Peel Complications - Preventing and Treating Them

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References

• Complications in the Cosmetic Dermatology Patient: A Review and Our Experience (Part 2).
  • Vanaman, Monique MD; Fabi, Sabrina Guillen MD; Carruthers, Jean MD
• The Evolution of Chemical Peeling and Modern-Day Applications.
  • Weissler, Jason M. M.D.; Carney, Martin J. B.S.; Carreras Tartak, Jossie A. B.S.; Bensimon, Richard H. M.D.; Percec, Ivona M.D., Ph.D.
  • Plastic and Reconstructive Surgery: November 2017 - Volume 140 - Issue 5 - p 920–929
  • Julien Lanoue, MD; and Zakia Rahman, MD
• Evidence and Considerations in the Application of Chemical Peels in Skin Disorders and Aesthetic Resurfacing.
  • Marta I. Rendon, MD, Diane S. Berson, MD, FAAD, Joel L. Cohen, MD, FAAD, Wendy E. Roberts, MD, Isaac Starker, MD, FACS, Beatrice Wang, MD, FRCPC, FAAD
Superficial Peels

- Epidermis only
- Level I frost
- AHA: Glycolic 30-50%, Lactic 10-30%, Mandelic 40%
- BHA: Salicylic 30%
- AKA: Pyruvic 50%
- Exfoliation over 3-5 days
Medium Depth Peels

- Full epidermis into papillary dermis
- TCA 30-50% +/- pretreatment with Jessner’s or solid CO2 with acetone
- Glycolic 70%, +/- pretreatment with Jessner’s or solid CO2 with acetone
- Salicylic >30% multilayer
- 88% Phenol peel
### Deep Peels

- **Full epidermis, papillary dermis into reticular dermis**
- **TCA > 50% with pretreatment primer (ie. Jessner’s or CO2 with acetone)**

<table>
<thead>
<tr>
<th>Year &amp; Doctor</th>
<th>Croton Oil</th>
<th>Phenol</th>
</tr>
</thead>
<tbody>
<tr>
<td>1920’s - 1990 Lay Peelers</td>
<td>0.16-0.5%</td>
<td>44-62%</td>
</tr>
<tr>
<td>1959 Brown/Litton</td>
<td>0.4% - 0.5%</td>
<td>48% - 50%</td>
</tr>
<tr>
<td>1961 Baker-Gordon</td>
<td>2.1%</td>
<td>50%</td>
</tr>
<tr>
<td>1986-1990 Fintsi</td>
<td>0.6 - 0.8%</td>
<td>50-64%</td>
</tr>
<tr>
<td>1993 Hetter</td>
<td>0.1-7%</td>
<td>30-50%</td>
</tr>
<tr>
<td>1993-2000 Stone</td>
<td>0.2%</td>
<td>60%</td>
</tr>
<tr>
<td>Rullan</td>
<td>0.35%</td>
<td>60%</td>
</tr>
</tbody>
</table>
Peel Preparation

• Selection of peel based on indication, Fitzpatrick skin type, anatomic location of peel, patient compliance
• Antibiotic and antiviral prophylaxis if indicated
• Discussion of pre and post care including expected downtime and treatment expectations
• Confirm patient has proper post treatment skincare
Skin Evaluation

• **Thick skin**
  • needs more coats
  • usually rich with adnexal structures
  • Can treat deeper

• **Thin skin**
  • Tends to be poor in adnexal structures which determine skin regeneration
  • Maximum procedure depth is *papillary dermis*
  • Do more superficial peels

* Rullen/ Brody Powerpoint IPS meeting Oct 2018
Peel Preparation

- Gentle cleanser to remove makeup, dirt, oil
- Thorough degreasing with acetone and/or alcohol to ensure even penetration of peel
- Mark cosmetic subunits if needed
- Protect sensitive areas with petrolatum if needed (medial canthi, alar nasal sulcus)
- Patient’s eyes remain closed or place goggles
- Fan and ice packs ready if needed
Peel Preparation

Sun protection before and after the peel is mandatory.

Medium depth peels are not recommended for photo-types ≥IV due to the risk of PIH.

This risk may be reduced by pre-peel preparation with hydroquinone for 1 month and peeling during winter months.

For superficial and medium peels, pre-treatment with topical tretinoin for 2-4 weeks enables a more uniform frosting and improves healing time.

But for skin types IV-VI, expert consensus recommends tretinoin cessation 1 week prior to the peel to prevent overpenetration and PIH.
Complications
Ocular Exposure

- Solutions should not be passed over the eyes during procedure.
- Saline eyewash bottles should be immediately available.
Erythema (S, M, D)

- Common but resolves after several hours to a few days
- More common in sensitive skin or rosacea prone patients
- Can use LED or PDL
• 2 days post peel
  • Salicylic Acid, Resorcinol, Lactic Acid, Retinol
• Had same peel in 2012
• Using ‘light moisturizer’ or cetaphil lotion
• Recommended cetaphil only and OTC HC 1% BID
Prolonged Post Peel Erythema
Study of 236 non-occluded Baker’s phenol-based peels over 2 year period. Rate of 11%. Resolved with tx.

- Characterized by increase or prolongation in:
  - Erythema
  - Pruritus
  - Burning
  - Stinging
  - Delayed or worsening symptoms after 2-3 weeks post-peel w/o herpetic vesicles
- Irritant or allergic contact dermatitis treated first with topical and systemic steroids
- If crusting remained- used 0.25% acetic acid for 5-15 minutes multiple times per day and possible oral abx
- Over penetration of the peel solution
- May be treated with vascular lasers.
- If induration- consider topical or intralesional steroid

The Etiology of Prolonged Erythema after Chemical Peel
MALONEY, BRIAN, MILLMAN, MONHEIT, GARY, McCOLLOUGH, GAYLON
Itching (S, M, D)

- Mild itching possible up to 1 month after peel
- Low potency topical steroids and antihistamines can help
- Significant itching could herald infection or allergic contact dermatitis
- Culture and treat if indicated
- Itch with pustules on bacterial and viral prophylaxis: candidal culture; empiric fluconazole 200mg x 1 dose
Infection (M, D)

- Prevention important for medium or deep peels
- Fungal, bacterial, and viral usually present during first postop week
- Atypical mycobacterial can present as late as 2 months postop
- Advise using antiviral and antibacterial prophylaxis day of or day before and continued until most re-epi complete
- Infections may present differently than normal
- High index of suspicion needed if unusual lesions, itching, worsening pain or drainage
- If occurs while on prophylaxis, culture and consider changing antiviral therapy 2/2 resistance
Herpes Simplex Virus

• Prophylaxis
  • Valacyclovir 1g BID x 7 days
• Can present on day 2 or 3
• increased pain, itch, discomfort

Basic chemical peeling-superficial and medium-depth peels.
J Am Acad Dermatol 2018 Dec 11. IN PRESS
The Bismuth Subgallate powder (Delasco) mask

- prevents infection
- provides protective layer
- anti-inflammatory

* Rullen/ Brody Powerpoint IPS meeting Oct 2018
Pigment Changes - PIH (S, M, D)

- Most common
- Higher risk in darker skin, preexisting pigment disorders, use of photosensitizing meds, having a tan
- Can resolve spontaneously with strict sun protection
- Can use HQ or HQ free lighteners and low potency topical steroids
TCA PEEL WITH PIH FROM BACTERIAL INFECTION

* Rullen/ Brody Powerpoint IPS meeting Oct 2018
Crusting (M, D)

- Uncommon after most chemical peels
- Instruct patient to keep area moist and avoid picking
- If lasts for more than 2-3 days, can use topical steroid and possibly a wound dressing
- Persistent crusting should raise concern for infection
- Pre and post treatment antibiotics and antivirals may be indicated
Crusting

* Rullen/ Brody Powerpoint IPS meeting Oct 2018
Pigment Changes - Hypopigmentation

- Rare and can be permanent
- Associated with medium phenol and deep peels

Basic chemical peeling - superficial and medium-depth peels.


J Am Acad Dermatol 2018 Dec 11. IN PRESS
**Acne/ Milia (M, D > S)**

- Higher risk with history of acne
- Can be due to topical emollients
- Usually transitory
- Differentiate from infection- pain and itching
  - Pain, malaise, pustules: bacterial culture, empiric trimethoprim-sulfamethoxazole BID and gentamycin 0.1% cream TID x 7 days
- Treated with gentle in office extraction or topical retinoid if not too irritating
- Acne- can use topical or oral antibiotics or ILK if needed
- Consider oral antibiotics with future treatments
Scarring (M, D)

• Injury to the hair follicles is too much to regenerate keratinocytes
• Risk factors include depth of peel, post treatment care, infection, smoking
• HTS can use ILK/ 5FU
• Atrophic scars can use available treatments- laser, microneedling, filler
Scarring:

Peel solution too strong for neck

Medium depth peels should not be used off face

Resolved with ILK/5FU & Vascular laser

* Rullen/ Brody Powerpoint IPS meeting Oct 2018
Core knowledge of Phenol peels

- Croton oil, not phenol, determines the depth of the peel
  - 2/2 greater cutaneous toxicity
    - Use lower % croton oil for thinner skin areas and higher % for thicker skin
  - Increases phenol absorption rate and depth and potential for systemic toxicity
    - If full face, must do peel slowly over 60 minutes, IV fluids, Cardiac monitoring, good vital signs, pain control*
Pain: Anesthesia Considerations for Phenol peel

- 1/2 hour pre-op
- Clonidine 0.1 mg po
- Ketorolac 30 -60 mg IM
- IM triamcinolone 20 mg
- IV midazolam 2-4 mg & IV fentanyl 50-100 mcg over 1 hour (titrate)

- Nerve Blocks

* Rullen/ Brody Powerpoint IPS meeting Oct 2018
DOING NERVE BLOCKS REDUCES THE RISKS OF HEAVY SEDATION AND PAIN

* Rullen/ Brody Powerpoint IPS meeting Oct 2018
Full Face Croton oil/Phenol 2-day Chemabrasion
- Need cardiac monitoring
- Risk of cardiotoxicity

* Rullen/ Brody Powerpoint IPS meeting Oct 2018
Cardiototoxicity

“By a combination of intravenous hydration, proper ventilation, and prophylactic administration of propranolol, the incidence of cardiac arrhythmia during performance of full-face phenol-based peel was reduced to 6.6%.”
Phenol-Croton oil peels

- Neoprene gloves or multilayer nitrile gloves for staff
- Room with window for ventilation for staff and activated carbon layer mask with ventilation
- Discard properly of peel solution
- Cardiac and O2 monitor
- Lidocaine 100mg and Magnesium 1-2g bolus available

CG Wambier, MD lecture: Superficial, Medium, and Deep Chemical Peeling and Relevance in 2019. AAD Annual Meeting 2019
Long QT with Croton Oil

- Consider screening EKG
  - QTC > 480ms Warning- change meds
  - QTC > 500mg Contraindicated
- Avoid other meds that can prolong QT
  - Diphenhydramine
  - Phenylephrine
  - Furosemide
  - Tonic water with quinine!
- Resolves over 15 minutes which is why you break between cosmetic subunits.
- Consider staging peel over 2 days

CG Wambier, MD lecture: Superficial, Medium, and Deep Chemical Peeling and Relevance in 2019. AAD Annual Meeting 2019
WHAT IF THERE WAS AN ALTERNATIVE?
“REGIONAL PHENOL CHEMABRASION”

- LOCALIZED
- NO SEDATION
- NO CARDIAC MONITORING
- ONE OR TWO COSMETIC UNITS
- EQUIVALENT TO BSA OF < 2%
- EACH SUBUNIT PEELED OVER 10-15 MINUTES

Segmental Deep Chemical Peel

• If nerve block- no epinephrine
• Fan or Zimmer
• Oral hydration between small areas (ie. Each ½ upper lip)
• Wait 15-20 minutes between small cosmetic subunits (ie. Upper lip, chin, eyes, glabella)
Thank you

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