

## Pearls in Dermatology

### Salicylic acid peel (Acne peel)

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Salicylic acid (SA) has recently been used in higher concentrations as a superficial chemical peeling agent. The author evaluated the efficacy and safety of SA peels as a treatment of acne vulgaris in Asian people. The results prove that this peel is the agent of choice for a number of reasons. Firstly, the lipophilic nature of salicylic acid attacks the comedone with a specific comedolytic action. Secondly, the anti-inflammatory property of salicylic acid is helpful for inflammatory acne lesions and post-inflammatory erythema. Thirdly, this non-inflammatory peel is safe in darker skin types and in the treatment of post-inflammatory hyperpigmentation.

**Keywords:** Acne vulgaris, salicylic acid, superficial chemical peeling

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#### Introduction

The degree of clinical improvement, the length of the recovery period, and the risk of complications after chemical peeling are all proportionate to the depth of tissue injury. Selection of suitable patients and proper choice of peeling agents are critical to success. Only superficial peeling has yielded predictable and least complications. Superficial chemical peeling agents used in acne are divided into two varieties-very light and light (Table 1). With very light peels, the injury is usually limited to the stratum corneum and only creates exfoliation, but

the injury may extend into the stratum granulosum. Light peels injure the entire epidermis down to the basal layer, stimulating the regeneration of a fresh new epithelium. Kligman et al (1998) first reported the effectiveness of high concentration (20-30%) salicylic acid (SA) peel for acne and mild photoaging.<sup>1</sup> Grimes et al (1999) treated post-inflammatory hyperpigmentation with SA peel in skin types V and VI.<sup>2</sup> The author (2003) confirmed the efficacy and safety of 30% full-face SA peel as a treatment of acne vulgaris among Asian people.<sup>3</sup> Based on these reports the author recommends SA peel as a choice of peel for acne treatment (Acne peel). It is better than any other very light peeling agents in terms of techniques and complications among Asian acne patients.

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#### Description of techniques

Salicylic acid peels (20-30%) are performed at 2-week intervals, and each patient needs a series of such peels based on the severity of clinical

**Table 1.** Classification of chemical peeling agents in acne**Superficial - very light: stratum corneum and granulosum**

\*Resorcinol &amp; Sulfur lotion

- 20-25% of glycolic acid or other  $\alpha$ HA
- 10-20% TCA (w/v formulation)
- Obagi blue peel
- Jessner's solution\*
- Tretinoin
- Salicylic acid ( $\beta$ HA)

**Strength: # of Negative charger**Cl-group (TCA) >> OH-group ( $\beta$ HA,  $\alpha$ HA)Penetration: MwT (GA <<  $\alpha$ HA< $\beta$ HA)**Superficial - light: entire epidermis (to basal layer)**

- 70% glycolic acid
- Jessner's solution\*
- 25-30% TCA

**JESSNER'S SOLUTION (COMBES' FORMULA)**

|                |      |                        |        |
|----------------|------|------------------------|--------|
| Resorcinol     | 14 g | 85% lactic acid        | 14 g   |
| Salicylic acid | 14 g | 95% ethanol (q.s.a.d.) | 100 ml |

symptoms. Multiple peels on a repeated basis are usually necessary to obtain optimal results. A surgical cap is used to pull back the hair and cover the ears. Before treatment, the full facial skin is cleansed with tap water. The face is initially scrubbed with 4' x 4' gauze pads containing 70% isopropyl alcohol, then dried. Because of the defatting and degreasing properties with minimal damage to skin barrier function of 70% isopropyl alcohol, we prefer sponge pad moistened in a solution and then use it to cleanse the skin even further especially on acne lesions. Finally, the cleansed skin is palpated immediately prior to peeling in order to check for the presence of residual oils, debris, and excess stratum corneum. If any is felt, the process is repeated. A thorough cleansing and degreasing of the acne lesions assures better penetration of the peeling solution for comedolytic activity and leads to the better results.

Twenty to thirty-percent salicylic acid is applied with a wedge sponge for 2 to 4 minutes to the entire face. During the application of SA peeling agents, there may be mild stinging followed by a level I frosting, defined as the appearance of erythema and streaky whitening on the surface. Salicylic acid has the ability of self-neutralisation. The exposure time depends on the intensity of the clinical

response. Then patients wash their face with tap water. After peeling, the use of a moisturising cream and a cleanser that are specific for intolerant skin is recommended. All patients are strongly encouraged to use a sunscreen.

## Comments

Salicylic acid, a beta-hydroxy acid that has a phenolic ring in chemical structure, is very safe and easily used alone in superficial chemical peeling. It is a preferred therapy for comedonal acne as it is lipophilic and concentrates in the pilosebaceous apparatus. It is quite effective as an adjunctive therapy for open and closed comedones and resolving post-acne erythema. The author also recently confirms the whitening effect of SA peels (manuscript in preparation).

Asian acne patients have different clinical features compared with those of Caucasians, such as lesser incidence of nodulocystic type acne and higher chance of pigmentation. Therefore 20% to 30% SA peels are the agent of choice in the management of acne and its post-inflammatory erythema or post-inflammatory pigmentation (so-called acne-related hyperpigmentation) in Asian skin types (Figure 1). Like other superficial chemical



**Figure 1.** Twenty-four years old female with acne vulgaris. (A) Before treatment, (B) after three sessions of 30% SA peel treatment, (C) after 5 sessions of treatment.

peels, SA peel has the advantages of only mild stinging and burning sensation during application as well as minimal time needed for recovery. However there is little effect on the dermis. Both patients and physicians must understand the limitations of superficial peeling. Nevertheless, their ease of use and minimal down-time makes these peels rewarding for patients with realistic expectations and are a favorite of busy patients.

The therapeutic effect of SA peel is further enhanced by medical therapy including a topical or systemic antibiotic and, if necessary, topical retinoids. In comparison to some of the newer options available, SA peels have a long-standing safety (no salicylism reports) and efficacy record, are performed with ease, are low in cost, and have a very quick skin barrier recovery time (within 2 weeks).

## Further reading

1. Mills OH Jr, Kligman AM. Assay of comedolytic activity in acne patients. *Acta Derm Venereol* 1983;63:68-71.
2. Kligman D. Technologies for cutaneous exfoliation using salicylic acid. *Dermatologic Therapy* 2001;14:225-7.
3. Akhavan A, Bershada S. Topical acne drugs: review of clinical properties, systemic exposure, and safety. *Am J Clin Dermatol* 2003;4:473-92.

## References

1. Kligman D, Kligman AM. Salicylic acid peels for the treatment of photoaging. *Dermatol Surg* 1998;24:325-8.
2. Grimes PE. The safety and efficacy of salicylic acid chemical peels in darker racial-ethnic groups. *Dermatol Surg* 1999;25:18-22.
3. Lee HS, Kim IH. Salicylic acid peels for the treatment of acne vulgaris in Asian patients. *Dermatol Surg* 2003;29:1196-9; discussion 1199.