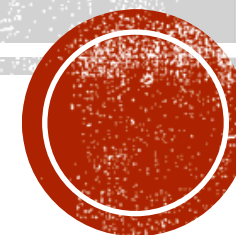


CROSS TECH

NEL TRATTAMENTO DELLE CICATRICI P



14° Meeting di Aggiornamento su Acne e Dermatosi correlate

Ferrara, 24-25 Novembre 2017

Marco Dal Canton – Belluno



Lee JB, Chung WG, Kwahck H, Lee KH.

Focal treatment of acne scars with trichloroacetic acid: chemical reconstruction of skin scars method.

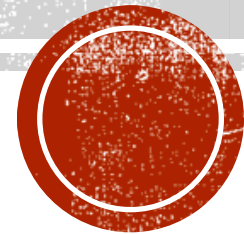
Dermatol Surg. 2002 Nov;28(11):1017-21

CROSS TECHNIQUE

Khunger N¹, Bhardwaj D, Khunger M.

Evaluation of CROSS technique with 100% TCA in the management of ice pick acne scars in darker skin types.

J Cosmet Dermatol. 2011 Mar;10(1):51-7



... Chemical reconstruction of skin scars (CROSS) is a technique using high strength trichloroacetic acid (TCA) focally on the atrophic acne scars to induce collagenization and cosmetic improvement.

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 Nov;28(11):1017-21



esame clinico > classificazione > pianificazione procedure

1

Goodman GJ, Baron JA .The management of post-acne scarring. *Dermatol Surg* 2007; 33:1175–1188

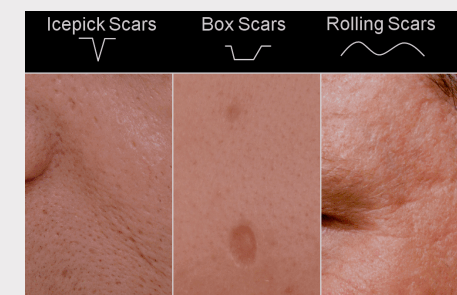
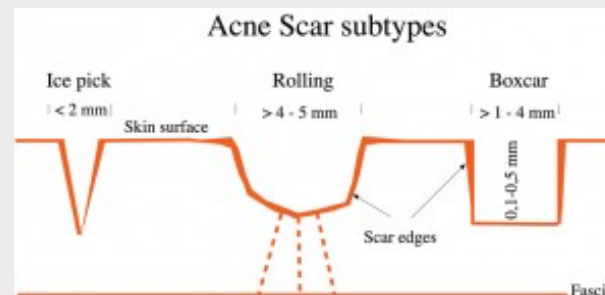
Global acne scarring classification

Grade	Level of disease	Example of scars
1	Macular	Erythematous, hyper-, or hypo pigmented flat marks; a problem of color rather than contour; visible to the patient or observer at any distance
2	Mild	Mild rolling, small soft papular; may not be obvious at social distances of 50 cm ; may be covered adequately by makeup or shadow of shaved beard hair in men
3	Moderate	More significant rolling, shallow boxcar, mild to moderate hypertrophic or papular scars; obvious at social distances of 50 cm, not easily covered , able to be flattened by manual stretching of the skin (if atrophic)
4	Severe	Punched out atrophic (deep boxcar), ice pick, bridges and tunnels, marked atrophy, dystrophic significant hypertrophy or keloid; obvious at social distances, not easily covered, and not able to be flattened by manual stretching of the skin

2

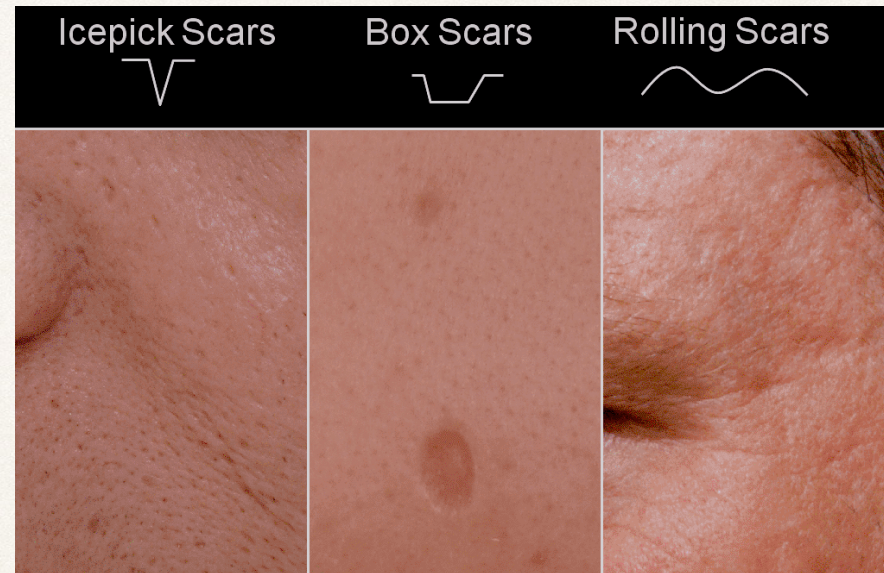
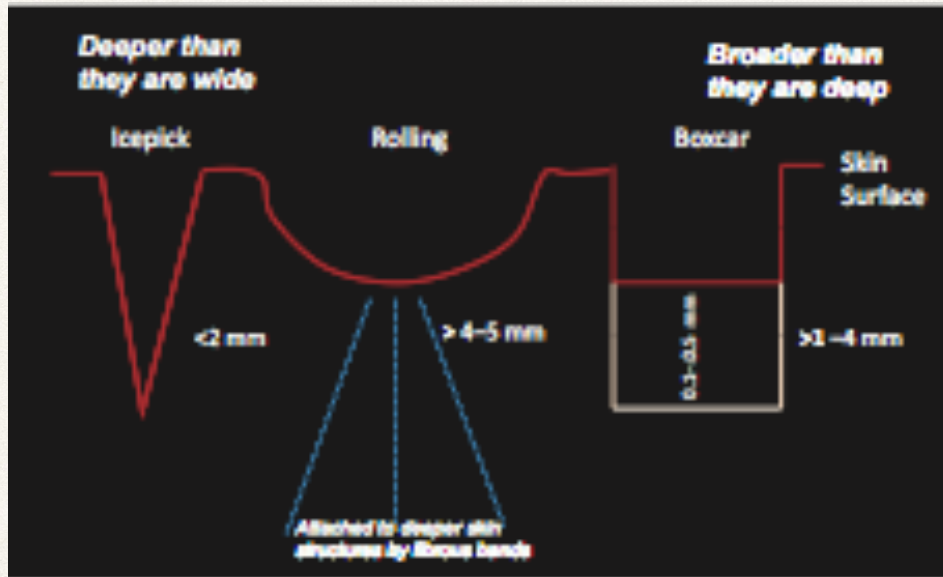
Jacob CI, Dover JS, Kaminer MS.

Acne scarring: a classification system and review of treatment options. *J Am Acad Dermatol.* 2001 Jul;45(1):109-17.



Jacob CI, Dover JS, Kaminer MS. Acne scarring: a classification system and review of treatment options. *J Am Acad Dermatol* 2001; 45: 109–117.

classificazione cicatrici acneiche



PEELING CHIMICO: DEFINIZIONE

Task Force on Chemical Peeling: Harold J. Brody, MD, Chairman, Thomas H. Alt, MD, and Nia K. Terezakis, MD

Guidelines of care for chemical peeling
J AM ACAD DERMATOL 1995;33:497-503.

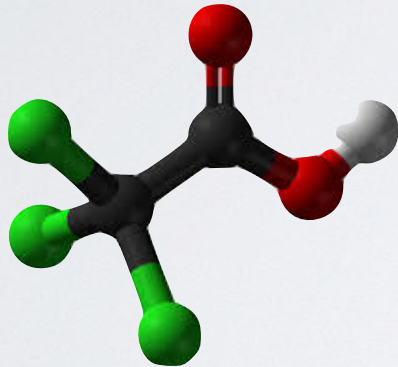
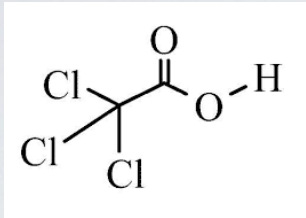
Chemical peeling (chemexfoliation) for the treatment of certain cutaneous diseases or conditions or for aesthetic improvement consists of the application of one or more **chemical exfoliating agents** to the skin, resulting in destruction of portions of the **epidermis and/or dermis** and the **regeneration** of new epidermal and dermal tissues.



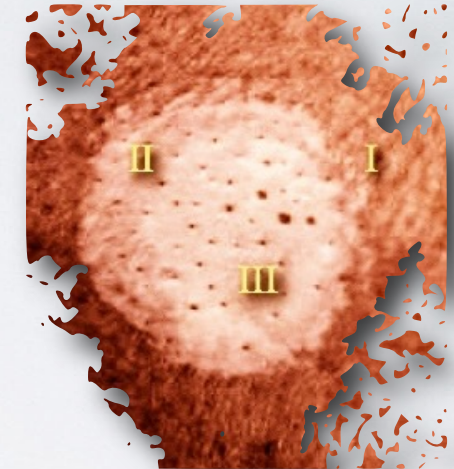
TCA

Ayres S.III.
Superficial chemosurgery.
Arch Dermatol 89:395, 1964.

pKa a.glicolico	3.83
pKa a.mandelico	3.41
pKa a.salicilico	2.97
pKa a.piruvico	2.39
pKa TCA	0.69



- Soluzioni acquosa 10-50% (peso/volume)
- Effetto proporzionale alla concentrazione
- Concentrazioni operative
 - 7,5 - 35%: p. superficiale
 - 35 - 50%: p. medio
- End point = frost I°-III°
 - Diluizione = ininfluenta dopo 2'
 - Tossicità loc.sist. = assente
 - Possibilità di peeling "combinati"
- Effetto vincolante della preparazione pre-peeling
- Skip areas
- Penetrazione irregolare/rischio cicatriziale > 45%



CLASSIFICAZIONE DEI PEELING CHIMICI

(sec.Brody, modificata)



0,06 mm

Molto superficiali (strato corneo, granuloso)

TCA 10-20%, resorcina, soluzione di Jessner, acido salicilico 4-8%, CO₂ ac.glicolico, ac, lattico, malico, tartarico, citrico, mandelico, azelaico, tretinoina, isotretinoina, tazarotene

Superficiali (strato basale - derma papillare superficiale)

TCA 20-30%, acido glicolico 70% pH 0,6-1,1, sol. di Jessner, acido salicilico 20-30%, acido mandelico, acido piruvico 30-40% soluz. alc., pasta di Unna, pasta di Swinehart

0,5-0,6 mm

Medi (d. papillare fino al d. reticolare superficiale)

TCA 35-40%

Peeling "combinati":

- . CO₂ + TCA 35%
- . s. di Jessner + TCA 35%
- . ac. glicolico 70% + TCA 35%

Fenolo USP 88%

Ac. piruvico 50- 60%

"Medium" formula al fenolo di Hetter

"Medium-heavy" formula al fenolo di Hetter

0,6-0,8 mm

Profondi (derma reticolare medio)

Sol. di Backer non-in occlusione

Sol. di Backer in occlusione

Sol. "heavy" di Hetter

Sol. di Stone, Venner- Kellson, Gradè

Ac. piruvico >60% in etanolo

*Brody HJ. The art of chemical peeling. J Dermatol Surg Oncol 15: 918-921, 1989.

*Brody JH, Alt TH, Terezakis NK et al. Guidelines of care for chemical peeling. J Am Acad Dermatol 33: 497-503, 1995.

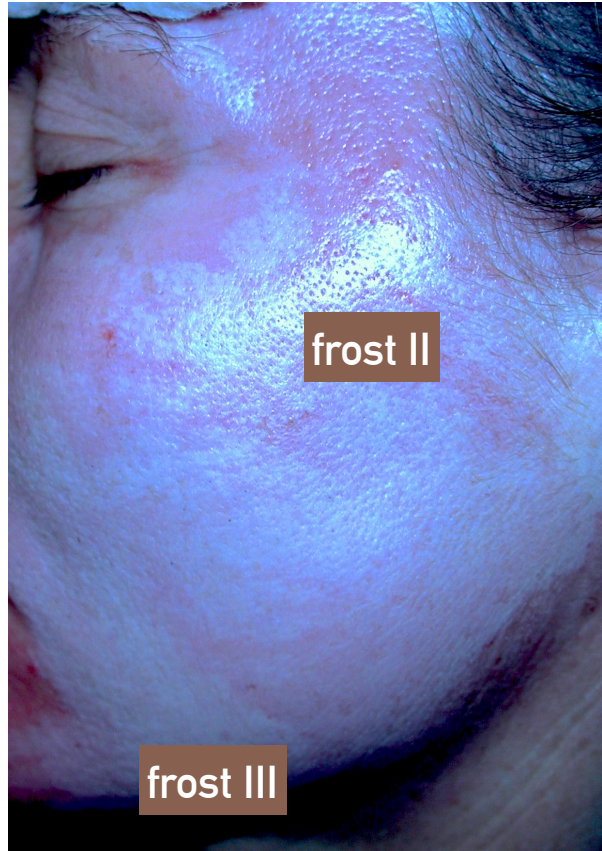
*Hetter GP. An examination of the phenol croton oil peel: part IV. Face peel results with different concentrations of phenol and croton oil. Plast Reconstr Surg 105 (3): 1061-1083, 2000.





CROSS

- 1. Bhardwaj D, Khunger N. **Assessment of the efficacy and safety of CROSS technique with 100% TCA in the management of ice pick acne scars.** J Cutan Aesthet Surg. 2010;3:93–6.
- 2. Fabbrocini G, Cacciapuoti S, Fardella N, Pastore F, Monfrecola G. **CROSS technique: Chemical reconstruction of skin scars method.** Dermatol Ther. 2008;21:S29–32.
- 3. Layton AM, Henderson CA, Cunliffe WJ. **A clinical evaluation of acne scarring and its incidence.** Clin Exp Dermatol. 1994;19:303–8.
- 4. Tan JK, Tang J, Fung K, Gupta AK, Richard Thomas D, Sapra S, et al. **Development and validation of a scale for acne scar severity (SCAR-S) of the face and trunk.** J Cutan Med Surg. 2010;14:156–60.



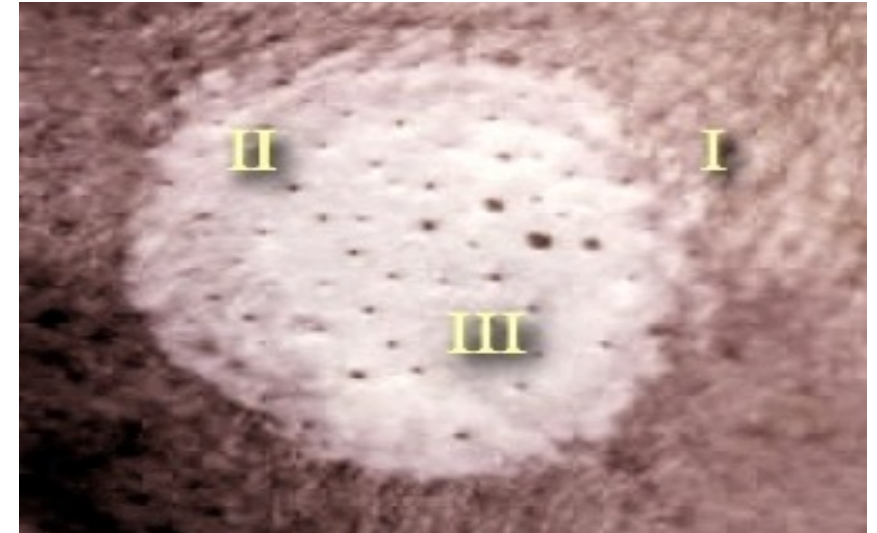
peeling chimico: end points

FROST

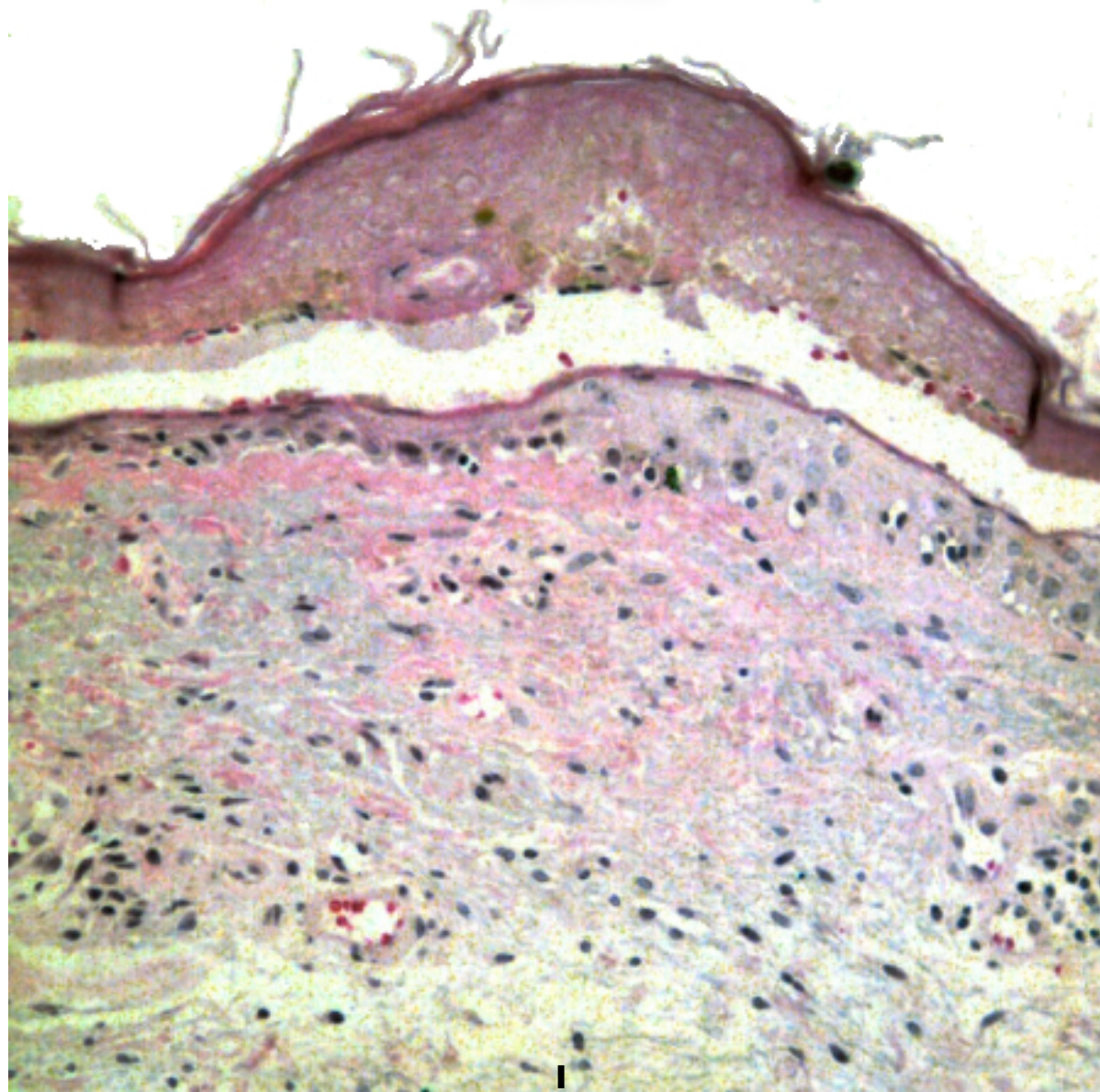
- Jessner's s., TCA, fenolo ass. , Baker's f. = **frost I-III**
- AS 20-30 %: = **frost polverulento**
- GA , ac. piruvico = **timing + no frost**

EPIDERMAL SLIDING: TCA

TEMPO, NEUTRALIZZAZIONE ++ AHAs



TCA 35% 72 hr (E&E)



1

2



peeling intermedio
di Monheit
s. di Jessner + TCA35%







- over peeling
- focal touch up
- peeling focal deepening
- ...

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 Nov;28(11):1017-21

- **higher** TCA concentrations
- **pressing hard** on the entire depressed area of atrophic acne scars.

This technique is called **chemical reconstruction of skin scars (CROSS)** by the authors.

- 33 patients w **65% TCA CROSS**
 - 32 patients w **100% TCA CROSS**
 - 5 or 6 courses of treatment showed excellent results.
-
- **good satisfaction rates in the 65% and 100% TCA groups were recorded.**
 - **no cases of significant complication.**

CONCLUSION:

CROSS is a safe and very effective single modality for the treatment of atrophic acne scars with no significant complications.

Khunger N, Bhardwaj D, Khunger M.

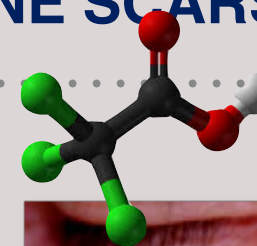
Evaluation of CROSS technique with 100% TCA in the management of ice pick acne scars in darker skin types.

J Cosmet Dermatol. 2011 Mar;10(1):51-7

... **C**hemical **R**econstruction **O**f **S**kin **S**cars (CROSS) is a technique using

- ✓ **high strength** trichloroacetic acid (TCA)
- ✓ **focally** on the
- ✓ **atrophic acne scars**
- ✓ **to induce collagenization and cosmetic improvement.**

CROSS TECHNIQUE: CHEMICAL RECONSTRUCTION OF ACNE SCARS ¹



- **TCA 50-100% (p/v)**^{1,3}
- **livello:** derma reticolare medio-profondo²
- **ind:** +++ ice pick scars (effetto simile a 1550 n-AFR)
- **applicazione:** ultra focale (*Q tip, bastoncino di legno*) / 4 sett. X 3-6 trx
- **SPF** quotidiana
 - eritema: signif. > risp. a 1550 nm n-AFR ⁵
- relativamente sicura in fototipo scuri¹
- CROSS technique con **TCA 50%:**
 - risultati comparabili a TCA 90%, ma < eff. indesiderati⁴

1. Lee JB, Chung WG, Kwahck H et al.

Focal treatment of can scars with trichloroacetic acid: chemical reconstruction of skin scar method.
Dermatol Surg 2002;28 (11) 1017-21

2. Yug A, Lane JE, Howard MS et al.

Hystologic study of depressed acne scars treated with serial high concentration (95%) trichloroacetic acid.
Dermal Surg 2006, 32:985-990

3. Sachdeva S.

CROSS technique with full strength TCA in the management of ice pick scars.
J Cutan Aesth Surg 2011 4:160

4. Fabbroncini G, Cacciapuoli S, Fardella N, Pastore F et al.

CROSS technique: chemical reconstruction of skin scars method.
Dermal There 2008, 3:S29-32

5. Kim HJ, Kim TJ, Kwon YS et al.

Comparison of a 1550 nm Erbium:glass fractional laser and a chemical reconstruction of skin scars (CROSS) method in the treatment of one scars: a simultaneous split face trial.
Lasers Surf Med 2009 41:545-549.

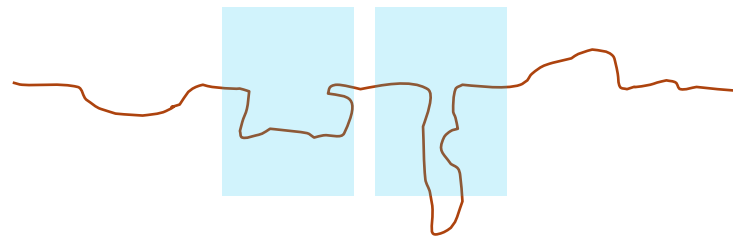




CROSS technique

- trattamento focale
- effetto “verticale” (ice pick + box scars)
- relativamente sicuro anche in fototipi scuri

Jackob CL, Dover JS, Kaminer MS. Acne scarring: a classification system and review of treatment options. J Am Acad Dermatol 2001;45:109-117



Garem YF, Ghabrial EE, Embaby MH.
Chemical reconstruction of skin scars (CROSS) technique using trichloroacetic acid 50% in different types of atrophic acne scars.
Egypt J Dermatol Venerol 2013;33:37-41



Female patient with skin type IV and both types of scars (icepick, boxcar) who showed 43% improvement after treatment. Goodman's score decreased from 21 to 12. (a) Before treatment; (b) after three sessions.



Khunger N, Bhardwaj D, Khunger M.

Evaluation of CROSS technique with 100% TCA in the management of ice pick acne scars in darker skin types.

J Cosmet Dermatol. 2011 Mar;10(1):51-7

- 100% TCA ice pick scars in dark pts
- 30 pts skin types IV and V.
- priming w HQ 4% (morning) + tretinoin 0.025% (night).
- focal 100% TCA w wooden toothpick
- 2 week interv. X 4 sessions.
- blinded evaluation

TCA 100%

➤ excellent improvement :	> 70% (73.3%)
➤ good improvement:	20% (50-70%)
➤ fair results:	6.7% (30-49%)
➤ transient hypopigmentation:	1 pt
➤ hyperpigmentation:	2 pts.
➤ prolonged pigmentary changes:	no
➤ scarring:	no

CONCLUSION:

CROSS technique with 100% TCA = safe, minimally invasive, efficacious, and cost-effective technique in darker skin. priming and continued use of hydroquinone and tretinoin reduces complications and promotes healing.



CROSS



Courtesy: Vincenzo Bettoli:

*Ramadan SA, El-Komy MH, Bassiouny DA, El-Tobshy SA.
Subcision versus 100% trichloroacetic acid in the treatment of rolling acne scars.
Dermatol Surg. 2011 May;37(5):626-33*

OBJECTIVE:

100% TCA CROSS VS subcision in treating rolling acne scars.

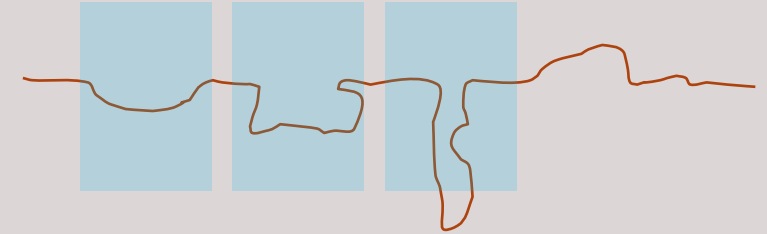
- 22pts , III-VI,
- bilateral rolling acne scars
- 1-3 100% TCA CROSS technique for scars on the left side of the face
- subcision for scars on the right side.

RESULTS:

- mean **decrease in size and depth** of scars **> for the subcision side** than the 100% TCA CROSS ($p < .001$).
- side effects (PIH) **>** with the 100% TCA CROSS

CONCLUSION:

- On rolling acne scars: **subcision** shows **better results**
- **>** side effects w **100% TCA CROSS**
- Further decrease in scar depth with **time**



Leheta T, El Tawdy A, Abdel et al.

Percutaneous collagen induction versus full-concentration trichloroacetic acid in the treatment of atrophic acne scars.

Dermatol Surg. 2011 Feb;37(2):207-16.

safety and efficacy of PCI VS 100% TCA CROSS

group 1 : 4 sessions (4 weeks apart) of PCI,

group 2 : four sessions (4 weeks apart) of 100% TCA CROSS.

RESULTS:

Acne scarring improved in 100% of patients.

Scar severity scores improved by a mean of 68.3% ($p < .001$) in group 1 and a mean of 75.3% ($p < .001$) in group 2.

The difference in the degree of improvement was not statistically significant between the groups ($p = .47$).

CONCLUSIONS:

PCI and 100% TCA CROSS were effective in the treatment of atrophic acne scars.

Yug A, Lane JE, Howard MS, Kent DE.

Histologic study of depressed acne scars treated with serial high-concentration (95%) trichloroacetic acid.

Dermatol Surg. 2006 Aug;32(8):985-90

- serial application of high-concentration (**95%**) trichloroacetic acid (TCA)
- atrophic and "ice-pick" acne scars in 3 patients w wooden applicators were
- repeated at 6-week intervals
- total of **6** trx.
- punch biopsies: baseline and at 1 year
- histologic examination w HE, Masson trichrome, Verhoeff-van Gieson staining.

TCA 95%

RESULTS:

- apparent cosmetic improvement = depth + appearance of acne scars.
- decrease in the depth of acne scars

HP=

- increased collagen fibers
- fragmentation of elastic fibers

CONCLUSION:

- **clinical improvement + histologic changes described.**

*Fabbrocini G, Cacciapuoti S, Fardella N, Pastore F, Monfrecola G.
CROSS technique: chemical reconstruction of skin scars method.
*Dermatol Ther. 2008 Nov-Dec;21 Suppl 3:S29-32**

- Evaluation of efficacy of **50% VS 90%** used in previous studies,
- atrophic acne scars (Goodman grade 3) in 5 pts
- at 4-week X 3 sessions.

- Digital photographic analysis
- HP = only on 2 samples

TCA 50%

RESULTS

- **cosmetic improvements in depth and appearance scars.**

- **50% TCA CROSS can be an effective technique for the treatment of atrophic scars.**

Dalpizzol M, Weber MB, Mattiazzi AP, Manzoni AP.

Comparative Study of the Use of Trichloroacetic Acid and Phenolic Acid in the Treatment of Atrophic-Type Acne Scars.

Dermatol Surg. 2016 Mar;42(3):377-83.

➤ **88% phenol VS 90% TCA – CROSS** technique.

- nonrandomized, single-blinded self-controlled clinical trial
- ice pick-type + boxcar-type atrophic acne scars.
- 88% phenol LEFT face
- 90% TCA on RIGHT face
 - dermatological quality of life index (DLQI) questionnaire,
 - acne scar grading scale Échelle d'Évaluation Clinique des Cicatrices d'Acne (ECCA)

RESULTS:

- ✓ **significant differences in pretreatment VS post-treatment** ($p < .001$).
- ✓ discomfort felt with 90% TCA significantly < than 88% phenol ($p = .020$).
- ✓ **hypochromia and enlargement scar**: only seen with **90% TCA**.

CONCLUSION:

This study confirmed the efficacy of both TCA and phenol for treating such scars, **with less severe complications from the use of phenol.**

Ahmed R, Mohammed G, Ismail N, Elakhras A.

Randomized clinical trial of CO₂ LASER pinpoint irradiation technique versus chemical reconstruction of skin scars (CROSS) in treating ice pick acne scars.

J Cosmet Laser Ther. 2014 Jan;16(1):8-13

- pinpoint irradiation technique VS TCA CROSS in ice pick scars (28 pts)
- open, label pilot study. Vs control group
 - pinpoint irradiation technique by CO₂
 - TCA CROSS

RESULTS:

acne scar severity index and qualitative scarring grading system : statistically significant difference (p < 0.05).

CONCLUSION:

Pinpoint irradiation technique by CO₂ LASER is safe and more effective than TCA CROSS technique.

Nofal E, Helmy A, Nofal A, et al

Platelet-rich plasma versus CROSS technique with 100% trichloroacetic acid versus combined skin needling and platelet rich plasma in the treatment of atrophic acne scars: a comparative study.

Dermatol Surg. 2014 Aug;40(8):864-73.

PRP + skin needling (dermaroller) VS 100% TCA chemical reconstruction of skin scars technique

- 45 pts
- randomly assigned to 3 groups X 3 sessions @ 2-week interval.
 - Group A: intradermal injection of PRP
 - Group B: CROSS TCA 100%,
 - Group C: combined skin needling and PRP.

RESULTS:

statistically significant improvement in the degree of acnescars ($p < .001$).

CONCLUSION:

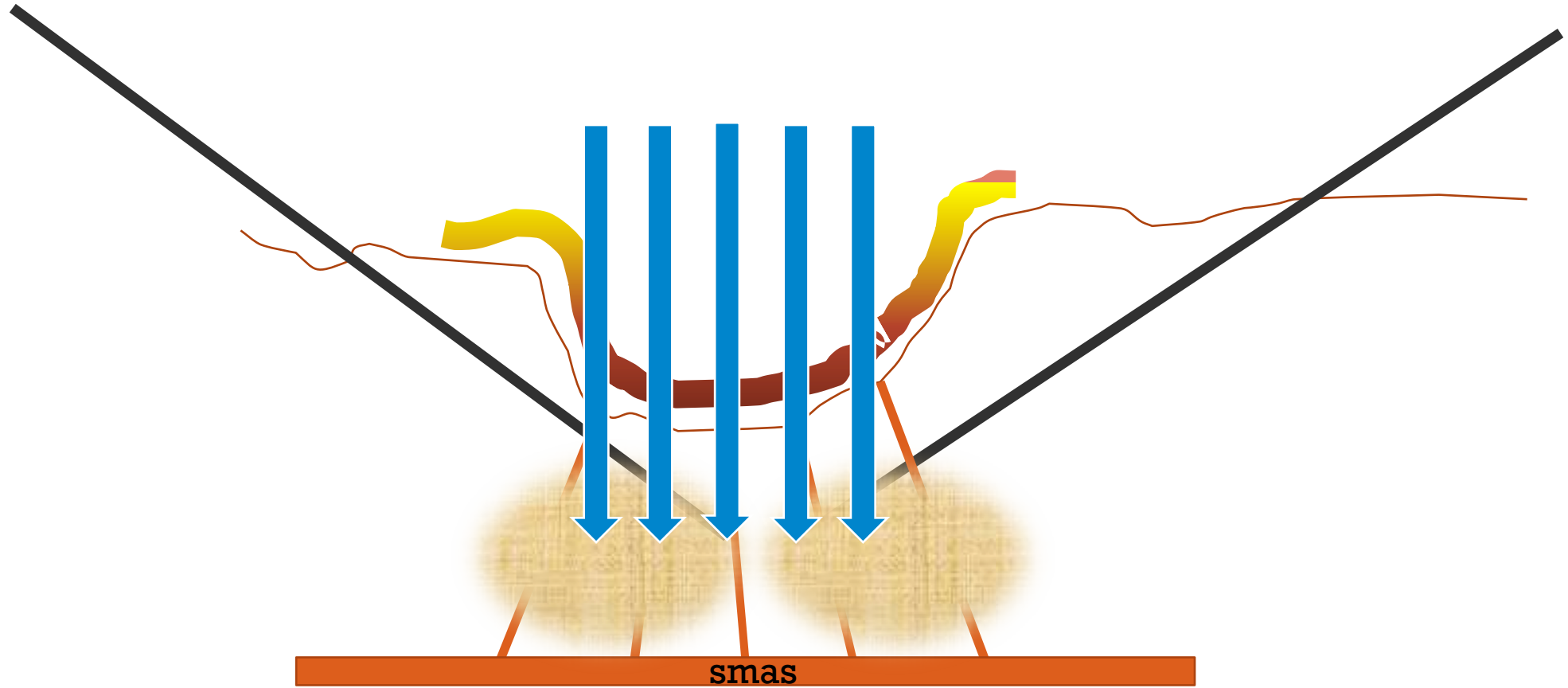
The 3 modalities showed a promising efficacy and safety in the treatment of atrophic acne scars.



- lack of high-quality evidence about the effects of different interventions for treating acne scars
 - poor methodology,
 - underpowered studies
 - lack of standardised improvement assessments
 - different baseline variables.
- injectable fillers: moderate-quality evidence, but
 - no studies on long-term effects (longest follow-up 48 weeks) in one study only.
- ❖ **this review do not provide support for the first-line use of any intervention in the treatment of acne scars.**

24 trials - 789 adult participants aged 18 years or older.

20 trials enrolled men and women, three trials enrolled only women and one trial enrolled only men. We judged eight studies to be at low risk of bias for both sequence generation and allocation concealment. With regard to blinding we judged 17 studies to be at high risk of performance bias, because the participants and dermatologists were not blinded to the treatments administered or received; however, we judged all 24 trials to be at a low risk of detection bias for outcome assessment. We evaluated 14 comparisons of seven interventions and four combinations of interventions. Nine studies provided no usable data on our outcomes and did not contribute further to this review's results. For our outcome 'Participant-reported scar improvement' in one study fractional laser was more effective in producing scar improvement than non-fractional non-ablative laser at week 24 (risk ratio (RR) 4.00, 95% confidence interval (CI) 1.25 to 12.84; n = 64; very low-quality evidence); fractional laser showed comparable scar improvement to fractional radiofrequency in one study at week eight (RR 0.78, 95% CI 0.36 to 1.68; n = 40; very low-quality evidence) and was comparable to combined chemical peeling with skin needling in a different study at week 48 (RR 1.00, 95% CI 0.60 to 1.67; n = 26; very low-quality evidence). In a further study chemical peeling showed comparable scar improvement to combined chemical peeling with skin needling at week 32 (RR 1.24, 95% CI 0.87 to 1.75; n = 20; very low-quality evidence). Chemical peeling in one study showed comparable scar improvement to skin needling at week four (RR 1.13, 95% CI 0.69 to 1.83; n = 27; very low-quality evidence). In another study, injectable fillers provided better scar improvement compared to placebo at week 24 (RR 1.84, 95% CI 1.31 to 2.59; n = 147 moderate-quality evidence). For our outcome 'Serious adverse effects' in one study chemical peeling was not tolerable in 7/43 (16%) participants (RR 5.45, 95% CI 0.33 to 90.14; n = 58; very low-quality evidence). For our secondary outcome 'Participant-reported short-term adverse events', all participants reported pain in the following studies: in one study comparing fractional laser to non-fractional non-ablative laser (RR 1.00, 95% CI 0.94 to 1.06; n = 64; very low-quality evidence); in another study comparing fractional laser to combined peeling plus needling (RR 1.00, 95% CI 0.86 to 1.16; n = 25; very low-quality evidence); in a study comparing chemical peeling plus needling to chemical peeling (RR 1.00, 95% CI 0.83 to 1.20; n = 20; very low-quality evidence); in a study comparing chemical peeling to skin needling (RR 1.00, 95% CI 0.87 to 1.15; n = 27; very low-quality evidence); and also in a study comparing injectable filler and placebo (RR 1.03, 95% CI 0.10 to 11.10; n = 147; low-quality evidence). For our outcome 'Investigator-assessed short-term adverse events', fractional laser (6/32) was associated with a reduced risk of hyperpigmentation than non-fractional non-ablative laser (10/32) in one study (RR 0.60, 95% CI 0.25 to 1.45; n = 64; very low-quality evidence); chemical peeling was associated with increased risk of hyperpigmentation (6/12) compared to skin needling (0/15) in one study (RR 16.00, 95% CI 0.99 to 258.36; n = 27; low-quality evidence). There was no difference in the reported adverse events with injectable filler (17/97) compared to placebo (13/50) (RR 0.67, 95% CI 0.36 to 1.27; n = 147; low-quality evidence).





CROSS





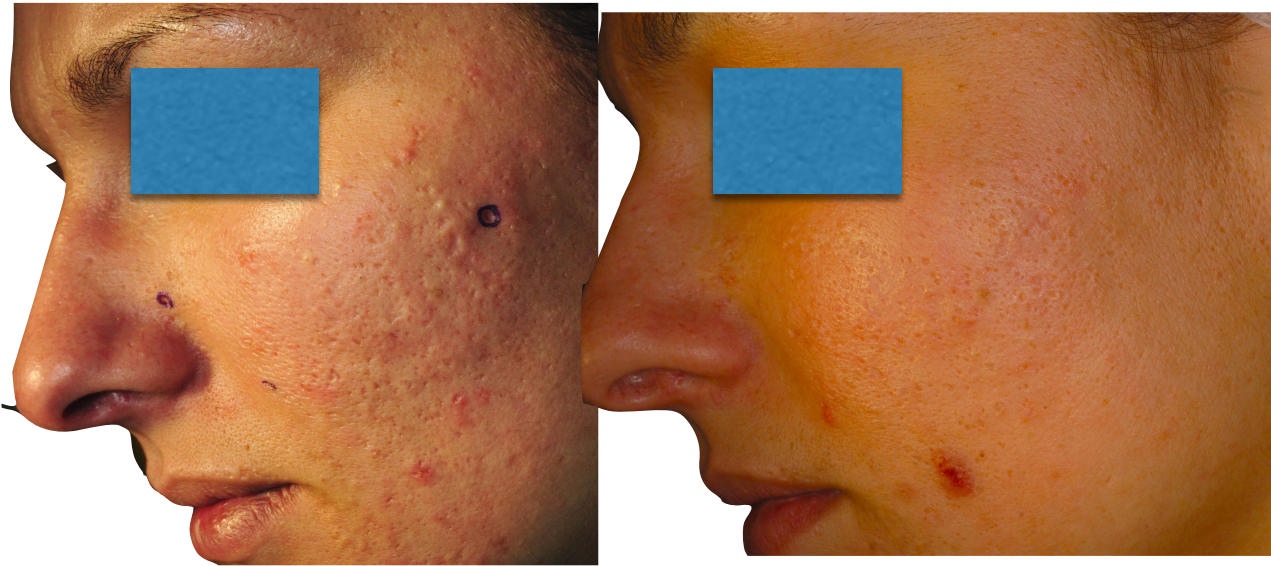
Courtesy: Vincenzo Bettoli:



subcision + HA x 3 + CROSS + Er:YAG 2940 nm LP FX4 @ 1 yr

12

- subcision + HA reticolato e NASHA x 3 sedute
- punch excision + excision
- subcision + HA reticolato e NASHA x 2 sedute
- Er: YAG 2940 AL + AT- FL
- subcision + HA x 4 sedute



PRE: Er: YAG 2940 nm AL + AT-FL focale

15-03-2013

05-11-2013



1st Announcement
Joint Congress
Rome, 7th - 9th June 2018
"Open Your Mind"



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www.cas-kongresse.de

GRAZIE
per l'attenzione



Marco Dal Canton - Belluno

mdc@qderm.it



1st Announcement
Joint Congress
Rome, 7th - 9th June 2018
"Open Your Mind"

Main Topics:

- Aesthetic Dermatology
- News in FILLER and Botulinum Toxin Treatment
- Body Rejuvenation
- Liposuction and Lipotransfer
- Cellulite Treatments
- Laser
- Radiofrequency and Microfocussed
- Ultrasound for Facial Rejuvenation
- Peeling and Female Rejuvenation
- Basic and advanced hands on courses of dermatologic surgery
- News in anatomy for the dermatologic and cosmetic surgeon
- Dermatologic surgery in difficult areas
- New drugs in dermatologic oncology
- Ajcc 2018: an updated cancer staging system
- Actinic keratosis: new concepts, new strategies
- Mohs surgery in 2018
- Hidradenitis suppurativa: practice essentials

Joint Congress
Rome
7th - 9th June 2018
"Open Your Mind"



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14° meeting di aggiornamento su acne e dermatosi correlate – Ferrara, 25 novembre 2017

CROSS Technique

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DLCMRC63R05A757T

DOMANDE ECM:

- 1) *CROSS technique significa:*
- a. chemical reconstruction of skin scars
 - b. complete resurfacing of skin surface
 - c. complete removal of skin signs
 - d. color restoration of skin surface

RISPOSTA: a

- 1) *Il TCA focale ad alta concentrazione per la ricostruzione di cicatrici post- acneiche è indicazione appropriata:*
- a. per il trattamento di rolling scars
 - b. per il trattamento dell'intera superficie affetta da cicatrici post- acneiche
 - c. per il trattamento di cicatrici post- acneico ipertrofiche
 - d. principalmente per il trattamento di cicatrici del tipo ice- pick e box scar sec. Jakob

RISPOSTA: d