

PRESSURE ULCERS

To the Editor:

The clinical review article on pressure ulcers in the March 2002 issue of *Hospital Physician*¹ mentioned several adjunctive therapies for the treatment of these ulcers but overlooked a potentially useful therapy, namely maggot débridement. Although other forms of wound care, including mechanical, autolytic, enzymatic, and surgical (or sharp) débridement, are employed more frequently in the treatment of pressure ulcers, maggots can, in fact, be very helpful in treating some patients with nonhealing pressure ulcers.²⁻⁵ The therapeutic use of maggots, also referred to as *larval therapy* or *biosurgery*, has been successfully employed for years to treat a variety of wounds (eg, pressure ulcers, ulcers associated with diabetes mellitus, venous stasis ulcers). The medicinal use of maggots differs from cutaneous myiasis, because larval therapy utilizes sterile fly larvae from species whose larvae usually do not invade living tissue.

Although maggot débridement initially may be repulsive to many patients and medical staff, this technique is safe, is inexpensive, and does not require highly specialized equipment or medical training.⁵ Although maggot débridement fell out of favor when antibiotics became commercially available in the early 1940s, interest in this technique has increased in recent years,⁶ because use of sterilized maggots has been successful in treating nonhealing wounds that have failed conventional therapy.

The principal disadvantage of maggot débridement is the sensation of tickling and formication,⁷ although pain, bleeding, and transient pyrexia have also been reported.⁸ Maggots should generally not be used in the vicinity of tracheostomies,⁷ in cases in which infection extends to the walls of large blood vessels, or in close proximity to the brain.^{7,8} Débridement with sterilized maggots can, however, be helpful in treating patients with pressure ulcers when utilized appropriately and when adequate monitoring is available. Consequently, maggot débridement should be considered in patients with nonhealing wounds.

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To the Editor:

I compliment Drs. Dharmarajan and Ugalino on their informative and nearly comprehensive review of pressure ulcers.¹ The reason I say “nearly” is the lack of information on contractures.

Contractures with associated pressure ulcers are preva-

lent in neurologically impaired patients (eg, those with stroke, Parkinson’s disease, spinal cord injuries, traumatic brain injuries, multiple sclerosis). Hip flexion-adduction and knee flexion contractures often are so profound that they prevent patients from lying in any position other than a fetal (ie, knee-chest) one. This position reverses lumbar lordosis, concentrates pressure over the presacral region, and puts tension across the skin overlying the trochanters of the hips. Hip pressure ulcers in patients with contractures are often associated with the tension and ischemia caused by having the skin and other soft tissues stretched over the bony trochanteric prominences. Combined hip and knee contractures often cause pressure ulcers over the medial bony prominences of the knees. These contractures make perineal hygiene difficult and often lead to skin maceration and fungal infections in the hip flexion creases. Severe knee flexion contractures make it all but impossible to protect the heels from the underlying bedding, regardless of the type of pressure-relief device used.

Because of the severity—and usually the long duration—of contractures, many methods used to treat them (eg, splinting, casting, physical therapy, administration of muscle relaxants, injection of botulinum toxin) are ineffective and may cause new problems. Consequently, I strongly recommend surgical management of severe flexion contractures, specifically percutaneous hip flexor-adductor tenotomies and limited open-knee flexor muscle tenotomies. If residual contractures (resulting from joint capsule contractures) remain, they can usually be stretched out with a week or two of skeletal traction. Those alternatives, I believe, are far better than lower limb amputations, which, to be successful, require above-knee amputations or hip disarticulations.

Dramatic improvements in presacral and hip pressure ulcers occur after tenotomies. Nurses no longer have to “fight” with the spastic, contracted muscles in order to do perineal hygiene and skin care. Pressure ulcers are effectively offloaded by axially rotating the patient, once the lower extremities are no longer contracted. Likewise, pressure behind the heels is effectively relieved with pillows under the calves, once the lower extremities are strengthened. With release of muscles formerly in spasm, patients appear more comfortable (and those who were able to communicate have confirmed this impression to me). Finally, from the perspective of patients and their families, there may be a greater sense of personal dignity derived from lying flat in bed than in a fetal position.

In summary, contractures are significant contributors

to pressure ulcers and deserve recognition in this context. Measures to correct the problems they cause should not be overlooked.

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In reply:

The comments made by Dr. Summers on maggot débridement as a potentially useful form of adjunctive therapy for pressure ulcers are informative and interesting. Because our review¹ focused on established forms of therapy, we only briefly touched upon adjunctive therapies, based on the likely readership of the journal.

Adjunctive therapy comprises several wound care modalities added to conventional wound care to help healing. Maggot débridement therapy was actually tried in the United States in the 1930s and thereafter fell out of repute until its reintroduction in the last decade.⁹ Successful débridement is achieved by using sterile maggots of the green bottle fly (*Lucilia sericata*), but—as Dr. Summers clearly states—this outcome often comes at the expense of comfort in many patients, necessitating administration of analgesic agents,⁹ or introduces a risk for bleeding or invasion of the blood stream. Psychological and aesthetic issues may also prevent a patient's acceptance of maggot débridement.

The findings of a British study appeared to endorse larval therapy only as a last resort, although claims were made about its effectiveness against methicillin-resistant *Staphylococcal aureus* infections.¹⁰ Interestingly, maggot infestation has also been described as a potential complication of pressure ulcers, and clinicians have been urged to be aware of this possibility.¹¹ The clinical practice guidelines offered by the US Department of Health and Human Services and endorsed by the American Medical Directors Association do not mention maggot débridement therapy.^{11–14} Thus, the use of maggots (in different forms) has potential both as therapy and as a cause of complications.

Among the adjunctive therapies for patients with pressure ulcers discussed in the guidelines, electrotherapy appears to have received the greatest emphasis, with sufficient evidence existing to warrant recommending its use.^{12,14,15} Specifically, electrotherapy seems to enhance cellular processes (leading to restoration of injured soft tissue) and inhibit bacterial activity, thus helping in wound healing.¹⁵ Many other adjunctive therapies (eg, hyperbaric oxygen therapy; infrared, ultraviolet, and low-energy laser irradiation; ultrasound

therapy; hydrotherapy) have been tried without generating substantial evidence to support their use.^{11,12,14,15} In addition, a host of topical agents have been touted as being effective; recently, topical silver treatment has been proposed as an effective agent in wound management because of its antibacterial properties.¹⁶

Dr. Strauss's comments regarding the role of contractures in the failure of pressure ulcers to heal are appreciated. However, contractures and, for that matter, any cause of restricted mobility (eg, paraplegia, hip fractures) only predisposes to ulcers in the setting of a lack of mobility and unrelieved pressure over certain sites. Even persons with neurologic deficits (eg, the majority of patients with stroke or Parkinson's disease) can remain free of ulcers as long as they are mobile or are relieved of pressure. In other words, in the absence of contractures or restricted mobility (from any cause), it is likely that pressure ulcers will not develop. Whereas clear indications exist for surgical correction of contractures or other associated conditions (such as hip fractures), the real solution lies in the full implementation of preventive measures directed toward risk factors, in order to thwart development not only of pressure ulcers but also of contractures.

Nevertheless, with a chronic, indolent problem such as pressure ulcers, it is heartening to realize that there are several possible options (including maggot débridement therapy and correction of contracture deformities) that exist as adjunctive measures. Data supporting alleged benefits (with conclusive evidence) are, however, not available for all forms of therapy. It is worth repeating that adjunctive therapy should be only secondary to or in addition to the basic principle of prevention, namely the relief of pressure itself.¹ Continued research in this area should be encouraged to provide hope and relieve the frustrations of both patient and health care provider in the management of pressure ulcers.

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