

Taylor Liberator Full Field Subcision of Acne Scarring Under Tumescence Anaesthesia

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DESCRIPTION

Acne scar morphology is dependent on the severity, depth and extent of the inflammatory and healing process that follows the development of an inflammatory acne lesion. Small superficial lesions will trans-epidermally discharge, and complete healing will often follow. If dermal inflammation is severe, follicular necrosis and sloughing will produce a focal intradermal atrophic scar. The dermal inflammatory process leads to the destruction of the follicle and also damage to the perifollicular dermal collagen architecture. Re-epithelialisation of these necrotic, sloughed follicles will lead to dilated epithelialised tract formation. These vertical, tunnel-like, post-follicular necrosis remnants form the ice-pick atrophic scar subtype that we are all familiar with occurs. The enzymatic activity and inflammatory mediators will destroy deeper structures, leading to atrophic boxcar and rolling scar formation. As these scars mature, there is wound contraction that leads to further indentation.

If the scarring process and atrophy are intradermal, (i.e. deeper structures and subcutis are not involved), treatment techniques focus on the creation of neocollagenesis through the mediation of a controlled insult to the skin. This controlled insult creates inflammation, collagen neogenesis and remodelling that increases the thickness of the dermis at atrophic scar sites, leading to elevation of the deformity and improvement in the contour. It is important to understand that, with these types of techniques, scars are not removed; scar contour is improved. Scar removal can only be achieved by excisional techniques.

Scar contour improvement techniques include chemical peels, fractional-ablative and non-ablative laser, fully-ablative laser, 'TCA CROSS', micro-needling and energy-assisted micro-needling. More severe forms of acne result in nodule and cyst formation. If rupture occurs deep within the follicle, then inflammation spreads well beyond the follicle base. As hair follicle bases are found proximate to the subcutis, infra-fundibular rupture will cause inflammation to spread to the subcutis; deep scarring, sub-cuticular fat necrosis and fibrosis occur. The fibrotic strand development and fat necrosis result in tethering of the subcutis to the Superficial Muscular Aponeurotic System (SMAS). This type of scarring is seen as larger, poorly-defined areas of indentation. The problem is that

the subcutis is tethered to deeper layers, and dermal remodelling techniques will not allow for significant amelioration. Fibrous bands anchoring the subcutis to the deeper layers need to be released for skin and scar contour to be maximally improved. Surgical undermining of these scars is required to release the fibrous tethering, and this technique is referred to as subcision.

Subcision, or subcutaneous incision-less surgery, is a minor-surgical technique first introduced by Orentreich and Orentreich in 1995. It is a trademarked technique² used in the management of depressed scars or skin grafts³, atrophic scars and deep rhytids. It utilises a tri-bevelled 18 or 20G hypodermic or Nokor (triangle tipped) needle⁶, its sharp edges manoeuvred under the defect to break the fibrotic strands which tether the scar to the underlying subcutaneous tissue.

Treatment is delivered after topical or infiltration anaesthesia. With the needle bevel facing upwards, the original approach was to use side-to-side 'windscreen wiper' motions. Some authors subsequently added 'to and fro' liposuction-like motions. Depth is modified depending on the depth of scarring. An audible feedback in the form of a snapping sound is heard as the fibrous bands are broken. A small haematoma is allowed to be formed, this actually assisting with tissue remodelling. Haemostasis is maintained with pressure and ice application.

Patients are advised to expect bruising and swelling which may last for up to two weeks. They must also expect a treatment course rather than a single therapy. Darker-skinned patients must be extra-vigilant with respect to sun exposure because of an increased risk of post-inflammatory hyperpigmentation (PIH). Disruption of the pilosebaceous apparatus may result in acneiform cystic lesions or subcutaneous sinus tracts - this may necessitate very low dose intralesional triamcinolone injection and possibly antibiotics.

The only contraindications to treatment are bleeding tendency and active infection. Early outcome analysis² in forty patients with rolling scars was very encouraging. Following infiltration with a solution of 1% lidocaine with 1:100,000 epinephrine, an 18-gauge Nokor needle was used to subcise in the standard method. Investigator ratings at 1 month and 6 months post-procedure found an average of 50-60% improvement in the

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treated sites. No significant complications were observed. Another series⁵, followed fifteen patients after three sessions of subcision using a 24G needle. Ratings at 2 months and 6

months were between 40% and 80% improvement. In terms of complications, two patients developed persistent haematoma.