MAGGOT WOUND THERAPY

Maggot Therapy.

Maggot Therapy for wound debridement and healing is the deliberate placement of the immature stage of a blowfly into a wound in order to cleanse the area of necrotic tissue and stimulate the healing process.

How does Maggot Therapy work?

The maggots debride the necrotic tissue, while disinfecting the wound (secretions from the maggots have antibacterial properties). They also change the wound environment to one that encourages new cell growth including granulation tissue development and fibroblast formation. The healthy tissue surrounding and underneath the wound remains untouched during larval therapy.

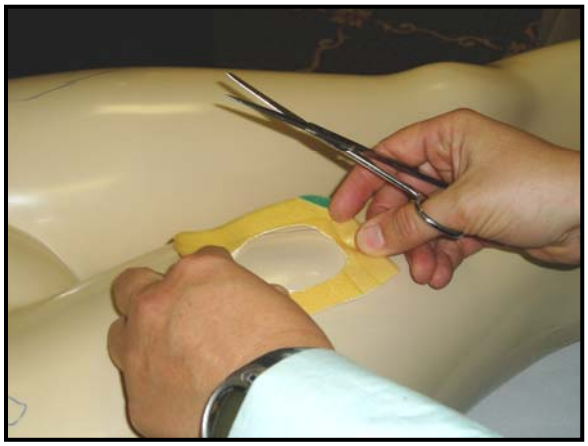
What type of wounds can be treated?

Wounds that can be debrided include non-healing necrotic skin and soft tissue wounds such as pressure ulcers, venous stasis ulcers, foot ulcers and non-healing traumatic or post surgical wounds.

Preparation of wound site for maggot therapy.

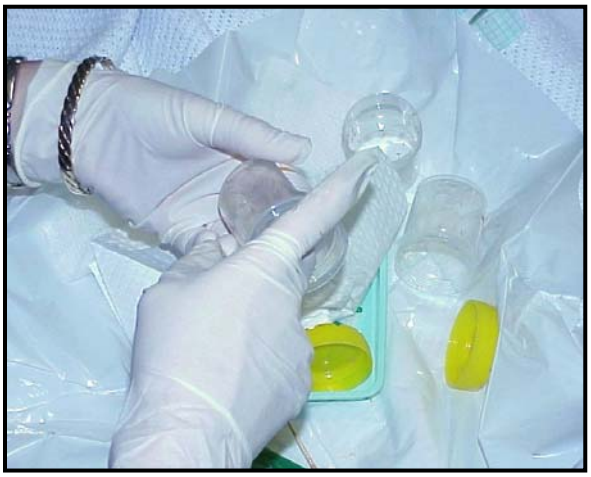
The wound site is cleaned and the surrounding skin is prepared using barrier wipes. A thin transparent hydrocolloid dressing (eg. **Duoderm** Transparent or **Comfeel**) should be cut to fit the outer perimeter of the wound.

This dressing will assist in protecting the outer skin layer, prevent the patient from detecting any crawling sensation, and will aid in the containment of the maggots. This will also be a base for the sealed dressing.



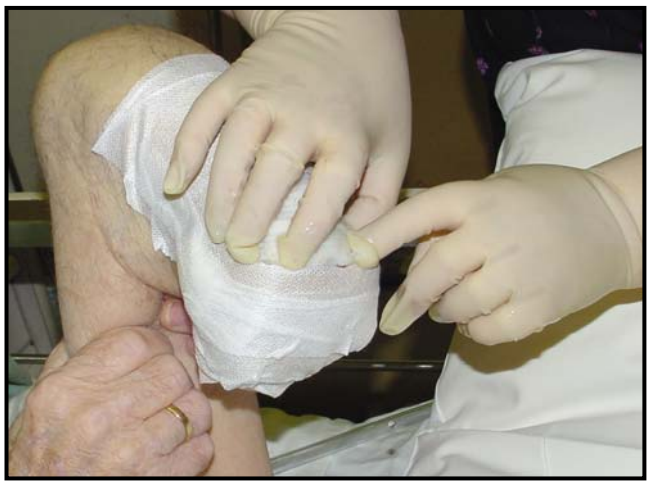
Application of the maggots and dressings.

Each vial contains 60-80 disinfected maggots of the fly *Lucilia sericata*, on a piece of moistened sterile gauze (5x5cm). The maggots should be used soon as possible after delivery, or stored in a refrigerator at 4-8^{o}C for no longer than 48 hours as their viability may be diminished.



Larvae are applied to the wound by a wound consultant or doctor. With gloved fingers or forceps, the larvae are wiped from the container with the enclosed gauze. A small amount of sterile saline can be used to rinse the remaining maggots from the vial onto the wound site if required.

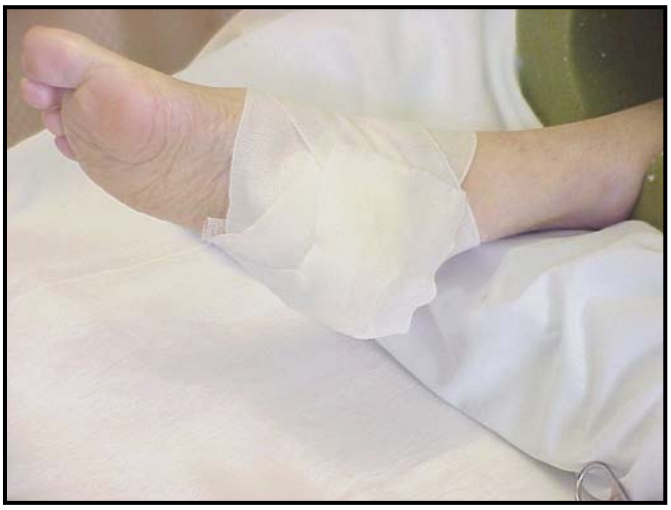
The wound is then covered loosely with moist gauze and then covered with a film such as **Tegapore** (an alternative is **Opsite** or **Tegaderm** which has been perforated with 10 holes/5cm^2 using a sharp probe). Larvae need air for survival and will suffocate if the film is not perforated.



The resulting liquefied necrotic tissue should be able to drain through the dressings. Secure the film with a water resistant tape (eg. **Sleek**). This will provide a completely sealed dressing with reduced likelihood of larvae escaping.

It is recommended that dry gauze be placed over the porous dressings to absorb the draining fluid. The gauze should be changed at least daily or more frequently depending on the amount of wound exudate. The maggots will drown if the fluid cannot drain and the wound becomes too wet.

To secure the outer pads use orthopaedic wool eg **Sofban** or a crepe bandage. These bandages should not be applied tightly as the maggots may be injured. The patient must be prevented from bearing weight on the wound site (e.g. on the sole of the foot) as this will damage the maggots. Heel wounds can benefit from a splint or support that prevents the heel from making contact with the mattress.



How many maggots do I use?

The normal rate of application is 5-8 maggots/cm^2 of wound surface area.

How long are the maggots left on the wound?

The maggots can be left on the wound site for 48-72hours. Mature maggots will try to escape from the wound but the dressings should prevent this. Any escaping maggots should pose no concern for the patient or nursing staff and simply should be treated as contaminated material and disposed of in the appropriate manner.

How do I dispose of the maggots?

When the wound has the dressing removed, the maggots with the dressings are placed in a contaminated waste bag. Most of the maggots will move to wound's surface after 48-72 hours of feeding and will be easy to remove. Any stray maggots remaining in the wound can be removed with forceps or washed out with sterile saline. The contaminated waste bag should be sealed and destroyed. It is important to destroy all maggots as the introduction of this fly into another state or country should be avoided and quarantine regulations should be adhered to.

Costs

Each vial contains approximately 60-80 maggots and has a cost of $60.00 (+GST). As the maggots should be used as soon as possible, an overnight courier fee will be included. The cost of the courier varies depending on destination.

How are the maggots sent?

The vials of maggots are sent in a polystyrene esky with at least two ice bricks to maintain a cool environment. Eskies are placed within a sturdy cardboard box; the total weight of the package is less than 1 kilogram. Overnight or same-day delivery courier service ensures timely delivery to the address.

Quarantine Approval.

In some states of Australia and in overseas countries, approval from the Department of Agriculture or relevant quarantine authority must be received prior to delivery. Otherwise the delivery may be jeopardised. A statement or letter of approval from the appropriate authority must be clearly displayed on the parcel.

Warning: patients allergic to fly larvae, chicken eggs, or soybeans may develop allergies to the maggots.

Frequently Asked Questions

"Can the maggots damage healthy tissue?" No, maggots will consume only dead tissue and wound debris.

"Will the maggots develop into flies within my wound?" No, maggots will leave the wound to pupate, however the maggots are removed through normal wound management.

"Aren't maggots dirty?" No, the maggots are disinfected and actually destroy bacteria.

"Will I be able to feel them & is it going to hurt?" It is uncommon for patients to experience any side effects.

"What happens if the maggots escape?" Nothing, maggots are harmless and easily destroyed. The restrictive dressings are designed to keep them at the wound site.

Contacts

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Further Information

References

W. Fleischmann, M. Grassberger, R. Sherman. 2004. **Maggot Therapy: A Handbook of Maggot-Assisted Wound Healing**. *Thieme Medical Publishers*. 85pp.

M. Geary and R.C. Russell 2004. **Fly larvae for wound management: a maggot makeover**. *NSW Public Health Bulletin,* 15(11-12): 218-219.

Web Sites

Biosurgical Research Unit in Wales: www.larve.com

Department of Medical Entomology, ICPMR: www.medent.usyd.edu.au

Maggot Therapy Project:
http://www.ucihs.uci.edu/com/pathology/sherman/home_pg.htm

Note that the dressing brands listed herein are for information purposes only and do not represent exclusive endorsements.