Prevention of Complications in Chemical Peeling

Chemical peeling is a simple, safe and cost-effective office procedure. Complications can be best avoided by proper patient selection, proper patient counseling, adequate priming and good intra-peel and post-peel care.

KEYWORDS: Chemical peeling, complications, prevention

INTRODUCTION

Chemical peeling (chemexfoliation) is a procedure wherein a chemical agent of a defined strength is applied to the skin, which causes a controlled destruction of the layers of the skin, and is followed by regeneration and remodelling, with improvement of texture and surface abnormality.[1] Though the procedure is generally safe,complications may occur. The various complications that can occur in chemical peeling are:

Immediate (Within minutes to hours after peeling):
- Pruritus, burning, irritation
- Persistent erythema, and edema
- Ocular complications

Delayed (Within a few days to weeks):
- Loss of cutaneous barrier and tissue injury: Infections (bacterial, herpetic, candidal)
- Abnormal wound healing: Scarring, delayed healing, milia and textural changes
- Pigmentary changes: Hyperpigmentation, hypopigmentation, demarcation lines
- Adverse reaction to chemical agent: Acneiform eruptions, allergic reactions, toxicity

Though minor, all these complications are more common in darker skin patients and with medium and deep peels as compared to superficial peels.[1-4]

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These complications of chemical peel can be prevented by proper patient selection, patient counseling, adequate priming and with good intra-peel and post-peel care. This article outlines some tips to achieve optimal results [Table 1] after chemical peels.

PATIENT SELECTION

The first step in preventing complications is to identify the patients at risk, so that complications can be anticipated, prevented, and if they still happen, treated at the earliest.[1] These patients include those
- with darker skin type with a tendency to develop post inflammatory hyperpigmentation;
- with sensitive skin or history of atopic dermatitis;
- with dry skin and a reddish hue;
- with outdoor occupations;
- with history of photosensitivity or post inflammatory hyperpigmentation;
- on photosensitising drugs;
- with history of keloids or poor wound healing or herpes infection;
- who have recently received isotretinoin;
- with unrealistic expectations, uncooperative and fussy patients and
- who are psychologically disturbed.

PATIENT COUNSELING

A detailed consent form should be taken. Pre-peel photography under proper lighting is advised in all cases. The patient should be specifically counselled about
a) the nature of the treatment,

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Table 1: Prevention of complications

Complications	Causes	Prevention
Immediate		
Pruritus, burning, irritation	Dry and sensitive skin Higher concentration of chemical agent	Using calamine lotion in a moisturizing base after the peel; Choosing the right concentration of peeling agent
Persistent erythema and edema	H/o photosensitivity, on photosensitizing drugs, outdoor occupation	Proper screening of patients for predisposing factors; Use of broad spectrum sunscreen with appropriate sun protection factor (SPF)
Ocular complications	Accidental spillage of chemical agent into the eyes	Care should be taken not to pass the bottle over the face of the patient; Inner canthus of eye should be protected with petroleum jelly
Delayed		
Infections (bacterial, candidal, herpetic)	Past H/o herpes; Picking, scratching, scrubbing the skin can predispose to secondary infections	Prophylactic antiviral therapy; Use of antibiotics as soon as the warning signs of infection like crusts, oozing, pustules or blisters appear
Scarring, delayed healing, textural changes	Inadequate priming; Infections; Inadequate photoprotection; H/o keloids or poor wound healing	Treatment with topical antibiotics and potent topical steroids should be initiated as soon as the early warning signs of scarring like persistent redness, delayed wound healing, infection appear
Hyperpigmentation/ hypopigmentation	Darker skin type; Deep peels; Inadequate priming; Improper use of sunscreen	Adequate priming; Use of broad spectrum sunscreen with appropriate sun protection factor (SPF)
Lines of demarcation	Medium and deep peels in darker skin type	Feathering the edges using peeling agent of lower concentration to merge with surrounding normal skin
Allergic reaction	Hypersensitivity in atopic individuals	Test peel in post-auricular region

b) the risks involved,
c) the expected results,
d) the early warning signs like erythema, hyperpigmentation, crusting, etc.,
e) the need for applying proper topical treatment after peels for maintenance and preventing complications and
f) the need for avoidance of sun, irritant chemicals, etc.

PRE-PEEL PRECAUTIONS

The pre-peel precautions to be taken to prevent complications include identifying the patients at risk by a detailed history and examination as detailed above. Other precautions include the following.

a) Adequate priming of the skin for at least 2–4 weeks prior to peel and discontinuing 3–5 days before the procedure is of vital importance.[5] Priming is done by application of depigmenting agents such as hydroquinone or retinoic acid and use of sunscreens.
b) Patient should be instructed not to bleach, wax, scrub, massage or use depilatories or scrubs, or schedule any important event 1 week before the peel and to stop retinoid 3 days before the peel.[6]
c) In patients with active lesion or H/o herpes simplex, a prophylactic antiviral such as acyclovir 200 mg, 5 times a day, or valaciclovir 1 g, 3 times a day, should be given, beginning 2 days prior to the peel and continued for 10–14 days after peeling, till re-epithelialisation occurs.[1,4,6,7]

INTRA-PEEL PRECAUTIONS

a) While doing a chemical peel, it is very important to select the right peeling agent at the right concentration.
b) It is always better to under peel than over peel in the initial stages.
c) Sensitive areas like the inner canthus of the eye and nasolabial folds should be protected with petroleum jelly.
d) The neutralising agent must be kept ready to terminate the peel if required before the scheduled time.[2]
e) A syringe filled with saline should be kept ready, in case of accidental spillage into the eye to prevent ocular complications like corneal damage.[8]
f) If trichloroacetic acid or glycolic acid enters the eye, normal saline should be used to flood the eye, and in case of phenolic compounds, mineral oil should be used.[1]
g) When peeling the periorbital area, a dry swab stick must be kept ready to absorb any tears. If there is watering of the eyes, the peel can trickle up or down.
h) When doing medium and deep peels especially in darker skin, peeling agent with lower concentration should be feathered at the edges to merge with the surrounding normal skin to avoid lines of demarcation.[1]

POST-PEEL CARE

Good post procedure care ensures early recovery with minimal complications.

a) In the immediate post peel period, mild soap or non-soap cleanser should be used.
b) If there is crusting, topical antibiotic ointment should be used to prevent bacterial infection and enhance wound healing.
c) Sun exposure should be avoided and broad spectrum sunscreen should be used meticulously.
d) Calamine lotion in a moisturising base can be used for stinging sensation.
e) Peeling agents like glycolic acid and retinoids should be avoided till desquamation is complete.
f) Patients should be strictly warned against picking, peeling, scratching, rubbing or scrubbing the skin.
g) Patients should be clearly informed to recognise

complications like excessive redness, swelling, burning or pain, crusts, oozing, pus formation or blisters and to report immediately, so that preventive actions can be taken promptly.[1,2,6]

PRACTICAL TIPS

1. Check the label and expiry of the peeling agent as its potency varies with time.[1]
2. Take the required quantity of peeling agent in a small glass cup or beaker, inspect for the presence of crystals and then use the clear fluid. Crystals, if present in the bottle, can adhere to the cotton tip and increase the concentration of the chemical.[1]
3. Do not pass the peel bottle or cup over the face of the patient while applying the peel. Keep talking to the patient to allay anxiety, during peel.
4. In an apprehensive patient or when trying out a new peel, it is better to do a test peel on the post-auricular area or on a small area on the lesion on the forehead or temple area, instead of a full face peel.[1]
5. Superficial peels carry a lower risk compared to deep peels. Avoid deep peel in darker skin type patients.[2]
6. In high risks patients, different low strength peels can be combined to increase efficacy without increasing risk.[1]
7. Chemical peel can also be combined with microdermabrasion to enhance efficacy.
8. It is always safe to instruct the patient not to schedule an important event or vacation for at least 1–5 days after a superficial peel and 7–10 days after a medium depth peel.[1]
9. Persistent redness is an early warning sign of scarring. Treatment with topical antibiotics and potent topical steroids should be initiated as soon as possible to minimise scarring.[9]
10. Always give your contact number to the patient to call if help is needed.

CONCLUSION

Chemical peeling is a simple, safe and cost-effective office procedure. Though complications can occur with peels, they are quite unlikely in well-trained hands. Thorough knowledge about chemical peeling and the risks involved, adequate patient counselling and education, and performing peels with all basic precautions minimise the complications of chemical peels.

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