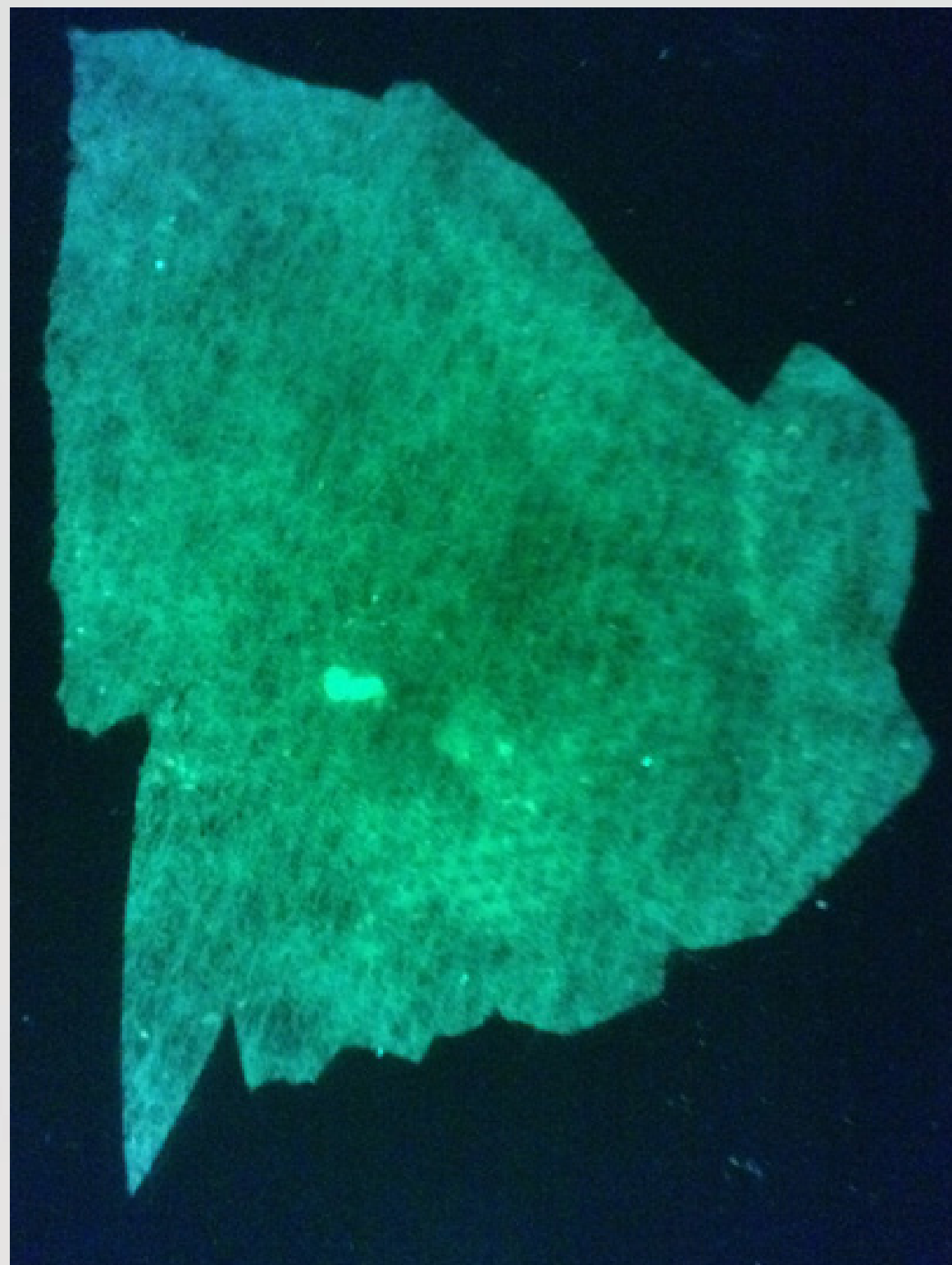
B. Fluorescence of leg wound with red bacterial fluorescence.



C. SAP dressing used under compression with exudate. Note vertical wicking.



D. Bacterial fluorescence of SAP dressing.



E. Contact layer (wound side) under bacterial fluorescence suggesting exudate transfer into superabsorbent core under compression with no fluorescing bacteria in contact with patient.

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NOTE: Specific indications, contraindications, warnings and precautions, and safety information exist for these products and therapies. Please consult product labeling prior to use.
As with any case study, the results and outcomes should not be interpreted as guarantee or warranty of similar results. Individual results may vary depending on the patients circumstances and condition.

*KERRAMAX CARE™ Dressings (Systagenix Wound Management Ltd., Knutsford, UK)
The author wishes to thank 3M for the preparation and production of this poster.
Catherine Milne is a consultant of KCI, now a part of 3M Company (San Antonio, TX).