

ACNE

Therapeutic options for acne scarring

Treatment for acne scarring can be effective, but sometimes several techniques are required. By Dr Paul Charlson

ABSTRACT

Acne scarring is common and can cause considerable distress in some patients. Many acne scars are not true scars because they are not permanent; however, they still cause significant embarrassment for patients. The successful treatment of acne scarring is satisfying and boosts patients' confidence. However, expertise is required to obtain good results.

Key words

Acne, scarring, dermaroller, laser, punch surgery, dermal filler, microdermabrasion, subcision, chemical reconstruction

Scarring as a result of acne can cause significant psychological distress for those affected. However, not all acne scars are true scars, because they are not permanent. Pseudo scars are non-permanent reddish macules that are the final stage of inflamed acne lesions. They disappear in about six months.

Post-inflammatory hyperpigmentation also occurs at the site of a healed lesion. This is more common in darker skins and can last up to 18 months; it is worsened by sun exposure.

In acne, the scarring is caused by an inflammatory response to the sebum, dead cells and bacteria present in the comedone. Dermal fibrosis occurs as a result. Some patients scar more easily than others.

A small study has suggested that the immune response is lower in magnitude, but more specific and prolonged, in patients prone to scarring.¹ If scarring patients are identified, they should be treated more aggressively.

There are two main types of scarring – raised keloid type scars and depressed scars. Keloid scars are caused by excessive collagen formation, which piles up in nodular granulation tissue arranged in a whorled pattern. The nodules demonstrate thick, hyalinised bands in the central portion of the nodule. Keloid acne scars persist for years, but can diminish over time.

Depressed scars are more common than keloid type scars. They are the result of tissue loss, often with fibrotic tethering in the base. There are a number of types (see box 1).

PREVENTION AND TREATMENT OF ACNE SCARRING

A key element of treatment of acne scarring is prevention. It is difficult to predict who will scar and to what degree. It is not known whether effective treatment of acne will prevent scars.

However, it is logical to expect that early treatment of acne is likely to be effective.² Therefore, aggressive treatment and early referral for dermatological opinion is worthwhile, especially in those patients known to scar.

Treatment of acne scarring is challenging, but good results can be achieved. It is important to remember that even a 30 per cent improvement in scarring may be very pleasing for a patient, despite being considered a medical 'failure'.

When assessing scars, it is very important to check whether they are tethered.³ This can be done by stretching the skin; if the scar flattens, it is not tethered. Tethering implies a fibrotic connection into the lower dermis, which requires additional



Treatment of acne scarring can be challenging

treatment. A range of treatments are available for acne scarring (see box 2) and frequently, several techniques are required.

TREATMENT OPTIONS FOR SCARRING

Dermaroller is a percutaneous collagen induction technique using small needles on a roller. A local anaesthetic cream is applied, then a roller is passed over the affected area several times to achieve pinpoint bleeding.

The treatment is safe and involves minimal downtime (time when the patient cannot go out), but it takes six months for a final result. I usually repeat the procedure at three months. Results are variable, but about 75 per cent of cases show a good or excellent result.³

Laser treatment involves use of a fractionated laser (1,515nm). Small columns of laser light are fired at the skin, producing microscopic treatment zones. The technique is well tolerated and effective. Results from one trial found that 87 per cent of patients treated three times showed a 51–75 per cent improvement, persisting for longer than six months.⁴ There is some downtime with laser resurfacing and availability of the appropriate laser and cost are also limitations.

Punch surgery is a technique used for isolated icepick scars. A small punch biopsy tool is used to remove the scar and the resulting wound is stitched across. This is a simple, low-cost technique that produces good results.

The residual scar usually heals neatly and fades. A further addition to this for larger scars is to graft a small piece of skin from behind the ear into the wound.

Soft scars that are not tethered can be filled using dermal filler. I usually use hyaluronic acid filler for this because it is safe and lasts about nine months. The technique is useful if the patient has a few prominent scars rather than diffuse unevenness, when it would be impossible to fill all of the scars. Tethered scars, such as icepick or boxed scars, usually require subcision at the base before filling. Subcision requires some practice to achieve maximal results. An 18-gauge non-pore

BOX 1: TYPES OF DEPRESSED SCAR

Icepick scars Small, with a jagged edge and steep sides; can be quite deep; often occur on cheeks

Soft scars Often small, with gently sloping, rolled edges that merge with normal skin

Depressed fibrotic scars (boxed) Often larger, steep-sided scars with sharp edges; firm to the touch; can develop from icepick scars

Atrophic macules Usually small on face, but larger on trunk; soft, with uneven base; may appear quite red, but often fade to white over time

Macular atrophy Small, white, soft lesions that are barely raised; lesions fade over years; tend to occur on trunk

BOX 2: TREATMENT OPTIONS

- Dermaroller
- Laser
- Punch surgery
- Dermal fillers
- Microdermabrasion
- Subcision
- CROSS (chemical reconstruction of scars)

needle with a cutting edge is used. The action is to place the needle quite superficially in the papillary dermis, then use a fanning technique. This breaks up old collagen and stimulates new growth in the tethered scars.

Subcision does cause some bruising and pain, which usually subsides quickly. The results are good, with one study finding some improvement in 90 per cent of patients.⁵

Microdermabrasion involves 'sandblasting' the skin with aluminium oxide crystals and extracting them by vacuum. In

my clinic, we often combine this with other techniques, such as dermaroller. The results of microdermabrasion alone can be disappointing and several treatments are required.

Chemical reconstruction of scars (CROSS) involves application of 100% trichloroacetic acid (TCA) to the base of the scar for 10 seconds before washing off. The scar turns white and scabs over; the scab falls off after about a week. This is a well tolerated technique, although most patients require several treatments. Boxed scars can respond surprisingly well. CROSS can be combined with dermaroller for enhanced results.

Care should be taken in pigmented skin because transient hyperpigmentation can occur. Note that all patients risk burning if the TCA is left on for too long. Results are variable, but one trial showed that all patients achieved good results after five to six treatments.⁶ ■

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Competing interests: ASK AUTHOR

REFERENCES

1. Holland DB, Jeremy AH, Roberts SG et al. Inflammation in acne scarring: a comparison of the responses in lesions from patients prone and not prone to scar. *Br J Dermatol* 2004; 150: 72-81.
2. Clearihan L. Acne. Myths and management issues. *Aust Fam Physician* 2001; 30: 1039-44.
3. Chu T. Atrophic scars. *Body Language* 2009; 31: 22-4.
4. Walia S, Alster TS. Prolonged clinical and histologic effects from CO₂ laser resurfacing of atrophic acne scars. *Dermatol Surg* 1999; 25: 926-30.
5. Alam M, Omura N, Kaminer MS. Subcision for acne scarring: technique and outcomes in 40 patients. *Dermatol Surg* 2005; 31: 310-17.
6. Lee JB, Chung WG, Kwahck H, Lee KH. Focal treatment of acne scars with trichloroacetic acid: chemical reconstruction of skin scars method. *Dermatol Surg* 2002; 28: 1017-21.