

## Wound healing benefits from new approaches

### Low-level laser, autologous platelet gel serve as adjuncts

By Cheryl Guttman

STAFF CORRESPONDENT

**Rancho Mirage, Calif.** — New innovations are having a significant positive impact for promoting healing of acute surgical and chronic wounds, said Robert F. Jackson, M.D., at the annual meeting of the American Academy of Cosmetic Surgery.

He described his experience using a 635-nm low-level diode laser (Erchonia ML by Erchonia Medical, Tucson, Ariz.) as well as autologous platelet gel alone and in combination with an extracellular matrix wound dressing material as adjuncts for promoting healing of chronic wounds and optimizing recovery after a variety of surgical procedures.

Dr. Jackson, a cosmetic surgeon in private practice in Indianapolis, reported that irradiation with a 635-nm diode laser prior to and after liposuction appears to be beneficial for facilitating fat removal, but also minimizes discomfort postoperatively and promotes recovery. Based on initial clinical observations of this technique, he conducted a small, bilateral study in which patients served as their own controls. Dr. Jackson has now undertaken a larger, double-blind trial to further evaluate the potential benefits of the laser treatment.

After instilling the tumescent anesthetic fluid, the anatomic region that will undergo liposuction is exposed to the laser light for 12 minutes, and the same area is retreated with the laser at the first postoperative visit.

#### Twofold benefit of low-level laser

The rationale for adjunctive use of the laser is twofold. As reported by Rodrigo Neira, M.D., and colleagues in a recent study, diode laser treatment of fat cells seems to cause transient opening of a

cell membrane pore with subsequent release of fat into the interstitial space in the absence of any capillary damage. In addition, there is substantial evidence that the low-level irradiation, administered at the proper wavelength and energy level, has positive biomodulatory activity secondary to its effects on the release of various chemical mediators involved in inflammation and healing.

“The laser treatment does not produce any heat or adversely affect the skin,” Dr. Jackson said, but when using it prior to liposuction, I have found the fat was almost liquefied and came out much easier, almost as if it had been treated with ultrasound. In addition, 11 of 12 patients enrolled in the split-side study reported much less discomfort on the laser-treated side compared with the contralateral, untreated location. However, because there may be systemic effects associated with the laser treatment, a study with parallel patient groups assigned randomly to laser treatment or no treatment will be undertaken to confirm or refute its benefits.”

#### Autologous platelet gel

Platelet gel, prepared from a relatively small volume of the patient’s own blood, is proving to be of significant benefit for sealing tissues, promoting healing, and preventing complications of a variety of surgical wounds. Dr. Jackson reported that he has applied it under skin flaps created in abdominoplasty and breast reduction procedures and has found that it seems to hasten healing, reduce the incidence of seroma and hematoma, and result in a more favorable scar appearance.

“Any surgical procedure represents a controlled injury to which the body responds with a cascade of events that comprise the wound healing pathway. By providing suprphysiologic concentrations of activated platelets, other clotting factors,

and platelet-derived growth factors, the autologous platelet gel accelerates hemostasis to limit bleeding complications and enhances wound healing and tissue repair,” Dr. Jackson explained.

The autologous platelet gel is prepared from 20 to 50 mL of the patient’s blood, which is drawn perioperatively. The specimen is centrifuged and the resulting platelet-rich plasma layer is mixed with a small amount of a calcium/thrombin preparation to activate coagulation factors and form a “smart clot.” That material is then dripped or sprayed in a thin layer onto the wound bed as well as along the skin edges prior to wound closure.

Dr. Jackson observed that the benefits of autologous platelet gel have been recognized for years. However, recently introduced technology that requires only a small specimen of the patient’s blood has greatly increased the clinical applicability of the procedure.

“Initial descriptions of this technique were based on the processing of 500 mL of blood, which made the procedure traumatic and expensive. Now, a number of manufacturers have developed instruments that can spin down a useful platelet concentrate from a reasonably small sample of blood,” he said.

Dr. Jackson has also been performing irradiation of open wounds with the low-level diode laser and noted anecdotally that it has been associated with encouraging effects on healing. In addition, he has been using autologous platelet gel in combination with porcine small-intestinal submucosa extracellular matrix (Oasis Wound Dressing) to successfully promote healing of longstanding venous stasis ulcers. A study is also under way to further evaluate that dual approach to treating difficult wounds.

Dr. Jackson has no financial interest in any of the technology he mentioned. **CST**

©Reprinted from COSMETIC SURGERY TIMES, March 2003 AN ADVANSTAR PUBLICATION Printed in U.S.A.

Copyright Notice Copyright by Advanstar Communications Inc. Advanstar Communications Inc. retains all rights to this article. This article may only be viewed or printed (1) for personal use. User may not actively save any text or graphics/photos to local hard drives or duplicate this article in whole or in part, in any medium. Advanstar Communications Inc. home page is located at <http://www.advanstar.com>.



ERCHONIA

3960 East Palm Lane # 7  
Mesa, AZ 85215  
480.981.1679  
[www.erschonia.com](http://www.erschonia.com)