WOUND DEBRIDEMENT: LESSONS LEARNED OF WHEN AND HOW TO REMOVE “WILD” MAGGOTS

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Abstract—Background: Wounds, particularly chronic wounds, are a common presentation to the Emergency Department (ED), and in severe cases can contain maggots. Maggot debridement therapy is a popular technique for wound debridement, but is limited to the use of sterilized larvae due to concerns of contamination and invasion of “wild” maggots into healthy tissue. Wild maggots in chronic wounds, therefore, should be removed, yet there is no reported literature that describes a technique for their removal. Objective: This article presents a step-by-step approach for the safe removal of “wild” larvae in a wound using Yankauer suction. Case Report: We present a case of a homeless man presenting to the ED with a foot wound found to have “wild” maggots that required removal. Conclusion: The technique described in this article is a simple, safe, and efficient way for the Emergency Physician to remove “wild” larvae from wounds. © 2013 Elsevier Inc.

Keywords—wound debridement; Emergency Department; maggots; larvae

INTRODUCTION

Wounds are a common presentation to the Emergency Department (ED). As a result of comorbidities such as homelessness, diabetes, and peripheral vascular disease, many of these wounds are chronic, and in severe cases may contain maggots. Treatment for chronic wounds often involves debridement, which can be defined as the “removal of all foreign material and aseptic excision of contaminated and devitalized tissues” (1). Debridement methods include surgical, autolytic, mechanical, chemical, and biological alternatives (2). Biological therapy specifically refers to maggot debridement therapy (MDT) where “sterile” larvae are used for the purpose of wound therapy (3,4). Paul et al. (2009) reported the technique to be as effective as conventional debridement in the treatment of diabetes ulcers (4). A number of other applications have been documented to include venous and arterial leg ulcers, primary burns, pressure sores, osteomyelitis, and necrotizing fasciitis, although studies have not shown improved time to wound healing when compared with alternative debridement methods. Advantages of the technique have been touted as requiring less wound dressing changes, being more cost-effective, and a reduction in wound odor. Disadvantages include patient perception, although the use of “biobags” that enclose the larvae have improved patient experience, as well as pain (3,5).

It would seem, then, that the presence of maggots in a chronic wound is a beneficial process. However, MDT is done using “sterile” larvae due to concerns of contamination such as tetanus and erysipelas that have occurred from the use of “wild” maggots (5,6). Additionally, specific types of maggots are used in MDT, as some wild species have been reported to invade the healthy tissue surround the necrotic wound (5). “Wild” maggots, due to these risks, should therefore be removed. Despite the issue of contamination and invasion of healthy tissue...
with “wild” maggots, there is a paucity of literature describing the importance of removing these “wild” maggots from neglected wounds. Moreover, there are no published reports describing a technique for their removal.

CASE REPORT

A 52-year-old homeless man presented to the ED with right foot pain and redness for the preceding 3 days. The patient stated that he only had one pair of shoes and socks, and thus had not been able to change his foot apparel for “a long time.” The patient denied any numbness, tingling, or difficulty with ambulation. He denied any past medical history, but did report active smoking of two packs per day. He was afebrile, with a normal heart rate, blood pressure, and pulse oximetry.

On physical examination, the patient was noted to have a swollen and erythematous right foot, with erythema extending to the level of the malleoli of the ankle. His pulses, motor function, and sensation to light touch were intact. He was noted to have macerated tissue around the base of all five toes, with sloughing of parts of the skin on the plantar surface of the foot. Separation of his toes revealed maggots in the first web space as well as the third web space of the foot.

The patient was extremely distressed about the presence of maggots, and the decision was made to remove the maggots from the patient’s wound. The ED treatment team removed the maggots using wall suction, a suction canister, and a Yankauer suction tip. The patient was admitted to the hospital and evaluated by the wound care team and discharged home with oral antibiotics 3 days later. Of note, the patient did not require any additional maggot removal, and his wounds were reported to be healing well by the wound care team upon discharge.

The technique has been utilized in additional patients with similar success, as was the case with a second patient presenting to the ED with a chronic wound containing maggots. Maggots were easily removed with the technique described above, a clean dressing applied, and the patient subsequently discharged home with follow-up wound care.

Procedure

1) The patient was placed in a sitting position on the gurney, with the affected foot towards the end of the gurney in a position that made the foot and toes easily accessible to the ED provider.

2) A suction system was assembled using a Yankauer suction tip with a wall suction apparatus, with the suction tip applied directly to the wound containing maggots (Figure 1). Once the superficial maggots were removed, additional larvae emerged from deeper within the wound and were removed with...
an additional pass of the Yankauer suction (Figure 2).

3) The suction tip, canister, and suction tubing were placed in a biohazard disposal container, making disposal of the larvae simple, rapid, and clean.

The patient tolerated the procedure well with no complications. Given the patient’s poor ability to pay for antibiotics, maintain good hygiene, and attend follow-up appointments, he was given intravenous antibiotics and admitted to the Internal Medicine service for treatment of his infection. He was discharged home several days later, after inpatient wound care on a course of oral antibiotics provided to him before discharge.

DISCUSSION

In the case described above, the patient’s neglected foot wound was found with “wild” maggots. The decision to remove the maggots reflected the concern that the “wild” maggots carried the risk of contamination, the possibility of invading healthy tissue, and the patient preference for their removal. The authors advocate removal of these “wild” maggots based on the above risks. The Yankauer suction technique of removal was efficient, clean, and minimized risk of contamination.

CONCLUSION

This technique of maggot removal using Yankauer suction is simple, clean, and efficient. Emergency Physicians may find this technique valuable, and all of the materials necessary for this are readily available in the ED.

REFERENCES