



Managing Chemical Peel Complications

Four practitioners discuss adverse events following chemical peel treatments and explore management, showcasing two successful case studies

Skin peeling dates back hundreds of thousands of years.

Historically, it is thought that the ancient Egyptians used animal oils, salt, alabaster and sour milk (lactic acid), American Indians would use dried corncobs and Polynesians would use crushed shells to abrade the surface of their skin, all to improve its quality.^{1,2}

Although today's approaches are not as alternative, skin peeling is a significant part of most aesthetic practices, where it is often achieved through topical chemical formulations.

Today's patients are often over-worked, stressed and living in over-populated cities, which we know is having detrimental effects on the skin, so it's no surprise that chemical peels are a popular solution. They can improve signs of dullness, reduce lines and even improve the appearance of mild scars, amongst many other common concerns.³⁻⁷

"We wear our skin every single day. It's how we communicate with the outside world so it's understandable that good skin quality is a top priority for so many patients," says surgeon and aesthetic practitioner Miss Sherina Balaratnam. "Comments like 'You look healthy' or 'You're glowing' don't just come from having wrinkle-free skin or fuller lips, they come from the light reflections," explains aesthetic practitioner Dr Max Malik. "I have absolutely seen a rise in patients mentioning skin quality in my practice and things that weren't so bothersome before are now being highlighted, like freckles for example," he adds. But it's not to say that chemical peel treatments don't come with their risks and complications, just like so many other aesthetic procedures do. Dr Malik says, "The industry is really focused on dermal filler complications at the moment, which is great, but I think what also needs to be highlighted is the fact that other treatments, such as chemical peels, can have significant negative outcomes and practitioners need to know how to diagnose and manage these."

In this article, Miss Balaratnam, Dr Malik, aesthetic practitioner Dr Xavier Goodarzan and dermatologist Dr Harryono Judodihardjo explore the complications that can arise from chemical peels, discuss best practice for dealing with them and share two case studies of successful complication management.

Concerns around peels

"There's no denying that we are dealing with a much more educated patient base now and many even use acid-based products, such as glycolic and salicylic acid, in their skincare regime. Patients may think they are well informed of what they are having because they know the name of the acid, but they should be informed about what ingredient or strength of peel they have had, why they are having it and what the true benefit and long-term effects are on their skin," advises Miss

Depth of peel	Primary ingredients	Examples of targeted concerns	Expected skin response	Moderate side effects/ complication	Severe side effects/ complications
Light/superficial	Alpha hydroxy acids; glycolic acid, citric acid, lactic acid Trichloroacetic acid (TCA) -10%	Skin tone, fine lines, acne scarring, pigmentation, acne	Erythema, sensitivity, skin flaking	Increased skin sensitivity, activation of herpes virus, fungal infections, allergic and irritant contact dermatitis, prolonged erythema, pigmentation	N/A
Medium	Trichloroacetic acid (TCA) 10%+, high percentage glycolic acid, Jessner (contains salicylic acid, lactic acid and resorcinol)	Hyperpigmentation, fine lines, acne scarring	Erythema, sensitivity, skin peeling/shedding	Increased skin sensitivity, activation of herpes virus, bacterial and fungal infections, allergic and irritant contact dermatitis, pigmentation	Prolonged erythema, scarring, hypo- and post-inflammatory hyperpigmentation (PIH), epidermolysis
Deep	Phenol, Trichloroacetic acid (TCA) 35%+	Wrinkles, sun damage, acne scarring, xanthelasma and hyperpigmentation	Erythema, swelling, sensitivity, skin peeling/shedding	Increased skin sensitivity, activation of herpes virus, epidermolysis, bacterial and fungal infections, allergic and irritant contact dermatitis	Prolonged erythema, scarring, hypo- and post-inflammatory hyperpigmentation (PIH)

Table 1: Overview of chemical peels and possible complications.⁸ Dr Judodihardjo assisted with the information included within this table. Note: this table does not provide an extensive list of possible complications – thorough training is always recommended.

Balaratnam. Dr Judodihardjo reiterates this point, explaining that due to peels being so available and performed by a wide variety of professionals, he worries that they may become trivialised. “We have to remember that essentially we are pouring acid onto the face so you must be well-informed on the type of acids used, its concentration, the pressure applied, and when they should be neutralised, as these will determine the depth that you want to go. In my opinion, deep chemical peels must only be performed by very experienced medical professionals as they come with the highest risks,”⁴ he explains.

Possible complications

Deciphering the difference between what is an expected skin response and what is a complication is key, emphasise all practitioners interviewed. This is further showcased in **Table 1**. Dr Malik highlights, “Some ‘complications’ that patients report, are, in fact, not complications at all, such as the peeling effect, erythema and sensitivity with a medium depth peel, for example. Therefore, when you are treating, it’s a good idea to provide patients with a clear timeline of what can happen and include every possible outcome on this timeline.” The best thing to do, recommends Dr Goodarzian, is to treat everything that is even slightly out of the ordinary. “Even if you think it’s probably nothing, pay attention to it and monitor it closely. You will save yourself later down the line by being extra cautious,” he says.

Although rare, scarring is one of the adverse events associated with deep chemical peels, which needs to be recognised early and must be well-managed for a good outcome, explains Dr Goodarzian.⁸ He says, “This complication could be due to excessive skin preparation with products such as tretinoin, injury to the stratum corneum prior to peeling (waxing, exfoliating, threading), excessive amount of peeling solution, excessive force of application of the acid, amongst many other reasons.⁸ Neglecting the signs could lead to permanent scarring, so that’s why it’s important to address any signs as early as possible.” He continues, “Both products that I use in my clinic, the SkinTech Easy TCA Pain Control and Lip & Eye peels, are self-neutralising and scarring with these peels is extremely rare when the application methods of the manufacturer are strictly adhered to.¹⁰ Even after many years of using TCA and phenol peels, or combinations of them, I have never come across the issue of scarring. Early recognition is absolutely crucial to prevent actual scar formation.”

Transient hyper or hypopigmentation is also a common side effect from medium-depth and superficial peels,⁸ Dr Judodihardjo explains, saying, “This is generally more common in patients with darker skin types – that’s why it’s particularly important to highlight this prior to any treatment.” He continues, “Less common complications are infections. This is where we see the skin remain red for a prolonged time period. These are often caused by fungus overgrowth. Treatment for this may consist of oral and topical anti-fungal drugs. All peels can cause activation of herpes viral infection, so do warn the patients that this can happen and, if necessary, prescribe anti-herpes medications.”

Miss Balaratnam shares that patients who have had peels over a number of years can develop long-term skin damage if the treating practitioner has not been careful. “Some patients are having them too deep, too frequently and are getting the wrong peel for the wrong skin type. They are presenting with inflamed skin, stripped of its natural oils, with evidence of broken capillaries. The long-term damage needs to be managed early on,” she explains.

“Early recognition is absolutely crucial to prevent actual scar formation”

Dr Xavier Goodarzian

Patient management

Dr Judodihardjo explains that the key factor when dealing with skin complications, whether it’s one you have caused or not, is communication. “Patients want to feel that there are lots of options available to them and that there is a hope for a solution. Compromised skin quality can affect more than just the skin itself, it has huge physiological impacts too.”⁹ He continues, “Communicate with them throughout and keep them under a close watch. Alienating your patients is the worst thing that you can do, you need to hold their hand throughout.”

Dr Goodarzian also says that it is extremely important to know your limits of whether you can achieve the suitable outcome, “If you know that a complication, such as erythema, would respond better to a treatment you don’t offer, like a laser for example, refer them elsewhere and trust that they will respect you more for being open and honest,” he says.

Practitioners agree that all chemical peel complication management requires time and perseverance. Dr Malik says, “Repairing skin health is a long process and you aren’t going to see results overnight.

Always make it very clear, whether you are treating a complication or maintaining successful results, that it will take time and that commitment is required from the patient too.”

Dr Judodihardjo highlights that it’s all about finding the right approach for your patient, which is usually a combination of treatment modalities. This is further emphasised in Dr Goodarzian’s case study. Dr Judodihardjo reiterates, “Know that your first treatment approach may not work, so just keep persevering and be sure to explore all of your options.”

Continuing the journey

Miss Balaratnam recognises that patients who have experienced complications in the past may sometimes be reluctant to continue their aesthetic journey. “I think it is understandable to be a little weary of having more treatments in the future, however it comes down to working with the practitioner, the right team and the right topical ingredients. Show patients the results that you have achieved in the past in order to restore confidence, give them your time with an in-depth consultation, and always a cooling-off period, given that it is not a medical emergency,” she explains.

With detailed consultations in place, knowledge on identifying a problem and communication throughout the journey, all practitioners agree that this will instil best practice at a time of potential distress. Dr Judodihardjo concludes, “Probably nine times out of 10, patients’ confidence in you as a practitioner is increased because you have been the one to help them in a time of need. Patients will often respect you more when they can see that you can handle the complication and not run away from it.”

Mid and lower face case study

shared by Miss Sherina Balaratnam



- **Complication:** first-degree chemical burn
- **Treatment:** debridement and skincare regime

Patient journey

This 44-year-old woman was a former patient of mine who had previously had several skincare treatments at my clinic. She called my practice after having a chemical peel from another clinic that resulted in burns to the face. I was away at a training course at the time, so I asked her to send images so I could assess the extent of the burn. When I saw them,

I urged her to go straight to A&E as I was concerned that it was a medical emergency. In the meantime, I advised her to apply copious amounts of cool water and cover the burn in Vaseline to keep the wound moist and cool. She decided to book an appointment the following week upon my return, although I continued to express the urgency of seeking hospital treatment before coming in to see me.

The patient presented to clinic four days later and upon initial assessment, it was very clear that she had gone against my strong recommendations to seek urgent medical care. She had a clear first-degree chemical burn and the skin presented with cracks and crust. When I asked her why she didn't go to A&E, she explained that it was due to being too embarrassed. I was very disappointed by this as the chances of infection and post-inflammatory hyperpigmentation had increased. I once again advised her to seek specialist help at a burns unit; however, the patient resisted and said that she only

The patient has mild erythema, consistent with the healing phase, I have discussed laser treatment to help manage this after the summer



Figure 1: Patient on day four when initial assessment took place and six weeks after a treatment plan, consisting of debridement and a topical regime. Images courtesy of S-Thetics, taken through the VISIA Complexion Analysis system.

wanted me to help her due to my previous experience in burns reconstruction. The patient wasn't aware of what peel was used and based on my examination, it appeared that the peel was not neutralised due to lack of product training in a new product which had been introduced to the clinic.

Treatment plan

During the first treatment, I cleaned the area and debrided the excess dead skin and cleaned the rest of the area using isopropyl alcohol. I gave her hypochlorous acid (Clinisept+) to use on a daily basis to keep the wound as clean as possible. I also gave her an emollient repair balm (iS Clinical Sheald) to keep the area moist and she was advised to use this daily, both morning and night. All steps were to disinfect the skin and encourage re-epithelialisation. I also advised that daily use of an SPF – this was especially important as she has olive skin, so her risk of developing PIH was higher.

She came back every two days, so that I could clean the area and debride until eventually there was a small scab, which lifted off after three weeks.

Following this, we moved onto weekly appointments. When I was happy with her progress, and the skin was no longer broken, I advised her to use a mild glycolic acid cleanser (iS Clinical Cream Cleanser) both morning and night and a 15% topical vitamin C with additional anti-inflammatory ingredients to manage post burn erythema.

Results

Considering the injury she initially presented with, her results have turned out very well; the patient is very pleased and so am I. She has a mild erythema, consistent with the healing phase, and I have discussed laser treatment to help manage this after the summer. I have advised the patient that medical grade skincare will work well to keep the healing of her skin optimised in the meantime and to manage any discolouration, and I will continue her treatment plan in the autumn.

Periorbital case study shared by Dr Xavier Goodarzian



- **Complication:** hypertrophic reaction of the periorbital region
- **Treatment:** topical and injectable steroids, LED therapy, microneedling and silicone topical gel

Patient journey

A 52-year-old patient came into my clinic with overall concerns of skin laxity, specifically on the upper and lower eyelids. I decided to perform a deep peel as I believe it to be one of the best treatments for eyelid skin laxity. The skin was cleansed and disinfected with alcohol and was degreased with acetone. I treated her with a mosaic chemical peel, consisting of a phenol peel around the eye area and a medium-depth TCA peel on the rest of the face, all performed according to the manufacturer's protocol. At day three the patient was reviewed and all appeared normal. There was overall oedema of the face and periorbital region, darkening of the facial skin and drying of the periorbital scabs, with slight erythema as expected. The patient was reviewed on day eight with no signs of concern. I advised her to then immediately begin sunscreen use; recommending the SkinTech Melablock factor 50. At day 11 the patient was reviewed again. The scabbing had come off the periorbital area, however I noticed delayed healing and epidermalisation in the medial sections of the eyelids, which was not expected. Fusidic acid ointment was prescribed for those areas to aid with healing and avoid infection. Four days later the skin had fully epidermalised, which was a positive result, and the patient was advised to use IPLase post-peel treatment cream to reduce erythema and continue using sunscreen. However, during a scheduled review on day 20, the patient pointed out some red patches that had developed around the eye area. I noted three distinct areas of excessive erythema with induration and slight hypertrophy. The affected areas were the medial aspects of the right lower eyelid and upper and lower left eyelid (**Figure 2**).

Treatment plan

I prescribed a topical corticosteroid (Betnovate) to be used twice daily on the affected areas which is designed to reduce inflammation and reduce risk of scarring. Four days later, the erythema had improved significantly and the area of induration seemed less visible. However, I made the decision to administer 0.12ml of intralesional triamcinolone (Kenalog) as this would simply increase the anti-inflammatory effect. I had been taught about this two-pronged attack at a medical conference a few years ago and felt that this was the most suitable option for the patient given her circumstances. The patient also underwent Dermalux LED red light therapy daily for around two weeks and continued with the topical



Figure 2: Patient on day 20 when complication was noted, one month after initial treatment and then a following three months after a combination treatment plan. Images courtesy of Dr Xavier G clinic, taken through the VISIA Complexion Analysis system.

steroid twice daily for three weeks. In addition, silicone topical gel Kelo-cote was also given for twice-daily application. One week later, good progress was noticed and the hypertrophic areas had at least halved in size (**Figure 2**). Another 0.12ml dose of Kenalog was injected and topicals were continued as above. A week later the hypertrophic areas had improved again and my advice was to continue with the topicals (both topical corticosteroid and silicone topical gel). Three weeks later, another 0.17ml dose of Kenalog was administered and results continued to improve. In another two weeks, the area had further improved and only 0.05ml of Kenalog was administered. Four weeks after this, I decided to perform microneedling with 1mm depth into the entire periorbital area. This was repeated one and three months later to improve the skin texture further.

Results

After more than three months of a consistent and continued treatment plan, the patient and I are extremely happy with the results and there is no further evidence of erythema or scarring. The skin texture continues to improve and I have recommended that she continues the use of SPF for daily use.

REFERENCES

- Loftus C, The History of Exfoliation, Cinta Aveda Institute, November 2014 <<https://blog.cintaaveda.edu/2014/11/the-history-of-exfoliation/>>
- Brody H, Monheit G et al., A History of Chemical Peeling, *Dermatologic Surgery*, December 2001
- NHS.uk, Chemical peels <<https://www.nhs.uk/conditions/cosmetic-procedures/chemical-peels/>>
- WebMD, Chemical Peels and Your Skin <<https://www.webmd.com/beauty/cosmetic-procedures-chemical-peel-treatments#>>
- Verma A, Dull skin: reasons which make the skin dull, Lifealth, May 2018 <<https://www.lifealth.com/lifestyle/beauty/dull-skin-reasons-which-make-the-skin-dull-av/76457/>>
- Forthwithlife.co.uk, Great Britain and Stress – How bad is it and why is it happening? <<https://www.forthwithlife.co.uk/blog/great-britain-and-stress/>>
- Harvey F, More than 95% of world's population breathe dangerous air, major study finds, *The Guardian*, April 2018
- Nikalji N, Godse K et al., Complications of Medium Depth and Deep Chemical Peels, *Journal of Cutaneous and Aesthetic Surgery*, October-December 2012
- Clay R, The link between skin and psychology, *American Psychological Association*, February 2015
- SkinTech Pharma Group, Peelings <<https://www.skintech.info/index.php/products/peelings>>