

# Intralesional Cryosurgery Good for Deep Lesions

*Procedure reduced scar hardness, elevation, and redness; no recurrences were reported at 18 months.*

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RHODES, GREECE — A new intralesional cryosurgery technique for targeting dermal skin lesions is safe and effective for the treatment of keloids and hypertrophic scars, Dr. Christos Zouboulis reported at the 15th Congress of the European Academy of Dermatology and Venereology.

The technique is a modified version of one first reported in 1993 and is performed using a novel intralesional cryoprobe (Etgar Group International Ltd., Israel) invented by Dr. Yaron Har-Shai of Berlin, Germany, and his associates. The probe, which is approved by the U.S. Food and Drug Administration, has an elongated, double-lumen, uninsulated needle with a safety cryogen vent and a sharp-cutting, sealed, distal tip designed to easily penetrate hard and dense dermal lesions such as keloids and hypertrophic scars.

In a pilot study of nine patients with recalcitrant auricular keloids, the proximal end of the probe was attached to an adaptor, which was connected to a standard “cryogun” cryogen source. The cryogun was filled with liquid nitrogen about 15 minutes before the procedure to allow adequate pressure to build up.

The patients were placed in the supine position, and the keloid surface was cleaned, disinfected, and draped. The area to be penetrated with the cryoprobe was intralesionally anesthetized with 1% lido-

caine, and the sterile cryoprobe was forced into the long axis of the scar, with the sharp tip of the needle penetrating the distal edge of the scar.

Upon activation of the cryogun, the cryogen froze the keloids within 5-30 minutes, depending on scar volume, as iceballs appeared at each penetrating point of the cryoneedle and gradually spread toward one another. When the iceballs met, indicating complete freezing of the keloid, the cryogun was disengaged, and the cryoprobe was allowed to defrost for 1-2 minutes before being carefully withdrawn.

Treatment resulted in an average 67% reduction in scar volume at 6 months, which was maintained for up to 18 months after a single treatment. The average pre-treatment scar volume was 2.89 cm<sup>3</sup>, compared with an average posttreatment volume of 1.17 cm<sup>3</sup>, said Dr. Zouboulis of Dessau (Germany) Medical Center.

Patients also had significant reductions in scar hardness, scar elevation, and redness (average pre- and posttreatment scores of 2.9 vs. 0.50, 3.0 vs. 1.0, and 2.9 vs. 0.8, respectively). Subjective complaints were also reduced following treatment, with reductions seen in itching, pain, and tenderness (average pre- and posttreatment scores of 2.5 vs. 1.19, 2.0 vs. 0.3, and 2.3 vs. 0.4, respectively). There were no scar recurrences at 18 months' follow-up.

The treatment was generally well tolerated, Dr. Zouboulis said.

Any mild pain or discomfort that oc-

curred during or after the procedure was easily managed. No active bleeding, infection, or adverse reactions such as hypopigmentation occurred, he noted.

The patients, seven women and two men aged 18-55 years, had a total of 10 keloids of 6 months' to 6 years' duration. The keloids, which resulted from piercings in 9 of 10 cases, and from a laceration in 1 case, had failed to respond to excision, laser surgery, surface cryosurgery, intralesional corticosteroid injections, and/or silicone ointment. The findings were reported earlier this year by Dr. Har-Shai, Dr. Zouboulis, and their associates (Wound Rep. Regen. 2006;14:18-27).

Histologic evaluation and studies of swine tissue following ex vivo intralesional cryosurgery—conducted as part of the same study in an effort to explain the mechanism of action of the cryoprobe—showed that the technique destroys the core of the scar with only small effects on surface cells, including melanocytes. The cryodamage caused by the technique is self-limited, and complete cell death is identified in the central cryolesions immediately following treatment; this suggests that direct cryothermic injury is the primary mechanism of action, the investigators explained.

The lack of hypopigmentation in this study—which might be explained by the minimal histologic changes in superficial



Auricular keloids are shown at baseline (left) and after the intralesional cryosurgery technique.

PHOTOS COURTESY DR. YARON HAR-SHAI

adjacent areas of the central cryolesion, revealing a limited, demarcated, irreversible cell injury—suggests this technique might be particularly useful in patients with black or pigmented skin, who have a high prevalence of keloids, Dr. Zouboulis noted, adding that this technique and technology can be applied to scars of various shapes and contours at the ear helix and lobule, as well as in other areas of the body, as demonstrated in this and other studies.

In fact, the technology was developed for and will be studied for other indications involving deep skin lesions; keloids served as a “nondangerous proving principle” for efficacy, he explained.

“The major advantage of the intralesional cryoprobe to destroy the deeply localized target tissue with minimal effect on the superficial skin layers may have a significant importance in the future in the clinical application of cryosurgery not only in the treatment of keloids but also of other deeply localized skin lesions and tumors,” he concluded. ■

## Combo Topical Therapy, Cryosurgery May Beat Excision

BY SHARON WORCESTER  
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RHODES, GREECE — Combining topical immunomodulatory therapy or topical chemotherapy with cryosurgery provides an excellent alternative to excisional treatment for many skin malignancies, Dr. Paola Pasquali said at the 15th Congress of the European Academy of Dermatology and Venereology.

Cryosurgery itself represents an excellent option for many skin malignancies, including most basal cell carcinomas. Exceptions include morpheaform, metatypical, and neurotropic basal cell carcinomas, for which Mohs surgery is preferable. Cryosurgery is also beneficial for well-differentiated squamous cell carcinomas and lentigo maligna, she said.

The use of the immune response modifier imiquimod before any surgical intervention can improve local immune response and reduce treatment areas. Cryosurgery can then be used to treat areas that failed to respond, said Dr. Pasquali, a dermatologist in private practice in Caracas, Venezuela.

This approach is particularly useful in patients with severe sun damage with multiple actinic keratoses or superficial basal cell carcinomas, she said, noting that she has her patients use imiquimod 5 days a week for 6



This female patient had a hypertrophic actinic keratosis that was associated with a squamous cell carcinoma and severe actinic damage.

weeks, followed by cryotherapy for remaining lesions.

This reduces the need for surgical treatment and provides a better cosmetic outcome, she said.

For nodular basal cell carcinomas, biopsy and curettage is performed, and the lesion is allowed to heal before imiquimod treatment is initiated and cryosurgery is used to treat remaining lesions.

Topical chemotherapy with the antimetabolite 5-flu-



Improvement was evident after cryosurgery of the nodular lesion and treatment with imiquimod on the rest of the patient's damaged skin.

orouracil can also be used along with cryosurgery in some patients, such as those with actinic keratoses or Bowen's disease.

As with imiquimod, the topical treatment is used to reduce the number and size of lesions and the remaining lesions are treated with cryosurgery.

These combinations also are useful for palliation in patients with large tumors, Dr. Pasquali noted. ■

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