



Donut Ablation Method as an Alternative to Surgical Excision or Total Ablational Laser Treatment

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Dear Editor:

We read with interest the article entitled "Effective Treatment of Congenital Melanocytic Nevus and Nevus Sebaceous Using the Pinhole Method with the Erbium-Doped Yttrium Aluminium Garnet Laser"¹. We have used this method to successfully treat patients with an Er:YAG laser (Action; Lutronic, Goyang, Korea) in continuous-wave mode with a spot size of 1 mm and an output power of 0.2 mJ/cm². We describe here a possible paradigm, a mimetic diagram, and a description of this donut ablation method with an Er:YAG laser.

Fractionated ablation methods can include both space- and pulse duration-fractionation, yielding gentler and safer results. In addition to ablative and non-ablative resurfacing lasers, QS ruby and Nd:Yag lasers have been developed for fractionated methods³. The donut ablation method is a kind of space-fractionated ablation method. This method is an extension of the pinhole method and is based on the fractional photothermolysis theory, which posits that untreated skin is a source of rapid healing and intrinsic cooling of tissue⁴; however, whereas the pinhole method makes randomly or regularly distributed dot-shaped holes on the lesion, the donut ablation method makes line- or donut-shaped holes, or holes of various shapes, along the rim of the lesion (Fig. 1A~D). Complete removal of the lesion in the treated area requires the hole to be deep enough; that is, the appearance of normal tissue is the endpoint of treatment, resulting in a complete removal in the ablated fraction space. Any erythematous areas remaining after previous treatments were avoided to prevent scarring. Each lesion is treated in multiple sessions, with 1

to 2 month intervals between sessions.

Using this method, we treated 26 patients with various skin lesions. Of these, 16 were almost completely treated, and all 26 showed at least a partial response (Table 1). One 31-year-old female with a nevus sebaceus on her forehead, which was a significant, cosmetically unacceptable size, was treated with this method. After six sessions, the lesion was completely resolved (Fig. 1E~G). A 53-year-old female with bilateral xanthelasma on the medial side of the eyelids was also treated with this method. After three sessions, the lesion was almost clearing without any side effects (Fig. 1H~K). Although xanthelasma can be treated with surgical excision, laser total ablation, chemical cauterization, or cryotherapy, these methods have significant risks of scarring and pigmentary changes after the treatment⁵. Another patient, a 40-year-old female with a deep dermal melanocytic lesion, was treated with five sessions of Er:YAG laser ablation that produced donut-shaped holes, resulting in almost complete elimination of the pigmented lesion (Fig. 1L~O).

The goal of donut ablation is maximally deep treatments to completely eliminate the lesion; however, the treatment area is confined to multiple dots, holes, lines, or segments to reduce adverse events such as scarring and recurrence. By contrast, the total ablation method utilizes limited penetration depths due to concerns about scarring. If skin lesions do not require removal in a single step, the results may be superior, with far fewer adverse events.

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Fig. 1. Schematic diagrams showing (A) a shallow classic ablation, which may leave a remnant lesion, with lesions having a relatively high rate of recurrence; (B) a deep classic ablation, which is associated with an increased risk of scarring; (C) the pinhole method, in which the laser makes randomly or regularly distributed dot-shaped holes on the lesion; and (D) donut ablation, in which the laser makes line- or donut-shaped holes, or holes of various shapes along the rim of the lesion. (E~G) Photographs of a nevus sebaceus in a 31-year-old female (E) before treatment, (F) one month after three treatment sessions, and (G) one year after the final treatment (six sessions). (H~K) Photographs of a 53-year-old female with xanthelasma on both medial sides of the upper eyelids. (H) Right and (I) left sides before pretreatment. (J) Right and (K) left sides three months after the last of three treatment sessions. (L~O) Photographs of a 40-year-old female with dermal melanosis. (L) Before treatment; (M) generation of a deep donut-shaped hole to remove deep-seated areas; (N) generation of another donut-shaped hole one month after the first session, while avoiding previously treated erythematous areas; and (O) three months after the final treatment (five sessions).

Table 1. Summary of the patients treated by fractional resurfacing

Disease	Number of patients	Average number of treatment sessions
Melanocytic nevus	7	6.7
Dermal melanosis	1	5.0
Lentigine	5	6.0
Café au lait macule	2	3.5
Nevus sebaceus	2	5.5
Telangiectasia	3	2.7
Xanthelasma	1	3.0
Scar	5	3.8

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Acral Persistent Papular Mucinosis with Partial Response to Tacrolimus Ointment

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Dear Editor:

Acral persistent papular mucinosis (APPM) is a rare subtype of localized lichen myxedematosus (LM)¹ with unknown etiology. To our knowledge only six cases tried treatment¹⁻³, and two cases showed family history¹. A 53-year-old woman presented with asymptomatic 1~3 mm flesh-colored papules symmetrically located on both

dorsum of hands and wrists, and on anterior chest. It first appeared 7~8 years ago and did not disappear. She was previously healthy and no abnormalities were found in annual check-up. Her two brothers had same lesions on their dorsum of hands. Biopsy was done on the hand lesion and discrete mucin depositions in upper dermis with spared grenz zone confirmed the diagnosis of APPM (Fig. 1).

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