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An evolution in cosmetic dermatology & rejuvenation

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Despite the advancement of Laser and surgical resurfacing procedures, atrophic acne scars is still the Achilles' heel of dermatologic surgery. According to the theory of Orentreich (1994), fibrous strands that are the consequence of inflammatory acne vulgaris result in tethering the skin surfaceto the hypodermis. Therefore, releasing these fibrous strands and subsequent formation of new connective tissue in the course of wound healing can lead to level up the skin which is the basis of "subcutaneous incisionless surgery" or "subcision" procedure. Tri-beveled hypodermic needle (Nokor) is the most common device to undermine atrophic acne scars. Since the introduction of subcision, several methods have been proposed in order to enhance clinical efficacy besides reduction of complications and discomforts. Although various instruments such as a tribevelled needle, triangular Nokor needle, or conventional needles (hypodermic 18 to 27G needle), cataract blade and wire with different techniques for better device controlling have been suggested, their effectiveness is a subject of controversy. Moreover, Low length of the Nokor needle, difficulty to control horizontal movements, need to multiple needle entrance sites, the high risk of needle sticking for surgeon, the possibility of neurovascular injuries and complications such as permanent discoloration, iatrogenic scars of the needle entry, bleeding and excessive fibroplasia leading to subdermal nodule formation in addition to moderate patient satisfaction has led to lose overall popularity of this type of subcision based on cutting the fibrotic bands and producing hematoma as an autologous filler.

Blunt Subcision Blade (DRBB Subcision Device): With the aim of fibrous strand release, we hypothesized that a blunt blade with narrow rim may replace sharp instruments in cutting these anchoring fibers. We suppose that the advantages of the blunt blade for undermining of atrophic scares can be a great deal such as lesser possibility of trauma to neurovascular components, and lower risk of needle sticking for surgeon. We applied "Blunt subcision blade" for subcision of the atrophic acne scars. The instrument has a unique design consist of a stainless steel blunt blade with gradually narrowing edges that gradually tapers and form two flat surfaces; but still remain blunt and non-cutting at the tip. It is long enough to reach the entire parts of a scar area. Moreover, some adjuvant techniques such as tumescent solution injection before subcision were used to allow easier blade maneuver as well as patient convenience. High volume of tumescent solution injection before subcision can promote fibrous strand release that is termed "hydrodissection". Mild dermal-subcutaneous separation make it easier to control the blade during horizontal motion and prevent deeper penetration with risk of neurovascular injuries. It also can help reduction of the pain and patient discomfort during procedure due to widespread anesthesia after tumescent injection with rather less lidocaine consumption.

To the best of our knowledge, this is the first time using ina blunt blade to undermine atrophic acne scars. In our study a moderate to marked improvement was observed in up to 83% of the studied patients that is comparable to the previous studies with Nokor or conventional needles. It is noteworthy that other types of atrophic acne scars such as deep boxcar and pitted scars are partially leveling up.

Other applications of this device are reducing the nasolabial folds and also releasing any type of fibrotic tissue under the skin

Biography

Behrooz Barikbin, MD is a dermatologist and researcher in the field of laser and cosmetic dermatology. He was graduated from Tehran University of Medical Sciences with getting the first step of dermatology board examination in 2004. He is Assistant Professor of dermatology of Shahid Beheshti Medical University and the vice president of laser Application in Medical Sciences Research Center. He is reviewer of some medical journals such as Journal of research in medical sciences and also American journal of dermatology. He has invented some medical devices such as Blunt Subcision Blade (DRBB subcision device) which has useful application for treating atrophic acne scars and also for reducing the nasolabial fold depth. He is really keen on dermatologic cosmetic and laser procedures and his research is now focused on these area.

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