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Electrodesiccation treatment for dermatosis papulosa nigra

An under-recognized tool is found to have less postoperative complications, and ideal for treating common superficial skin lesions

The use of electrodesiccation – an electrosurgical procedure for eliminating superficial skin growths by using a high-frequency electric current – proved to be particularly effective, well tolerated and economical for the treatment of skin lesion dermatosis papulosa nigra in dark-skinned individuals, according to a recent study published by the *Journal of Surgical Dermatology* (JSD).

Complications were few, and therapy was performed appropriately with effective postoperative measures," reported lead author Surajit Gorai and his colleagues from the Department of Dermatology, Venereology & Leprology, Burdwan Medical College and Hospital in Burdwan, India.

Dermatosis papulosa nigra (DPN) is a small, benign black or brown lesion that develops mainly in the face and neck of individuals with dark complexion. The skin condition is common, estimated to affect 35% of people of African and South Asian descents. Oscar-winning actor Morgan Freeman is one of the most recognized faces of celebrities with DPN.

Typical therapeutic modalities include some traditional surgical procedures such as curettage, electrosurgery and snip/shave excision, according to the research authors. In addition, different laser treatments such as pulse dye treatment, potassium titanyl phosphate and neodymium-doped yttrium aluminium garnet (Nd:YAG) have also been used to treat DPN, albeit with varying success.

On the other hand, electrodesiccation (ED) is a "very simple, efficacious, and low-cost procedure" in dermatosurgery, claimed the researchers. ED, performed under local anesthesia, involves destroying of lesions by desiccating (*i.e.* dehydrating) the tissue with electric sparks applied with a blunt needle-shaped electrode.

The procedure has already been used to treat various types of skin growth, according to the authors. "Many diseases such as verucca, molluscum, milia, epidermal nevi, skin tags, pyogenic granuloma, etc., can be treated effectively by ED," they noted.

Yet, their research noted that this modality is still

under-documented as a single effective therapy for the treatment of DPN. "Although electrodesiccation (ED) is a simple procedure, studies on ED use for DPN with a good number of cases are lacking," the authors said.

Their research paper hence presents an evaluation of ED for the treatment of DPN in different types of skin. "The aim of the present study was to examine the safety, efficacy and cost-effectiveness of this age-old ED procedure for the treatment of DPN," they said.

The study examined 40 patients with dermatosis papulosa nigra who were of skin types IV–VI on the Fitzpatrick scale, the field standard for dermatological research in human skin pigmentation. The examined skin types range from moderate brown skin that burns minimally under ultraviolet light and always tans well, to the deeply pigmented dark-to-darkest brown skin type, which neither burns nor tans.

The patients are then subjected to the electrodesiccation procedure. "Superficial ED (monopolar, low, 2.0–3.5 W) was done by just touching the lesion under topical anesthesia," according to the study.

All preoperative photographs of the patients, as well as photographs taken after 2, 4 and 8 weeks following the procedure, were examined by two independent dermatologists who rated the efficacy by counting completely cleared lesions as well as examining the side effects of hypo/hyperpigmentation and scarring.

Simple, cheap and affordable

The result showed great promise for ED. "85% of

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patients showed excellent improvement (>75% clearance), 7.5% good (51%–75% clearance), 5% fair (26%–50% clearance) and 2% poor (0–25% clearance)," the study reported.

"Our study revealed that ED is safe, well tolerated and efficacious in removing DPN painlessly by using topical anesthesia under occlusion for an adequate duration. Studies with quantitative assessment of the number of lesion clearances well established its efficacy," the authors reported.

The most distressing side effect of dermatosurgery for individuals with darker skin types, especially in the case of DPN patients seeking treatment for cosmetic concerns, is typically the post-inflammatory pigment alteration, *i.e.* the darkening and discoloration of the skin following thermal burn.

However, the authors reported, there was little evidence of post-inflammatory pigment alteration in the electrodesiccation procedure. "In our study, post-inflammatory hyperpigmentation was observed only in a small number of cases after two weeks, and it would disappear after 8–12 weeks with minimal therapy," their research noted.

"The procedure was judicious, and with appropriate postoperative measurement, complications were able to be reduced."

The better outcome of lesser pigmentary complications in their study was explained by "the accurate depth assessment and the dried residue being left as it was after reaching the end point without wiping it out," the researchers explained, in contrast to another cited research whose study protocol required the removal of each lesion by a gauge piece for depth assessment after ED, resulting in a high rate (50%) of post-inflammatory hyperpigmentation.

"Along with that, we prescribed post-procedural topical antibiotic and least potent steroid combination for a certain period of days with sunscreen applied," they added.

The researchers also reported no lesional recurrence after three months of follow-up sessions. While minor side effect profile was observed in the darker skin type, "[i]mmediate postoperative lesional mild erythema and edema disappeared within 3–5 days afterward," their study observed.

Although many expensive and high technology lasers are steadily dominating the market as the treatment of choice for various cosmetic and dermatosurgical conditions, "successful techniques with lasers were not as convincing compared to trusted age-old ED" despite certain lasers already being subjected to trials for the treatment dermatosis papulosa nigra, the research authors noted.

In addition, laser treatments have a higher cost and limited availability at only specific dermatology centers, said Gorai and his fellow researchers. In contrast, "ED machines are simple, cheap and affordable," they said.

Their study acknowledges that, compared to lasers, electrodesiccation involves more time because the procedure needs to target each lesion separately and extra care is often required to keep the lesion superficial in order to avoid post-inflammatory hyperpigmentation. Often, as in the case of multiple lesions, more than one sitting may be needed.

However, "we have shown that a simple ED is an effective method for treating a condition such as DPN. The procedure was judicious, and with appropriate postoperative measurement, complications were able to be reduced," the authors concluded. ■

The research team includes Surajit Gorai, Joly Seth, Ayush Bindal, Asit Baran Samanta, Subhas Nag and Bani Kumar Mondal. Their original research article is published in this issue of JSD (pages 3–7) .

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