Maggots Can Debride and Heal Refractory Wounds

In addition to removing dead and infected tissue, maggots appear to release growth factors that promote healing.

BY MITCHEL L. ZOLER
Philadelphia Bureau

NASHVILLE, TENN. — Maggots provide a gentle and safe "biological debridement" of refractory wounds and can promote wound healing.

Using maggots to clear infection and dead tissue from a wound is cost effective, usually painless, and well received by patients and their families, Dr. Aletha W. Tippett said at the annual meeting of the American Academy of Hospice and Palliative Medicine.

Since she started using maggot therapy in 2001, Dr. Tippett has treated more than 100 patients.

Perhaps the only drawback to using maggot treatment is that it is time sensitive and requires planning.

The single commercial source of medical maggots in the United States is Monarch Labs in Irvine, Calif. Maggots can be ordered on Monday through Thursday for next-day delivery. Each vial contains about 250-500 larvae and costs about $100, explained Dr. Tippett, who serves as medical director of the Hospice of Southwest Ohio in Cincinnati.

Medical maggots are larvae of the green blowfly, *Phaenicia sericata*. This treatment received approval by the Food and Drug Administration in 2004.

The dosage is 10 larvae for each cubic centimeter of wound. Dr. Tippett constructs a retention dressing out of chiffon and a nylon footie. A cycle of treatment lasts for 48 hours, after which the larvae are rinsed off as they enter the pupal stage of their life cycle.

A typical wound requires one to six cycles of treatment. Sometimes the treatment cycles are applied one after another, while in other cases Dr. Tippett waits a day or so between the cycles.

Dr. Tippett said that she has not had a patient who was not helped by maggot therapy.

In several cases, severe and infected wounds that she did not believe would heal did in fact heal with maggot therapy.

Not only do the maggots remove dead and infected tissue, but they appear to release growth factors that promote wound healing, Dr. Tippett noted.

Dr. Tippett said that she bills for this treatment as surgical debridement under Medicare Part B. Although Medicare and other insurers will pay for the physician's services, they will not yet pay for the maggots. Some hospices have paid for the maggots; sometimes Dr. Tippett pays for them herself. ■

This wound on the left foot of a 93-year-old woman had not healed for more than 1 year.

Medical maggots (*Phaenicia sericata*, or green blowfly) are visible on the wound during treatment.

This photo shows "a clean wound" soon after completion of the treatment.

The wound has healed 6 weeks following a successful course of "biological debridement."

PHOTOS COURTESY DR. ALETHA W. TIPPETT

Negative Pressure Helps Some Diabetic Ulcers

BY BETSY BATES
Los Angeles Bureau

SAN FRANCISCO — Negative-pressure vacuum therapy appears to speed healing and increase the likelihood of complete closure of nonhealing diabetic foot ulcers, Dr. David G. Armstrong said at the annual meeting of the American Academy of Dermatology.

But negative pressure, like any other therapy for nonhealing wounds, should be "married with good common sense" and the critical steps of debridement and pressure offloading.

"In my opinion, what this device does is make complicated wounds [simpler]. Once you get a nice carpet of granulation tissue, then stop," advised Dr. Armstrong, professor of surgery and chair of research at Rosalind Franklin University of Medicine and Science in North Chicago, Ill.

In negative-pressure wound therapy, subatmospheric pressure is delivered to the wound through a pump attached to a foam dressing. A canister collects exudate wicked from the wound, Dr. Armstrong explained.

Dr. Armstrong recommends that a stoma paste or hydrocolloid be placed around the periphery of the wound to prevent maceration from exudate that is collected during the process.

Although the exact mechanism of action has not been identified, negative-pressure therapy reduces edema, uniformly draws wound edges together, and may promote both cytokine elaboration and angiogenesis.

The therapy can be performed on an outpatient basis, although the set-up is bulky, Dr. Armstrong noted.

At a cost he likened to a moderately priced hotel stay—$70-$100 a day—the therapy is not cheap, but it could reduce the overall cost of healing diabetic foot ulcers if it keeps patients out of the hospital.

Diabetic foot ulcer treatment averages $28,000, and 75% of those costs are related to the hospital stay.

In a recently published randomized trial, Dr. Armstrong and Dr. Lawrence A. Lavery of Scott and White Memorial Hospital in Temple, Tex., found that large, deep diabetic foot wounds secondary to amputation healed faster and more completely when treated with negative-pressure therapy than with standard wound care (Lancet 2005;366:1704-10).

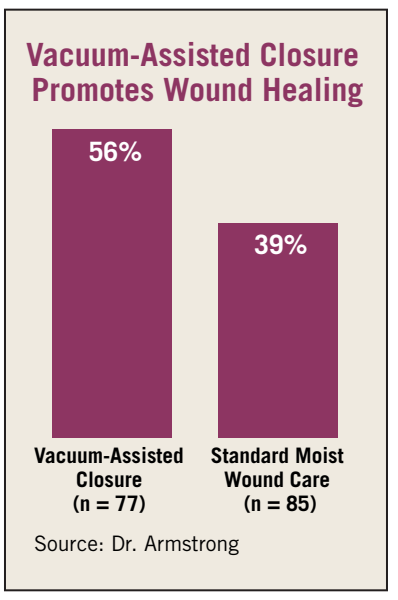
Wounds closed completely in more than half of the patients (43 of 77) receiving continuous treatment with the vacuum-assisted closure (VAC) system for the 112-day study period. Just 33 of 85 patients receiving standard moist wound care healed completely.

"Rapid granulation tissue formation provided a clinical 'wow!' factor," in the VAC group, Dr. Armstrong said.

There was a trend toward fewer reamputations in patients who received VAC, although the study was not powered to evaluate that end point.

Even though the study was met with some criticism for allowing clinical judgment to guide therapeutic interventions, Dr. Armstrong said that such a study design is necessary for research to have "real world" relevance.

His study enrolled patients with wounds eight times larger than those in previous trials of negative-pressure therapy.



"It may be that in some trials, the less you need [interventions], the better they work," Dr. Armstrong said.

The study used the VAC therapy system manufactured by Kinetic Concepts Inc., which sponsored the research.

Dr. Armstrong stressed throughout his talk the need for matching wound therapies to the right patients and wounds.

Not every nonhealing wound needs negative-pressure therapy, for example. Referring to the oft-quoted phrase, "Don't just do something, stand there," Dr. Armstrong noted that physicians are sometimes reluctant to follow that advice.

"You feel like squirting something, spraying something, applying something to the wound. Much of this really helps people, but some of it won't," Dr. Armstrong commented.

Well-designed trials with appropriately selected patients will point the way to "keeping a few more limbs on a few more bodies," he added. ■