

Recommended practice: wound debridement - larval therapy

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(Linked Evidence Summary: JBI ES 3456 Larval therapy for debridement of chronic wounds)

EQUIPMENT:

- Maggots bred in sterile conditions
- Thin hydrocolloid dressing/sheet
- Sterile normal saline
- Sterile gauze
- Film dressing
- Sterile 19 gauge needle
- Occlusive tape, preferably one that is atraumatic to remove i.e. a soft silicone tape
- Fine cotton orthopedic under-cast bandage
- Bed frame, splint (depending on location of wound)

RECOMMENDED PRACTICE:

- Larval therapy, a form of biotherapy, is one means of debridement. Larval therapy is the organized placement of sterile or disinfected (free of bacteria) maggots into a wound to cleanse the wound bed of devitalized tissue and bacteria, and to promote healing¹.
- Only certain maggot species should be used for larval therapy. These should be obtained from a specialized maggot facility that breeds and prepares maggots under sterile conditions for the use in wounds. Free range or wild maggots should not be used.
- The normal rate of application is 5-8 maggots/cm² of wound surface area.²
- Maggots should be used as soon as possible after delivery, or stored in a refrigerator at 4-8°C for no longer than 48 hours as their viability may diminish.
- They can be left on the wound site for 48-72 hours.²
- Maggots can escape, drown, be squashed or suffocate in a wound bed, therefore the use of occlusive dressings that have been adapted to facilitate exudate drainage and

oxygen delivery are required, with the addition of pressure off-loading equipment in order to maintain their viability.

- Quarantine regulations should be checked and adhered to regarding appropriate disposal following removal from wound. Generally if the maggot species is not local to the region in which they are being used quarantine restrictions will occur in regard to disposal. Check with your local quarantine service.
- Consideration should be given to placing the maggots in the freezer on removal (in a sealable plastic bag) prior to disposal for humane reasons.
- Patients allergic to fly larvae, chicken eggs, or soybeans may develop allergies to the maggots.²

PROCEDURE ²

- Pierce the film dressing with a sterile 19-gauge needle each centimeter squared to facilitate exudate drainage and oxygen availability.
- Clean the wound with normal saline or water. Topical antiseptics should be avoided for 2 days prior to application as can be detrimental to the maggots.
- Place a thin hydrocolloid dressing that has been cut to fit on to the peri-wound skin surrounding the wound for protection, to prevent the patient from detecting any crawling sensations, and to help contain the maggots.
- Place the maggots into the wound according to their transport medium using sterile gloves or forceps.
 - Gauze medium within a sterile pot: place the gauze directly onto the wound bed. Flushing the sterile pot with a small amount of normal saline then emptying this on to the gauze can help gather stray maggots. Additional pieces of normal saline moistened sterile gauze can also be placed into the wound to fill any dead space.
 - Enclosed in a bag: place the bag into the wound.
- Cover gently with the film dressing ensuring the wound is well sealed while allowing some give as the maggots

will increase in size. The outside dressing can be further secured with a occlusive tape, preferably one that is atraumatic to remove i.e. a soft silicone tape, if required.

- Place a thin layer of gauze over the film dressing (about 2 pieces) and secure gently with a thin layer of a cotton orthopedic under-cast bandage.
- Change the gauze and the cotton orthopedic under-cast bandage when the dressing becomes moist. The frequency of changing will increase as the therapy progresses and may be more than four times a day. Do not pad too thickly or apply another dressing i.e. crepe bandage, as this will hinder exudate drainage and oxygen flow to the maggots.
- If being used on a limb, consider splinting or elevating the limb to prevent weight bearing. Additionally consider a bed frame to keep linen off the wound site.
- To remove maggots use gloves and/or forceps and place in a sealable plastic waste bag. Dispose of maggots as per local quarantine instructions. Consider placing them in the freezer (within the sealable plastic waste bag) prior to disposal for humane reasons.

KEYWORDS

Larval therapy, maggots, debridement,

REFERENCES:

1. Geary MJ, Smith A, Russell RC. Maggots down under. *Wound Practice and Research*. 2009;17(1):36-42.
2. Department of Entomology. Maggot Wound Therapy. Institute of Clinical Pathology & Medical Research, West Mead Hospital. 2005:1-4.