Breaking the cycle of chronic wound biofilm – the importance of wound bed preparation

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Introduction

Science is emerging that clearly shows the wound microbiota, including chronic wound biofilm, is a primary cause of the chronic wound itself (Wolcott 2016)

There is confusion between slough and biofilm

- Wound slough is a viscous, yellow and relatively opaque layer on the wound bed
- Biofilm is more gel like and shiny and when mature, can present as a thick gel like substance that can be lifted off

Method

Using the Debrisoft® biofilm-based wound management pathway (Morris et al 2016), patients were selected that demonstrated signs of a biofilm

The biofilm-based wound management pathway utilises the three important steps for effective biofilm management

- Disrupt the biofilm e.g. with Debrisoft®*
- Supress microbial growth using a topical antimicrobial
- Prevent reformation by repeating frequently for up to 14 days, then re-evaluate

"The patient was amazed at the results and commented that she didn't find it painful at all."

Results

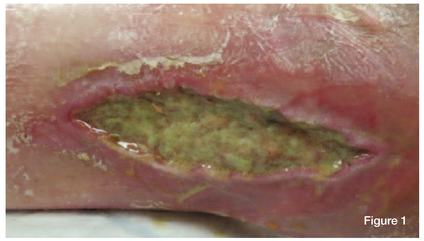


Figure 1

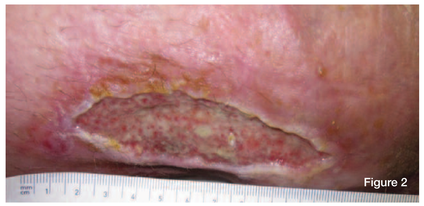
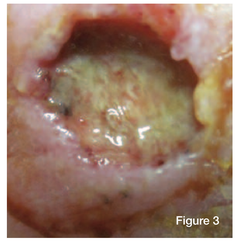


Figure 2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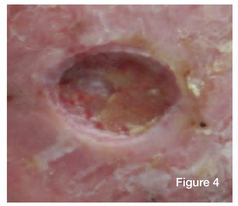
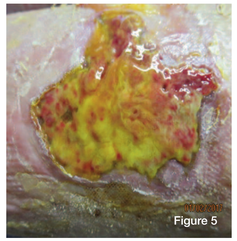


Figure 4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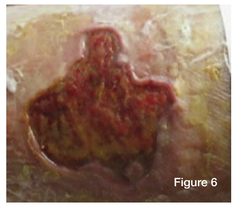
Figure 6


Figure 7


Figure 8

Case study 1

- 45 year old female who was morbidly obese, had a poor lifestyle and used a mobility scooter
- She was diabetic and hypertensive
- Wound present for 18 months prior to seeing the Tissue Viability Nurse
- Wound was a venous leg ulcer with a suspected biofilm present (Figure 1)
- Using the Debrisoft® biofilm pathway the practice nurse debrided the wound bed with Debrisoft® for between 2 and 4 minutes twice weekly for 2 weeks
- On reassessment at the end of the two weeks the patient was completely over the moon with the results
- The malodour and slough had gone, the depth of the wound had decreased and there were very positive signs of wound progression (Figure 2)
- Compression therapy was also used to correct the underlying aetiology

Case study 2

- Female patient aged 80 years with heart failure had been receiving treatment for a venous leg ulcer for over 2 years but despite having compression therapy the wound was not healing (Figure 3)
- Using the Debrisoft® biofilm pathway and a Debrisoft® Lolly**, the wound was debrided for between 2 and 4 minutes on numerous occasions over a 3 week period (Figure 4)
- The patient was amazed at the results and commented that she didn't find it painful at all

Case study 3

- Male patient aged 88 years who was a diabetic
- Mixed aetiology venous leg ulcer for 3 months prior to being seen and the wound was covered with soft thick slough (Figure 5)
- Using the Debrisoft® biofilm pathway the wound was debrided with Debrisoft® for between 2 and 4 minutes which completely cleared the biofilm and slough from the wound (Figure 6)
- The patient was happy that the exudate reduced and how much better the wound looked
- Compression therapy was also used to correct the underlying aetiology

Case study 4

- Male patient aged 84 years with respiratory failure and diabetes
- Previously been treated for mixed aetiology ulceration with compression therapy
- Unfortunately the patient hadn't renewed the hosiery so his legs swelled and he developed lymphorrhoea
- His wet leaky legs required twice daily visits
- Extensive wounds demonstrated signs of a biofilm and therefore Debrisoft® biofilm pathway was instigated along with therapeutic compression (Figure 7)
- Within 2-3 days the patients legs were dry (Figure 8)
- The patients wife was amazed at how fast his legs and wound had changed
- Achieved by the debridement with a Debrisoft®, antimicrobial dressings and compression therapy
- The patient's life changed drastically as frequency of the district nurse visits reduced from twice a day to twice weekly after the biofilm had been eradicated
- The patient and his wife were able to gain some independence back into their life

Discussion

The presence of wound biofilm can seriously impact on patient quality of life. It can also cause inconvenience of frequent nursing and clinics visits. In these case studies the leg ulcers took precedence over the patients' lives.

As a clinician, it can get frustrating when wounds become static and what seems like all options had been exhausted, however with the addition of mechanical debridement in the form of a Debrisoft® biofilm-based wound management pathway and a topical antimicrobial these statics wounds can be kick started to heal.

Conclusion

Our increased knowledge of the signs of biofilm in chronic wounds and the importance of proactive biofilm management has helped improved the quality of wound care delivered to patients with static or slow to heal chronic wounds in our area.

References

Wolcott R (2016) Are chronic wounds, chronic infections? Journal of Wound Care. 25(10) S3
Morris C et al (2016) The management of chronic wound biofilm with a monofilament fibre debridement biofilm pathway: results of an audit. Poster presentation, WUWHS conference. Florence, Italy.

* Debrisoft® and ** Debrisoft® Lolly - L&R

Luton Children & Adults Community Health Services

Wounds UK, Harrogate 2017. This e-poster was kindly produced by L&R.

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