DEBX MEDICAL

DEBRICHEM®

MOLECULIGHT SERIES CASE STUDIES

VICENZA IT
THOMAS SERENA, ALBERTO COGO

MolecuLight

MolecuLight *i:X*™
Wound Imaging Device

The MolecuLight device is a portable imaging tool used in wound care to visualize and assess bacterial load on a wound directly at the point of care.

It uses fluorescence imaging to detect bacteria on the wound surface. The device emits a safe non-ionizing violet light over the wound area, which upon absorption by bacterial colonies, causes them to fluoresce in distinct visible colors based on their species.

These colors enable real-time visualization of bacteria in the wound and help clinicians see the immediate impact of DEBRICHEM® on the bacterial load.

MolecuLight's sensors capture this fluorescence in real time. The resulting image reveals color-coded information based on bacterial presence.

- **Red Fluorescence:** Indicates a high bacterial load (typically >10^4 CFU/g), commonly from bacteria such as *Staphylococcus aureus or Enterococcus faecalis*. (bacterial names should be italicized according to convention)

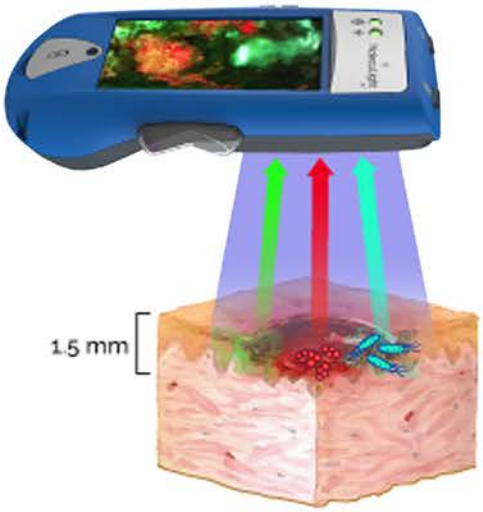
- **Cyan Fluorescence:** Suggests the presence of bacteria such as *Pseudomonas aeruginosa* also indicating high bacterial levels.

- **No/Greenish Fluorescence:** Implies minimal or no bacterial presence, suggesting low risk of infection.

MolecuLight

MolecuLight *i:X*™

Wound Imaging Device



LEGEND

VIOLET EXCITATION LIGHT

SIGNAL FROM GREEN FLUORESCING SKIN

SIGNAL FROM RED FLUORESCING BACTERIA
Staphylococcus aureus, Escherichia coli, etc.

SIGNAL FROM CYAN FLUORESCING BACTERIA
Pseudomonas aeruginosa

DEBX MEDICAL

CASE 52:

48-YEAR-OLD MALE
WITH POLYARTERITIS NODOSA

GENERAL MEDICAL HISTORY

WOUND SINCE: 7 MONTHS
ARTERIAL HYPERTENSION
POLYARTERITIS NODOSA
SEX: MALE
AGE: 48
EFFECT OF DEBRICHEM®:
50% RE-EPITHELIALIZATION
(100% GRANULATION) IN 1 MONTH

DESCRIPTION

The patient, diagnosed with Polyarteritis Nodosa and arterial hypertension, presented with a wound persisting for seven months (Figure A).

As part of the treatment strategy, the patient was initially treated with iodine gauze, followed by a single 60-second application of DEBRICHEM®. To assess bacterial load before and after the procedure, MolecuLight imaging was performed (Figure B and C).

Post-DEBRICHEM®, the patient underwent four weeks of NPWT (Negative Pressure Wound Therapy), with Acticoat applied as an interface layer between the wound and NPWT foam. At one week, spontaneous detachment of the desiccated biofilm and necrotic tissue was observed following DEBRICHEM® application (Figure D and E).

At one month, immunosuppressive therapy was initiated (Figure F). No signs of reinfection were reported. The wound showed 50% re-epithelialization and full granulation tissue formation. No adverse events were recorded. MolecuLight imaging confirmed significant bacterial reduction after DEBRICHEM® treatment.

This case demonstrates the potential of DEBRICHEM® as part of a multidisciplinary approach in a patient with Polyarteritis Nodosa, achieving significant improvement without complications within the observation period.

**MolecuLight is a fluorescence imaging tool used in wound care to visualize and assess bacterial load on a wound. It can provide strong visual cues associated with the presence of biofilm.*

CLINICAL INSIGHTS & FOLLOW UP

- The final diagnosis, confirmed via skin biopsy, was Polyarteritis Nodosa (PAN or Kussmaul-Maier disease)—a rare autoimmune condition with an incidence of 1.6 per million.
- Following DEBRICHEM® application, the patient underwent four weeks of NPWT. Since the removal of the foam from the wound bed was painful, silver gauze (Acticoat) was used between the wound bed and NPWT foam to enhance patient comfort.
- Immunosuppressive therapy was initiated only after the four-week NPWT treatment, meaning the positive wound outcomes observed were solely due to DEBRICHEM® and NPWT.
- No reinfection occurred during follow-up, eliminating the need for additional DEBRICHEM® application
- The wound continued to progress with 50-75% re-epithelialization.
- No adverse effects were observed.
- Overall clinical judgment: Excellent, given the complexity and difficulty of treating this ulcer.

PROGRESS

Figure A:
Pre-treatment
wound condition

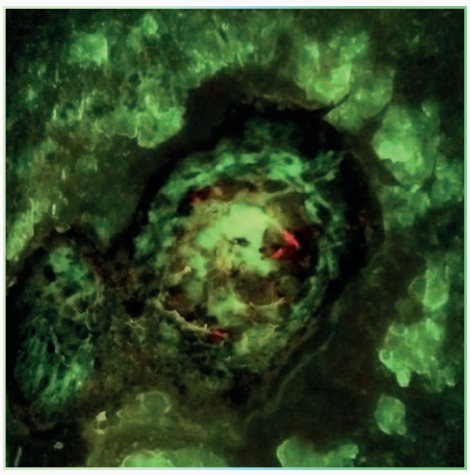


Figure B: Pre-treatment
MolecuLight image
(bright green and red indicate
high bacterial load)

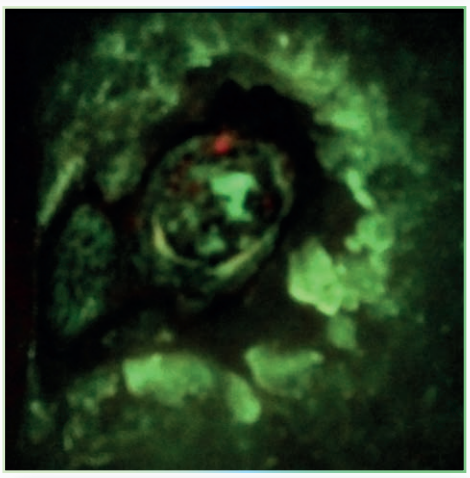


Figure C: Post-treatment
MolecuLight image

Figure D:
One week post-treatment

Figure E:
One week post-treatment +
spontaneous detachment
of desiccated tissue

Figure F:
One month post-treatment

DEBX MEDICAL

CASE 53:

83-YEAR-OLD FEMALE
WITH A VENOUS LEG ULCER

GENERAL MEDICAL HISTORY

WOUND SINCE: 4 WEEKS
VENOUS INSUFFICIENCY
SEX: FEMALE
AGE: 83
EFFECT OF DEBRICHEM®:
100% GRANULATION IN 1 MONTH

DESCRIPTION

The patient, diagnosed with venous insufficiency, presented with a wound persisting for four weeks (Figure A).

The treatment strategy initially included once-weekly curettage, silver hydrofiber dressings, and elastic bandages. After this a single 60-second application of DEBRICHEM® was performed (Figure C), and then MolecLight imaging was used to assess bacterial load before and after treatment (Figure B and D).

Figure D, an image from MolecuLight below shows a significant reduction in bacterial load following DEBRICHEM® application. Subsequent treatments involved weekly applications of silver hydrofiber plus PU foam. However, due to high exudate levels and weekly dressing changes, reinfection occurred after 15 days (Figure E). A second DEBRICHEM® application was performed, followed by a biweekly dressing change protocol, which successfully prevented further reinfection.

At one month, the wound demonstrated 100% granulation and no signs of reinfection (Figure F). No adverse events were reported. This case underscores the importance of post-debridement wound management, particularly in high-exudate wounds, to prevent bacterial recolonization.

**MolecuLight is a fluorescence imaging tool used in wound care to visualize and assess bacterial load on a wound. It can provide strong visual cues associated with the presence of biofilm.*

CLINICAL INSIGHTS & FOLLOW UP

- Following DEBRICHEM®, the patient received weekly dressing changes using silver hydrofiber as the primary dressing and polyurethane foam as the secondary dressing.
- An elastic bandage was applied throughout the follow-up period.
- After 15 days, reinfection signs appeared, likely due to excessive wound exudate.
- A second DEBRICHEM® application was performed, and dressing changes were increased to twice per week.
- After adjusting the treatment protocol, no further reinfection was observed.
- The healing process is ongoing, with nearly 100% granulation and visible areas of re-epithelialization.
- No adverse effects were noted.
- Overall clinical judgment: Sufficient to good.

PROGRESS

Figure A:
Pre-treatment wound condition

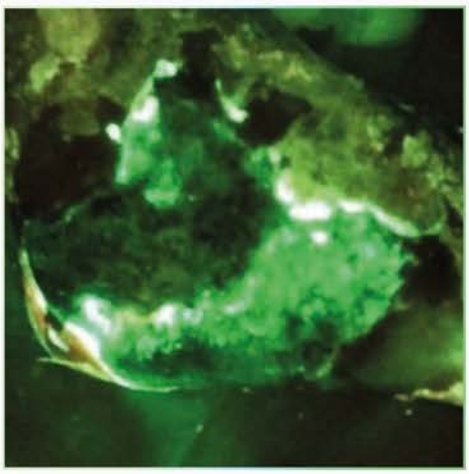


Figure B: Pre treatment MolecuLight image (bright green and red indicate high bacterial load)

Figure C:
Post treatment wound condition

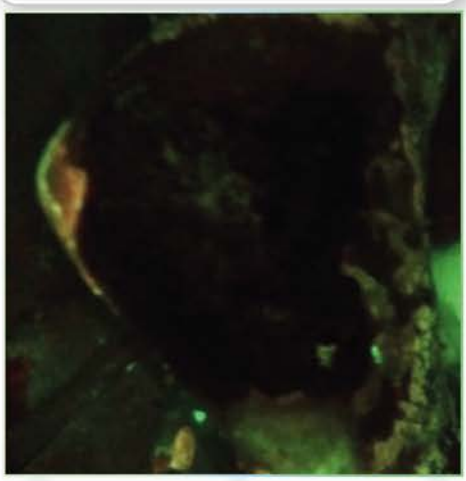


Figure D:
Post-treatment MolecuLight image showing bacterial reduction

Figure E:
One week post treatment

Figure F:
One month post treatment

DEBX MEDICAL

CASE 54:

81-YEAR-OLD MALE
WITH A VENOUS LEG ULCER

GENERAL MEDICAL HISTORY

WOUND SINCE: OVER 1 YEAR
SEVERE POST THROMBOTIC SYNDROME
ALLERGIC TO TOPICAL SILVER DRESSING
SEX: MALE
AGE: 81
EFFECT OF DEBRICHEM®:
100% GRANULATION IN 1 MONTH

DESCRIPTION

The patient, diagnosed with severe post-thrombotic syndrome, presented with a venous leg ulcer (VLU) persisting for over one year (Figure A). The patient was allergic to topical silver dressings, requiring an alternative wound care approach.

The treatment strategy included once-weekly curettage, iodine cadexomer (Iodosorb, Smith & Nephew), and elastic bandages.

A single 60-second application of DEBRICHEM® was performed (Figure C), with MolecuLight imaging used to assess bacterial load before and after treatment (Figure B and D). Subsequent treatments involved weekly applications of iodine cadexomer, polyurethane foam, and pain-relief dressings.

At one week, there were no signs of reinfection or adverse events (Figure E). At one month, the wound demonstrated 100% granulation tissue formation with good healing progression (Figure F). No adverse events were reported.

No reinfection occurred during follow-up. The wound showed consistent granulation and early re-epithelialization from the wound edges. This case highlights the effectiveness of DEBRICHEM® in chronic VLUs complicated by fibrosis and prolonged biofilm presence.

**MolecuLight is a fluorescence imaging tool used in wound care to visualize and assess bacterial load on a wound. It can provide strong visual cues associated with the presence of biofilm.*

CLINICAL INSIGHTS & FOLLOW UP

- Following DEBRICHEM®, the patient received weekly dressing changes with iodine cadexomer (Iodosorb) as the primary dressing and polyurethane foam as the secondary dressing.
- Patient received pain killer infused dressing and elastic bandage was applied throughout the treatment period.
- No signs of reinfection were observed at any stage.
- The healing process continued, with nearly 100% granulation and early re-epithelialization forming at the wound edges.
- No adverse effects were reported.
- Overall clinical judgment: Excellent.

PROGRESS

Figure A:
Pre-treatment wound condition

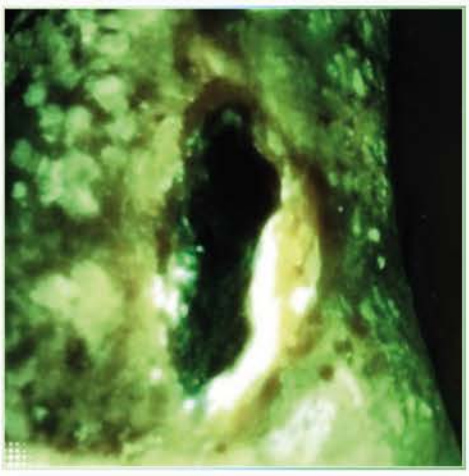


Figure B: Pre treatment MolecuLight image (bright green and red indicate high bacterial load)

Figure C:
Post treatment wound condition

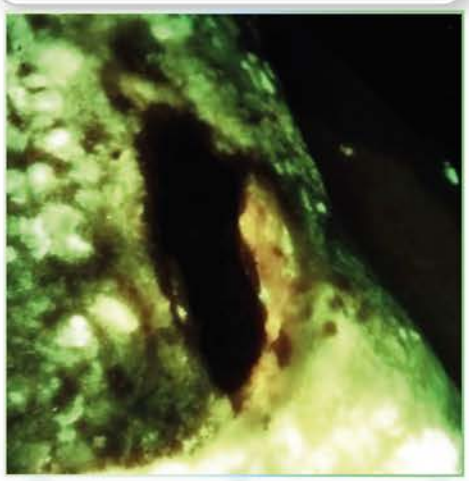


Figure D:
Post-treatment MolecuLight image showing bacterial reduction

Figure E:
One week post treatment

Figure F:
One month post treatment

DEBX MEDICAL

CASE 55:

81-YEAR-OLD FEMALE
WITH AN ARTERIAL ULCER

GENERAL MEDICAL HISTORY

WOUND SINCE: 1 YEAR
DIABETES MELLITUS
ARTERIOPATHY
PREVIOUS SURGICAL REVASCULARIZATION
SEX: FEMALE
AGE: 81
EFFECT OF DEBRICHEM®:
75% GRANULATION IN 1 MONTH

DESCRIPTION

The patient presented with diabetes, arteriopathy, and a history of surgical revascularization: With a wound accompanied by fistula, persisting for more than one year (Figure A). The treatment strategy included twice-weekly irrigation with iodopovidone and H_2O_2 mixed 50%, followed by Acticoat from Smith & Nephew.

A significant intervention was made using DEBRICHEM® for 60 seconds (Figure C), along with MolecuLight* diagnosis to assess the wound's condition (Figure B and D). Figure D shows a significant bacterial reduction after DEBRICHEM® application in the MolecuLight. Subsequent treatments involved NPWT (Negative Pressure Wound Therapy) for three weeks with Acticoat between the wound and NPWT foam, and Acticoat in the fistula.

There were no signs of reinfection or adverse events reported following this regime in 1 week (Figure E). The wound showed 75% granulation, the fistula became less deep, and there was good development considering the severe peripheral arteriopathy after one month (Figure F). This case highlights an effective multidisciplinary approach to managing a complex arterial wound, demonstrating substantial improvement without complications within the observed period.

**MolecuLight is a fluorescence imaging tool used in wound care to visualize and assess bacterial load on a wound. It can provide strong visual cues associated with the presence of biofilm.*

CLINICAL INSIGHTS & FOLLOW UP

- After DEBRICHEM® patient received a 3-weeks course of vacuum therapy; between the wound bed and the foam Acticoat from Smith & Nephew was used. Acticoat was also placed inside the fistula present in the lower part of the ulcer.
- No sign of reinfection during the follow up.
- Also the fistula is very clean and its depth has been reduced.
- The healing process is ongoing with almost 100% granulation.
- Good re-epithelialization is ongoing from the edges of the wound.
- No-side effect reported.
- Global judgement: good (considering the severe peripheral artheriopathy)

PROGRESS

Figure A:
Pre treatment

Figure B: Pre treatment MolecuLight image bright green and red indicate high bacterial load

Figure C:
Post treatment

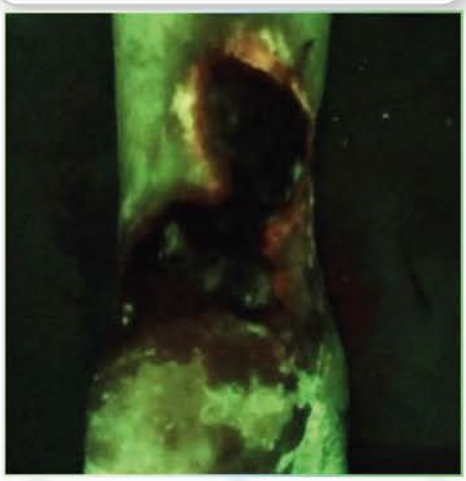


Figure D:
Post treatment MolecuLight image

Figure E:
1 week post treatment

Figure F:
1 month post treatment

DEBX MEDICAL

CASE 56:

79-YEAR-OLD MALE
WITH A VENOUS LEG ULCER

GENERAL MEDICAL HISTORY

WOUND SINCE: 1 YEAR
SEVERE POST-THROMBOTIC SYNDROME
SEX: MALE
AGE: 79
EFFECT OF DEBRICHEM®:
75% GRANULATION IN 1 MONTH

DESCRIPTION

The patient presented with severe post-thrombotic syndrome and a venous leg ulcer (VLU) persisting for more than one year (Figure A). The treatment history includes follow-up at another center, different types of antiseptic dressings, and several cycles of antibiotic therapy.

A significant intervention was made using DEBRICHEM® for 60 seconds (Figure C), along with MolecuLight* diagnosis to assess the wound's condition (Figure B and D). Figure D shows a significant bacterial reduction after DEBRICHEM® application in the MolecuLight. Subsequent treatments involved weekly applications of iodine cadexomer, PU foam, and pain killer-infused dressing.

At one week good development was visible (Figure E). There were no signs of reinfection or adverse events reported following this regimen. The wound showed 75% granulation and good development at 1 month, considering the very old ulcer with massive fibrosis of the tissue (Figure F).

This case highlights an effective multidisciplinary approach to managing a complex post-thrombotic venous leg ulcer, demonstrating substantial improvement without complications within the observed period.

**MolecuLight is a fluorescence imaging tool used in wound care to visualize and assess bacterial load on a wound. It can provide strong visual cues associated with the presence of biofilm.*

CLINICAL INSIGHTS & FOLLOW UP

- After DEBRICHEM® patient received once a week medication with iodine cadexomer (iodosorb powder from Smith & Nephews)(primary dressings) and poliuretane foam (secondary medication).
- An elastic bandage was also applied throughout the whole follow-up.
- No sign of reinfection during the follow up.
- The healing process is ongoing with almost 75% of granulation.
- No-side effect reported.
- Global judgement: good (considering that this is a very old ulcer, with a massive fibrosis of the tissue)

PROGRESS

Figure A:
Pre treatment

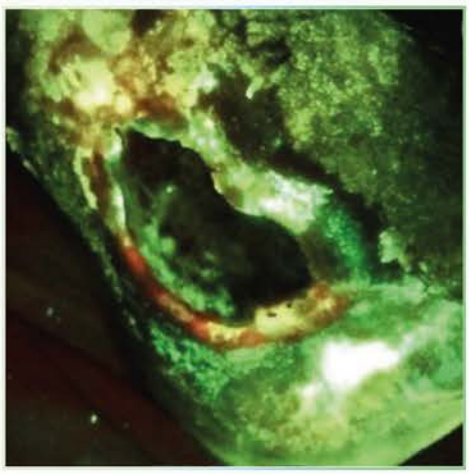


Figure B: Pre treatment MolecuLight image bright green and red indicate high bacterial load

Figure C:
Post treatment

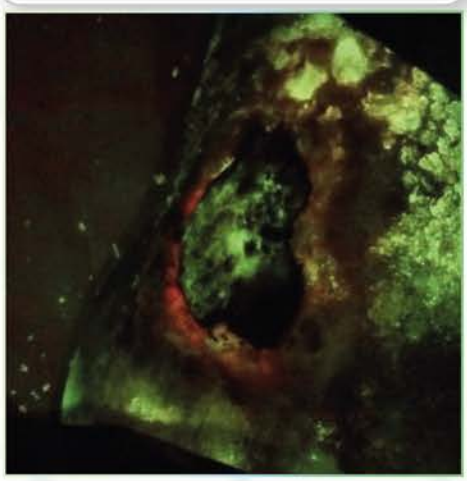


Figure D:
Post treatment MolecuLight image

Figure E:
1 week post treatment

Figure F:
1 month post treatment

DEBX MEDICAL

CASE 57:

86-YEAR-OLD MALE
WITH A PRESSURE ULCER

GENERAL MEDICAL HISTORY

WOUND SINCE: 12 WEEKS
DECUBITUS FROM LEG PROSTHESIS (PREVIOUS AMPUTATION)
SEX: MALE
AGE: 86
EFFECT OF DEBRICHEM®:
100% HEALED IN 1 MONTH

DESCRIPTION

The patient presented with a pressure ulcer caused by a leg prosthesis, following a previous amputation (Figure A). The treatment strategy included one-week dressing with iodine gauze.

A significant intervention was made using DEBRICHEM® for 60 seconds (Figure C), along with MolecuLight* diagnosis to assess the wound's condition (Figures B and D). Figure D shows a significant bacterial reduction after DEBRICHEM® application in the MolecuLight.

Subsequent treatments involved weekly applications of Acticoat and PU foam. There were no signs of reinfection or adverse events reported following this regimen and good development to healing (Figure E).

The wound reported 100% healing at 1 month, which is very good considering the use of a leg prosthesis on this leg.

This case highlights an effective multidisciplinary approach to managing a complex pressure ulcer, demonstrating substantial improvement without complications within the observed period.

**MolecuLight is a fluorescence imaging tool used in wound care to visualize and assess bacterial load on a wound. It can provide strong visual cues associated with the presence of biofilm.*

CLINICAL INSIGHTS & FOLLOW UP

- After DEBRICHEM® patient received a once-weekly dressing with Acticoat from Smith & Nephew, (primary dressing) and a polyurethane foam (secondary dressing).
- No sign of reinfection during the follow up.
- The healing process is completed (healed).
- No-side effect reported.
- Global judgement: excellent (considering that the patient use a leg-prosthesis with continuos pressure in the area).

PROGRESS

Figure A:
Pre treatment

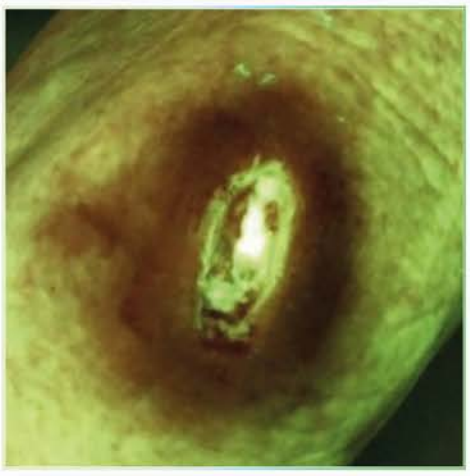


Figure B: Pre treatment MolecuLight image bright green and red indicate high bacterial load

Figure C:
Post treatment

Figure D:
Post treatment MolecuLight image

Figure E:
1 week post treatment

DEBX MEDICAL

CASE 58:

75-YEAR-OLD MALE
WITH A DIABETIC FOOT ULCER

GENERAL MEDICAL HISTORY

WOUND SINCE: 8 WEEKS
POST-SURGICAL OPENING
PREVIOUS OSTEOMYELITIS INTERVENTION
DIABETES WITH NEUROPATHY
SEX: MALE
AGE: 75
EFFECT OF DEBRICHEM®:
100% HEALED IN 1 MONTH

DESCRIPTION

The patient presented with a post-surgical opening following an intervention for osteomyelitis, with a medical history of diabetes and neuropathy (Figure A).

The treatment history included follow-up at another center with various antiseptic dressings. A single 60-second application of DEBRICHEM® was performed (Figure C), with MolecuLight imaging used to assess bacterial load before and after treatment (Figures B and D). Post-treatment imaging confirmed significant bacterial reduction. Subsequent treatment involved weekly applications of Acticoat.

At one week, there were no signs of reinfection or adverse events (Figure E). At two weeks, the wound was reported 100% healed, confirmed by the caretaker at another hospital where the patient was admitted following a myocardial infarction.

The wound achieved complete healing despite the patient's medical complications.

This case highlights the effectiveness of DEBRICHEM® in managing diabetic foot ulcers post-surgery, demonstrating significant improvement within a short timeframe.

**MolecuLight is a fluorescence imaging tool used in wound care to visualize and assess bacterial load on a wound. It can provide strong visual cues associated with the presence of biofilm.*

CLINICAL INSIGHTS & FOLLOW UP

- Following DEBRICHEM® application, the patient received weekly dressings with Acticoat.
- The patient was later hospitalized due to a myocardial infarction and entered a rehabilitation program.
- Doctors at the other hospital confirmed that the ulcer had fully healed.
- No reinfection was observed, eliminating the need for reapplication of DEBRICHEM®.
- No adverse effects were noted.
- Overall clinical judgment: Excellent, given the patient's comorbidities and surgical history.

PROGRESS

Figure A:
Pre treatment

Figure B: Pre treatment MolecuLight image bright green and red indicate high bacterial load

Figure C:
Post treatment

Figure D:
Post treatment MolecuLight image

Figure E:
1 week post treatment

DEBX MEDICAL

CASE 59:

64-YEAR-OLD MALE
WITH AN DIABETIC FOOT ULCER

GENERAL MEDICAL HISTORY

WOUND SINCE: 16 WEEKS
POST SURGICAL TOE AMPUTATION
DUE TO ISCHEMIA AND GANGRENE
SEX: MALE
AGE: 64
EFFECT OF DEBRICHEM®:
75% EPITHELIALIZATION
(100% GRANULATION) IN 1 MONTH.

DESCRIPTION

The patient presented with a post-surgical toe amputation due to ischemia and gangrene (Figure A).The patient's prior treatment history was unknown.

A single 60-second application of DEBRICHEM® was performed (Figure C), with MolecuLight imaging used to assess bacterial load before and after treatment (Figures B and D). Post-treatment MolecuLight imaging confirmed a significant bacterial reduction, particularly in red fluorescence areas, which are typically difficult to eradicate.

Subsequent treatments involved biweekly applications of iodopovidone gauze. At one week, the wound bed showed good vitality and progression toward healing (Figure E). At one month, the wound achieved 75% epithelialization and full granulation tissue formation (Figure F).

No reinfection was observed, eliminating the need for additional DEBRICHEM® applications. No adverse effects were reported. This case highlights the effectiveness of DEBRICHEM® in managing complex diabetic foot ulcers, demonstrating significant improvement in a short timeframe.

**MolecuLight is a fluorescence imaging tool used in wound care to visualize and assess bacterial load on a wound. It can provide strong visual cues associated with the presence of biofilm.*

CLINICAL INSIGHTS & FOLLOW UP

- The patient underwent DEBRICHEM® treatment with concurrent bone curettage to ensure optimal wound bed preparation.
- Post-DEBRICHEM®, the patient received twice-weekly iodopovidone gauze dressings at another wound care facility.
- No sign of reinfection during the follow up.
- The wound continued progressing, with 90-95% re-epithelialization at the latest assessment.
- No adverse effects were reported.
- Overall clinical judgment: Excellent, considering the complexity of the case.

PROGRESS

Figure A:
Pre treatment wound condition

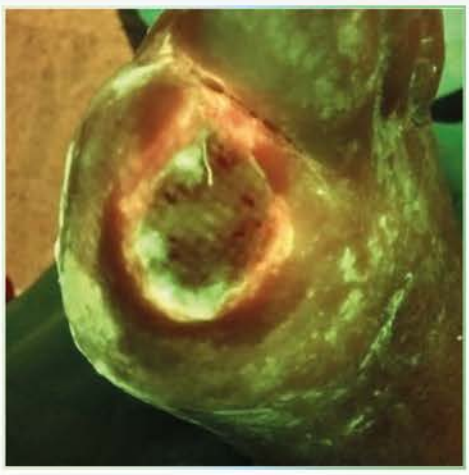


Figure B: Pre treatment MolecuLight image (bright green and red indicate high bacterial load)

Figure C:
Post treatment wound condition

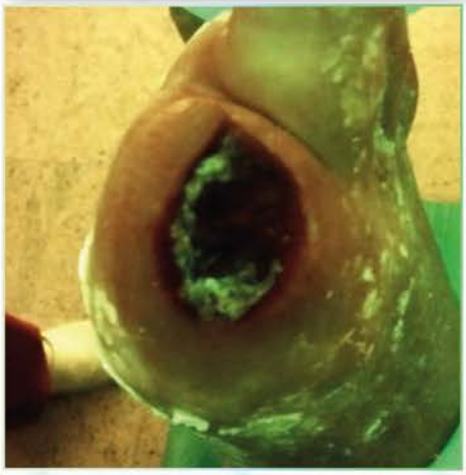


Figure D:
Post treatment MolecuLight image showing bacterial reduction

Figure E:
One week post-treatment

Figure F:
One month post-treatment

DEBX MEDICAL

CASE 60:

84-YEAR-OLD FEMALE
WITH A VENOUS LEG ULCER

GENERAL MEDICAL HISTORY

WOUND SINCE: > 1 YEAR
CHRONIC ULCER WITH LEUKOCYTOCLASTIC VASCULITIS (LCV)
UNDER HIGH DOSE CORTICOSTEROID
RECURRENT INFECTIONS
SEX: FEMALE
AGE: 84

EFFECT OF DEBRICHEM®:
100% GRANULATION (SOME REEPITHELIALIZATION)
IN A SINGLE 60-SECOND APPLICATION

DESCRIPTION

The patient presented with a chronic venous leg ulcer (VLU) associated with Leukocytoclastic Vasculitis (LCV) while undergoing high-dose corticosteroid therapy and suffering from recurrent infections (Figure A). The patient had undergone multiple cycles of antiseptic dressings, antibiotic treatments, and curettage twice per week.

A single 60-second application of DEBRICHEM® was performed (Figure C), with MolecuLight imaging used to assess bacterial load before and after treatment (Figures B and C). Post-treatment MolecuLight imaging confirmed significant bacterial reduction.

Subsequent treatments involved NPWT (Negative Pressure Wound Therapy) for three weeks with Acticoat applied between the wound and NPWT foam, as well as in the fistula. At one week, granulation tissue formation was evident (Figure D), with no signs of reinfection or adverse events. At one month, the wound showed 100% granulation with partial re-epithelialization (Figure E).

No reinfection was observed, eliminating the need for additional DEBRICHEM® applications. No adverse effects were reported. This case highlights an effective multidisciplinary approach in treating complex venous leg ulcers associated with vasculitis, leading to significant clinical improvement.

**MolecuLight is a fluorescence imaging tool used in wound care to visualize and assess bacterial load on a wound. It can provide strong visual cues associated with the presence of biofilm.*

CLINICAL INSIGHTS & FOLLOW UP

- The patient underwent three weeks of NPWT following DEBRICHEM® treatment, with Acticoat used as an interface dressing.
- No signs of reinfection were observed during follow-up.
- The wound continued to progress, achieving full granulation and some re-epithelialization from the wound edges.
- No adverse effects were reported.
- Overall clinical judgment: Excellent, considering the complexity of the case.

PROGRESS

Figure A:
Pre treatment wound condition

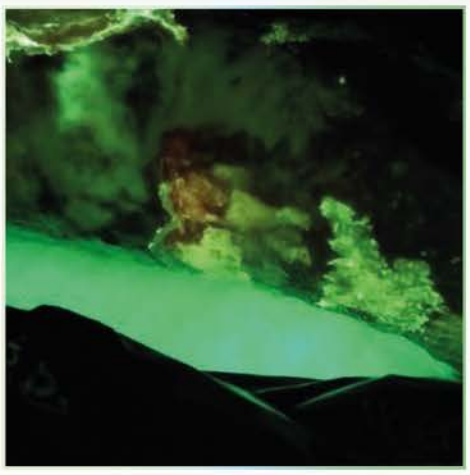


Figure B:
Pre-treatment MolecuLight image (bright green and red indicate high bacterial load)

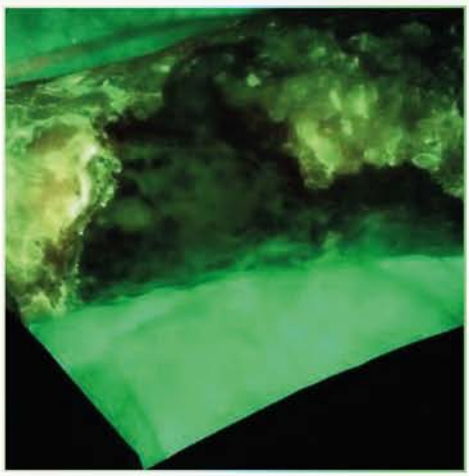


Figure C:
Post-treatment wound condition

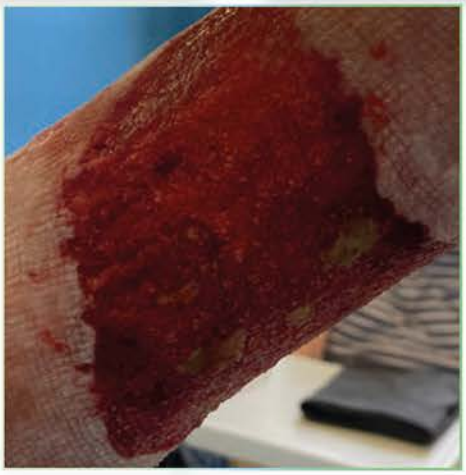


Figure D:
One week post treatment

Figure F:
One month post-treatment

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