

The Use of Chemical Reconstruction of Skin Scars (CROSS) Method with Trichloroacetic Acid (TCA) for Atrophic Scars

Scott Stratman, MD, MPH¹; Helen He, MD¹

¹Department of Dermatology, Icahn School of Medicine at Mount Sinai, New York, NY

BACKGROUND

Atrophic scars have major psychosocial and functional impact. TCA CROSS applies focal high-concentration TCA to induce controlled injury and neocollagenesis. This review summarizes technique, outcomes, adjuncts, and complications.

METHODS

- PubMed search: “scar OR acne AND trichloroacetic acid.”
- Publications after 2002 were screened because 2002 marked the first description of the CROSS technique.
- Two independent reviewers screened 133 results; 34 publications met eligibility: 20 clinical trials, 4 comparative/cohort studies, 4 case series, 2 case reports, and 4 expert opinion/pearls articles.

SAFETY

- Most common adverse event: post-inflammatory hyperpigmentation, usually transient.
- Other events included erythema, hypopigmentation, crusting, discomfort, rare infection, and occasional scar worsening.
- Complication risk may be higher with higher concentrations and poor application control.

KEY FINDINGS

34 publications	937 total patients	50% - 100% TCA
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- **937 total patients** included.
- Age range **4–65 years**; most participants were **female**.
- Most studies evaluated **ice-pick** and **boxcar** acne scars.
- Concentrations ranged from **50% to 100%**.
- Typical regimens involved **3–4 sessions** every **2–4 weeks**.
- Improvement and patient satisfaction were broadly favorable.
- Best evidence supports use for **ice-pick scars**, then boxcar scars.
- **Fine-gauge needles** and **syringes** improve delivery precision.
- Adjuncts studied included **lasers**, **subcision**, **PRP**, **microneedling**, and **topical timolol**.

CONCLUSIONS

- TCA CROSS is practical and generally well tolerated for atrophic scars, especially ice-pick scars.
- Technical precision and post-procedure care are essential.
- Most patients benefit from a multimodality approach.

CLINICAL PEARLS

- Aim for precise focal frosting at the scar base.
- Avoid spillover to surrounding skin.
- Consider combination therapy for mixed scar morphologies.



TAKE HOME MESSAGE

TCA CROSS remains a practical, low-cost option for focal atrophic scars, with the strongest support for ice-pick scars. Precision of application and thoughtful use in combination regimens are central to maximizing benefit while minimizing complications.