



“Wound care in the dermatology office”

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Conflicts of interest

- Board positions:
 - The CHORD COUSINS Collaboration (C3)
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- Associate editor: Dermatology (Karger)
- Advisory Board:
 - Leo pharma, Otsuka
- Consultant:
 - Corvus Pharmaceuticals
- Research Grant:
 - Janssen, Incyte, Boehringer Ingelheim

Conflicts of interest

ALL THINGS



Patient Organization-Cofounder, Medical Director



Educational and Advocacy Organization-Cofounder



2011



2013



2015



2014



2016



2023



2019





Calciphylaxis



Pyoderma gangrenosum

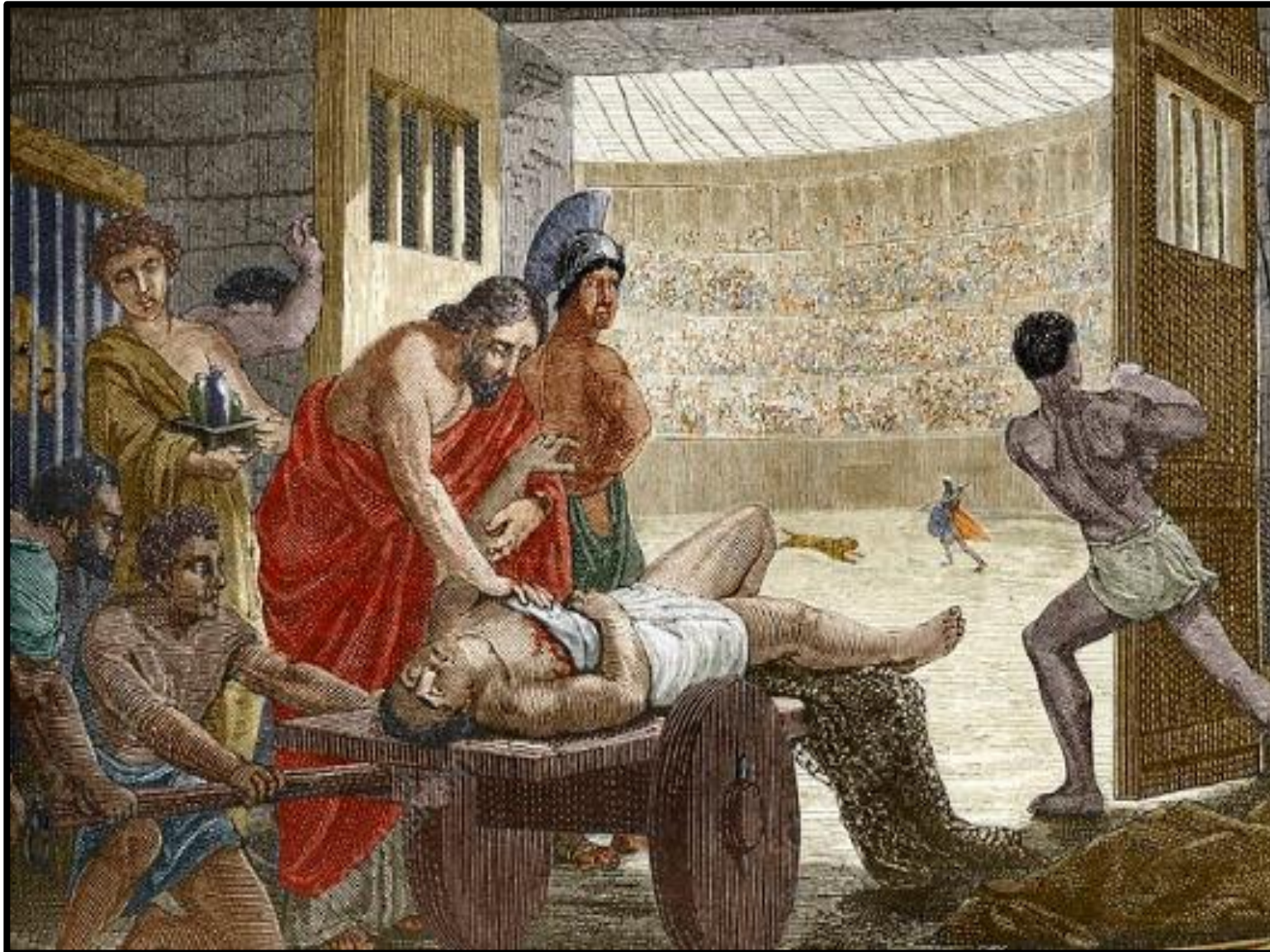


Blastomycosis



Verrucous carcinoma

GALEN: THE FIRST WOUNDIST



Wound moisture
=
Wound healing

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Health — Health

Wounds that won't heal fuel \$5B business, but little evidence

Updated: AUGUST 2, 2017 — 9:18 AM EDT

J Drugs Dermatol. 2015 Jul;14(7):716-20.

Identifying an Education Gap in Wound Care Training in United States Dermatology.

Ruiz ES, Ingram A, Landriscina A, Tian J, Kirsner RS, Friedman A.





Calciphylaxis



**Pyoderma
gangrenosum**



Leishmaniasis



**Epithelioid
sarcoma**

Learning objectives

- Explain *why wounds* do not heal
- Determine *when compression* is appropriate
- Determine *how and when to debride* wounds
- Select *appropriate wound dressings*
- Recognize *when a wound requires biopsy* and its limitations

1.The Dermatologist's Wound Framework

Why it
appeared?

Why is not
healing?

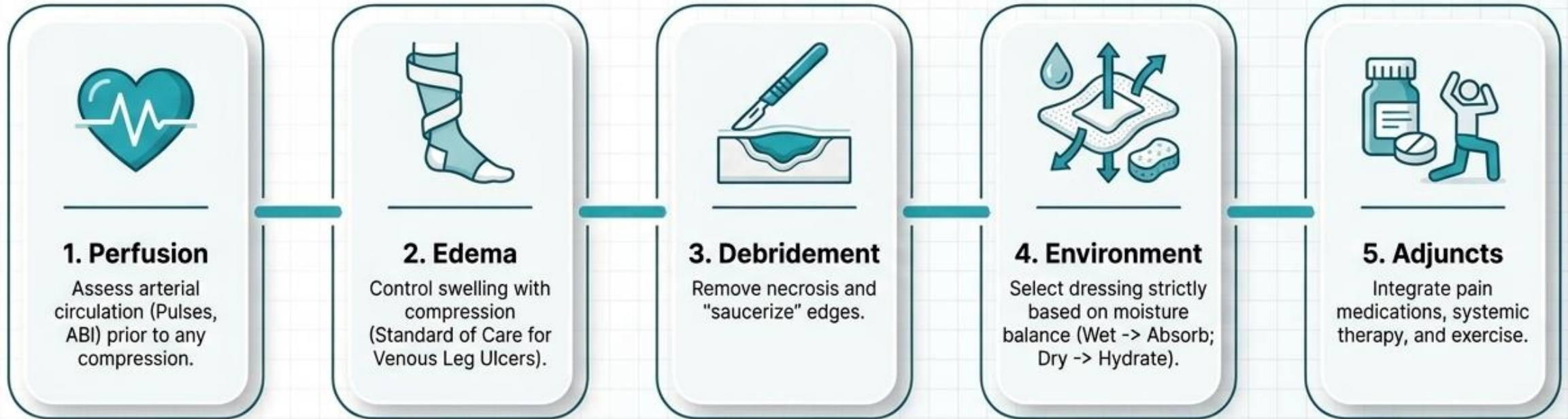
Dermatologists Diagnose Wounds; We Must Also Heal Them

Every wound deserves a diagnosis.
But most wounds fail to heal because the
root cause remains untreated.

GUIDING QUESTIONS

1. What is the diagnosis?
2. Is there enough blood flow?
3. Is edema present?
4. Is active inflammation present?
5. Why is it not healing?

The Five-Step Clinical Workflow for Active Healing

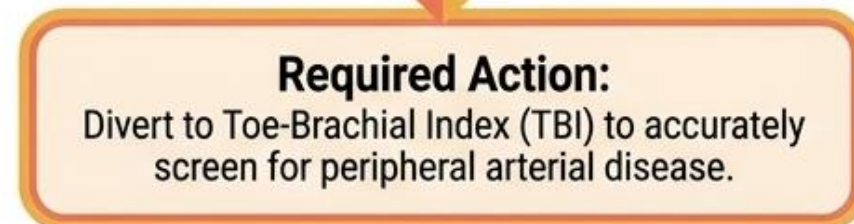
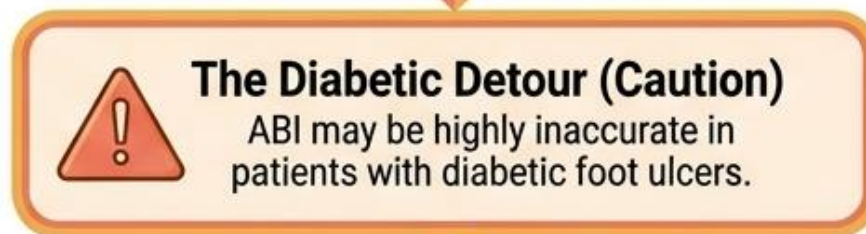
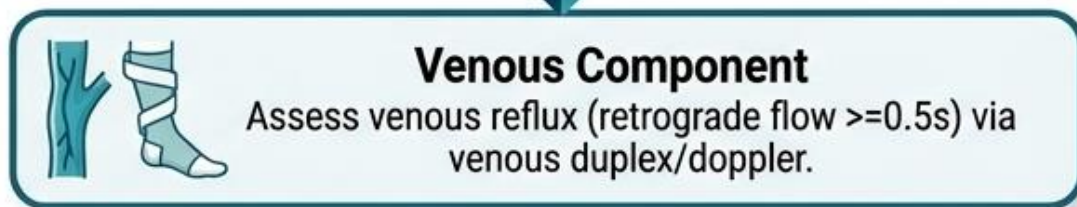
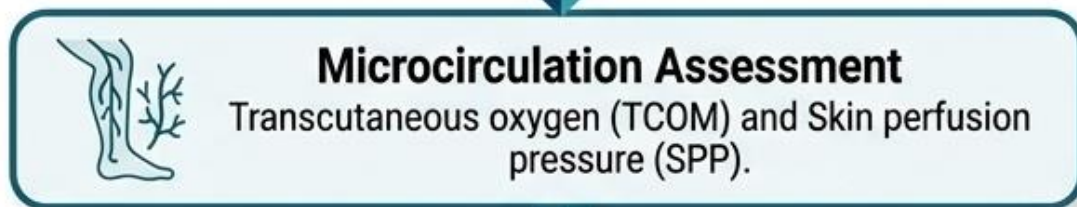
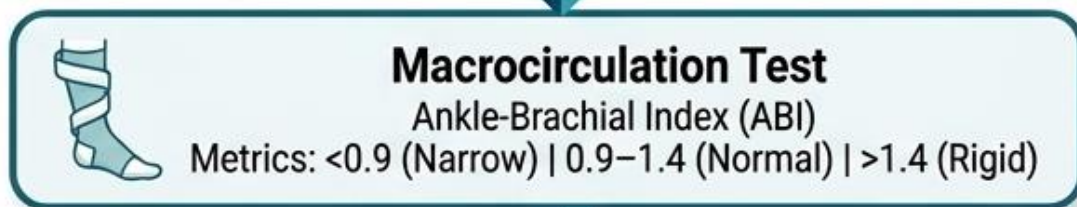
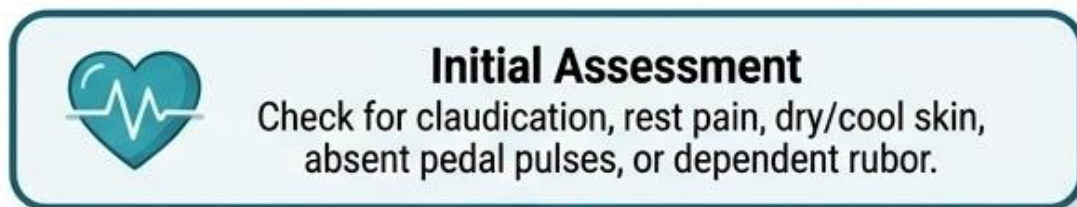




1. Perfusion

Assess arterial circulation (Pulses, ABI) prior to any compression.

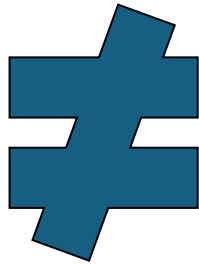
Perfusion Diagnostics and the Diabetic Exception



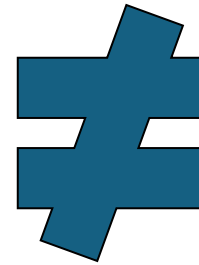
- To assess vein circulation



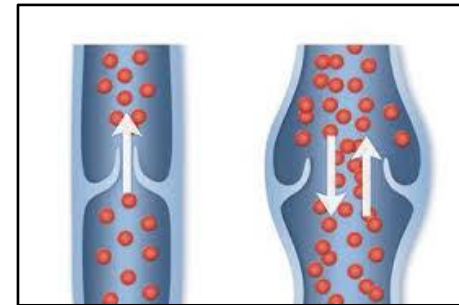
Venous doppler
-assess flow



Venous duplex
(doppler+US)
-create pictures and
assess flow



Venous reflux
-retrograde flow
($\geq 0.5s$)



VENOUS ULCERS FACTS

- **PREVALENCE: 1% of the population (18–64 yo).**
- In the US and Europe: people > 65 years of age are V
- The global treatment market : \$4.8 billion in 2026.
- Most common method of treatment:
 - **Compression**
 - 62% of the market share in 2018.
- **RISK FACTORS:**
 - AGE
 - OBESITY
 - RELATIVE MOBILITY
 - and other underlying conditions: DVT





2. Edema

Control swelling with
compression
(Standard of Care for
Venous Leg Ulcers).



**MULTILAYERED
COMPRESSION**



UNNA BOOT



STOCKINGS



ORTHOTICS



STOCKING BUTLER



GLOVES WITH GRIP

Compression therapy has been proven beneficial for venous ulcer treatment and is the **STANDARD OF CARE**

1/3 patients
are compliant



Evidence rating B= inconsistent or limited-quality patient-oriented evidence



Other practical recommendations

- **Toe-ankle-calf exercises**
- **Elevation of lower extremities**
- **Medications:**
 - Doxycycline 150 mg qd
 - Aspirin 300 mg qd
 - Pentoxifylline 400 mg bid-tid
 - Horse chestnut seed extract 250 mg bid-tid

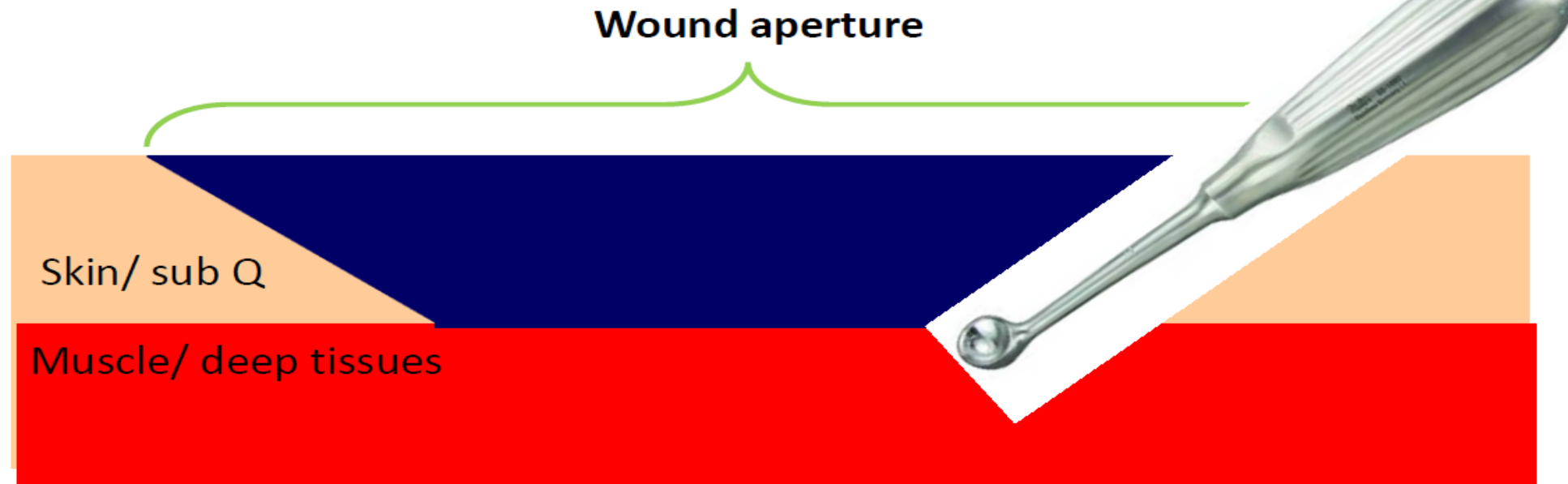


3. Debridement

Remove necrosis and
"saucerize" edges.

General Approach

- Key Objectives:
 1. *'Saucerize' wound edges*
 2. ***Excise necrotic debris***



(Schematic 'wound' with undermining and necrotic debris)

Debridement Strategies

Objectives: Remove necrosis, prevent infection, eliminate odor, reduce exudate.

The Gold Standard

Sharp Surgical Debridement



- Resets the healing process.
- Converts chronic wound to acute.
- Stimulates angiogenesis.

Avoid

Wet-to-Dry Gauze



- Painful for the patient.
- Labor intensive.
- Impedes wound healing.



4. Environment

Select dressing strictly based on moisture balance (Wet -> Absorb; Dry -> Hydrate).

The Dressing Selection Matrix

Principle: Match the dressing to the moisture balance.

LOW EXUDATE (DRY)

MODERATE

HIGH EXUDATE (WET)



Films
Hydrogels

Non-Occlusive / Hydrating

Hydrocolloids
Semi-Occlusive

Foams
Alginates
Hydrofibers

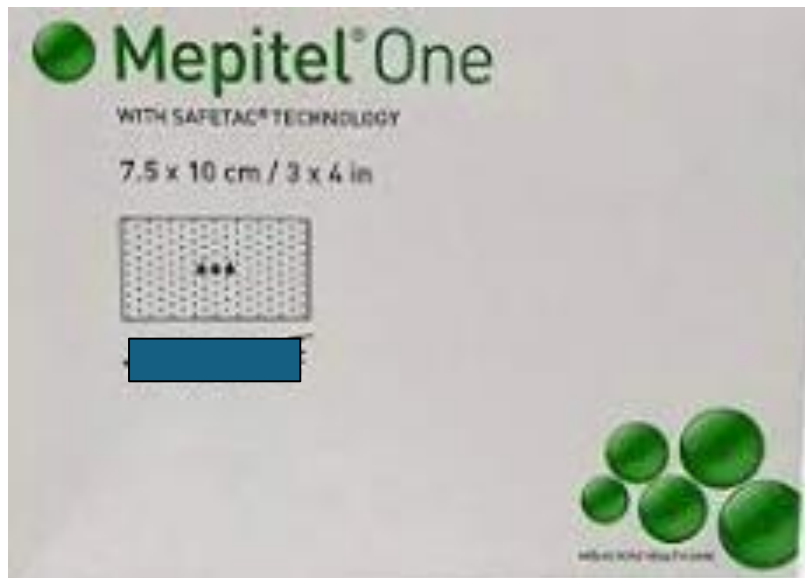
Occlusive / Absorbent



Emulsion oil



Antimicrobial



Silicone

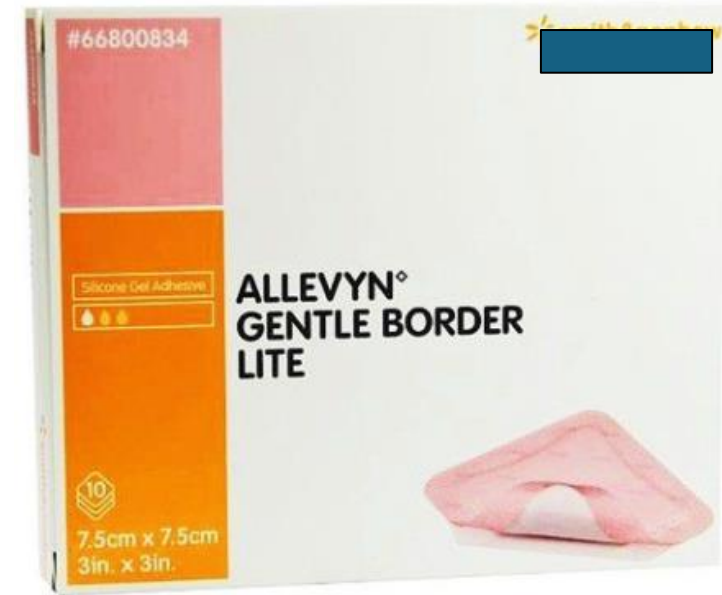
PRIMARY DRESSINGS





Hyperabsorbent

SECONDARY DRESSINGS

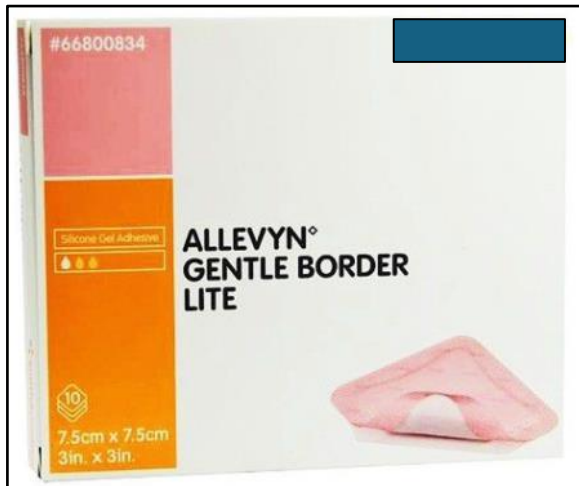


Foam



Special Scenarios

Secondary intention



FOAM



Trauma/pressure/PPG



HYDROCOLLOID

The Dressing Selection Matrix

Principle: Match the dressing to the moisture balance.

LOW EXUDATE (DRY)

MODERATE

HIGH EXUDATE (WET)



Antiseptics are substances that **KILL MICROBES** on the surface of the skin and mucous membranes:

EFFECTIVE

Anti-bacterial

Anti-fungal

Anti-viral

+

SAFE

Topical antisepsis is often required when patients have local infection.
Local infection should be determined by clinical signs.

Acetic acid 0.25% (Vinegar)

- 3Tbsp of white vinegar + 32 ounces (4 cups) tap water
- Studies: 1-3%



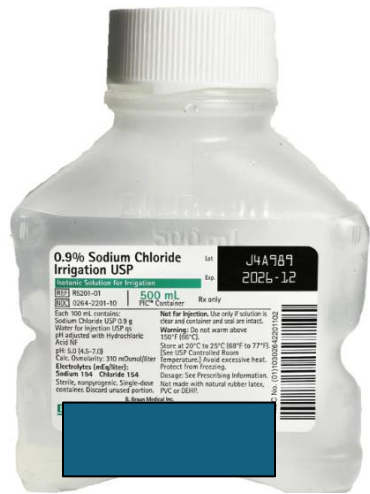
**GRAM
NEGATIVE**

Polyhexamethylene biguanide (PHMB)



**GRAM POSITIVE
GRAM NEGATIVE**

Sodium chloride
(normal saline)



Sodium hypochlorite solution 0.125% (Dakin's)
0.125%: 2 ½ tsp (12 ml) in
32 ounces (4 cups) tap water

- **Modified Dakins (0.025%): non-cytotoxic**
- Anasept (0.057%)

GRAM POSITIVE
GRAM NEGATIVE

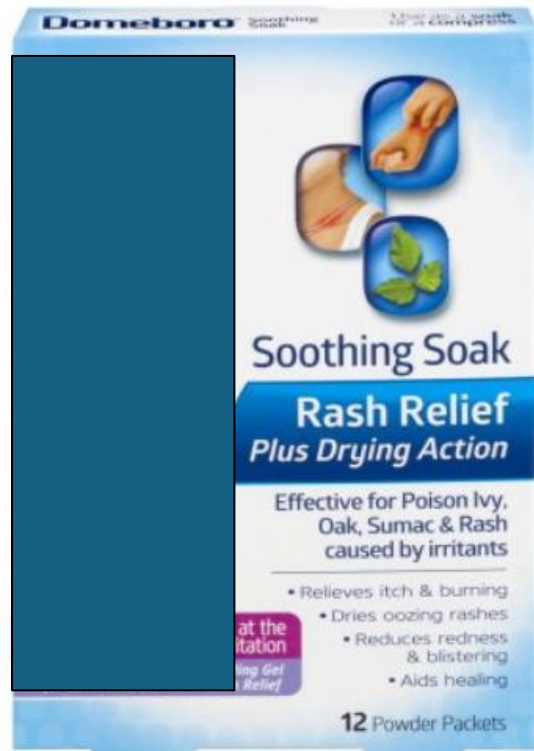


GRAM POSITIVE
GRAM NEGATIVE

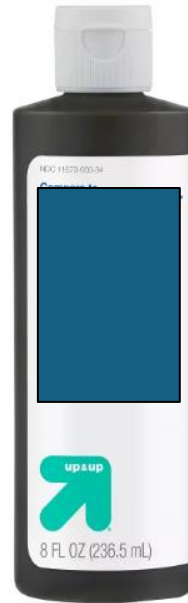
Hypochlorous acid



Aluminum sulfate/Calcium acetate (Domeboro)



ANY WEEPINESS



Iodopovidine

**GRAM POSITIVE
GRAM NEGATIVE**

Phenol 1.5% (Castellani paint)



**GRAM NEGATIVE
GRAM POSITIVE
SYNERGESTIC
FUNGICIDAL**

Chlorhexidine



**GRAM NEGATIVE
GRAM POSITIVE**



Gentian violet

**GRAM POSITIVE
GRAM
NEGATIVE
CANDIDA**

Targeted Antimicrobial Coverage Matrix

Antiseptic Solution	Gram Positive	Gram Negative	Candida	Any Weepiness
Acetic Acid 0.25% & Phenol 1.5%		✓		
PHMB, Chlorhexidine, & Iodopovidine	✓	✓		
Sodium Hypochlorite (Dakin's) - 0.125% or Modified 0.025%	✓	✓		
Gentian Violet (1% Sol. + Alcohol 10%)	✓	✓	✓	
Aluminum Sulfate/Calcium Acetate (Domeboro)				✓

Note: Cleansing with tap water, boiled water, or distilled water has uncertain efficacy compared to saline. Local infection dictates antiseptic use.

The effects of cleansing with **tap water, cooled boiled water or distilled water** compared with cleansing with **saline ARE UNCERTAIN**, as is the effect of **distilled water** compared with **cooled boiled water**



5. Adjuncts

Integrate pain medications, systemic therapy, and exercise.

Pain is Data: Somatic vs. Neuropathic Pathways

Somatic Pain Management

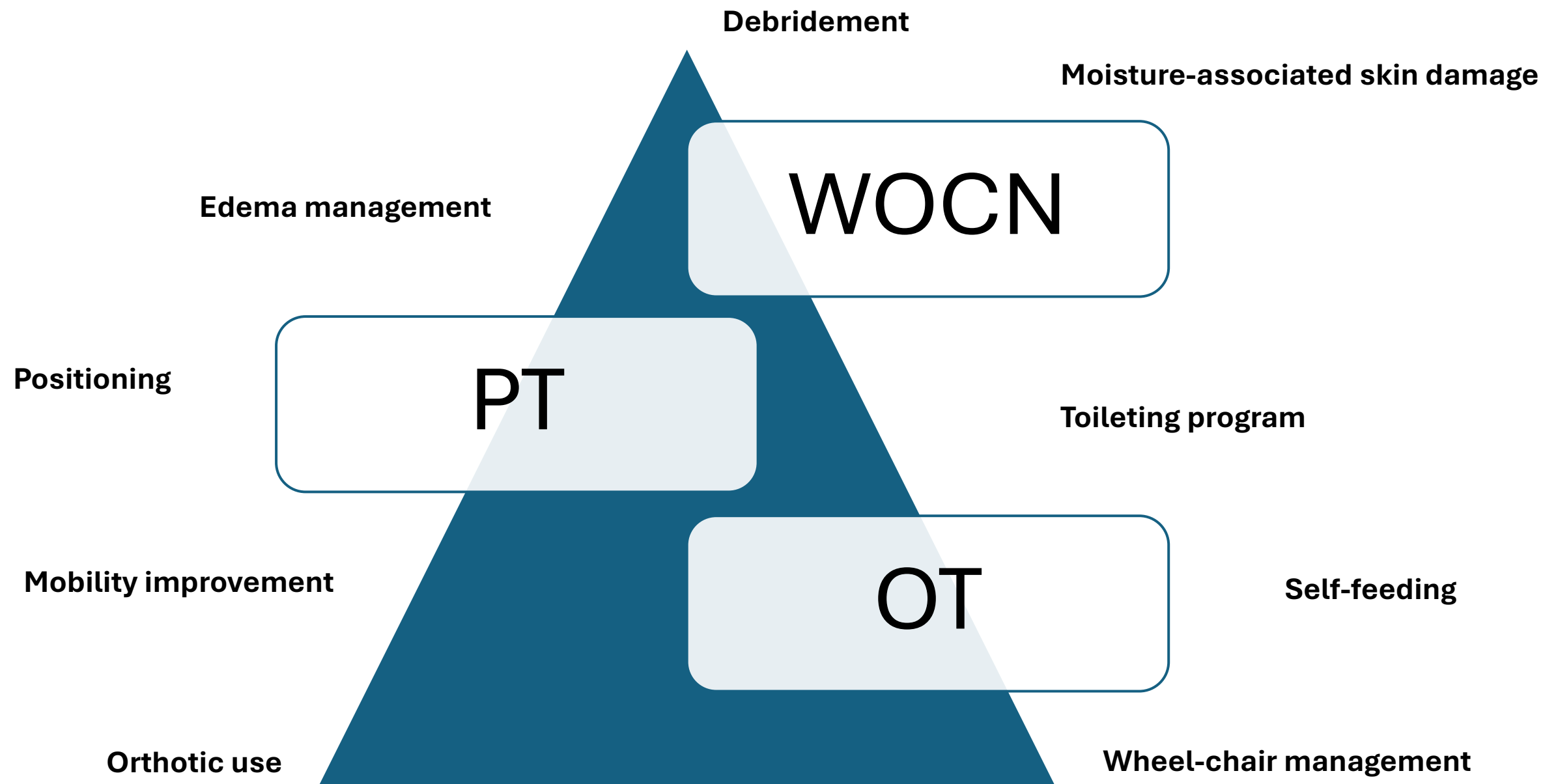
-  • NSAIDs
-  • **Meloxicam:** 7.5 – 15 mg once a day (3-5 days)
-  • **Acetaminophen:** 1000 mg twice a day (Max 3000mg)



Neuropathic Pain Management

-  • **Gabapentin:** 100 – 300 mg at bedtime (Max 3600 mg)
-  • **Pregabalin:** 75 mg twice a day (Max 600 mg)
-  • **Duloxetine:** 30 mg ER once a day (Max 60 mg ER)

OTHER PLAYERS and ALLIES



OTHER RESOURCES

- **Mental Health**

- <https://www.nimh.nih.gov/health/find-help>

- **Smoking cessation**

- 1-800-QUIT-NOW

- **Diet**

- <https://www.myplate.gov/myplate-plan>
- <https://www.foodaddicts.org/>

- **Physical activity**

- <https://health.gov/moveyourway>

Clinical Pearls: The 5-Step Management Workflow



1. PERFUSION

Assess arterial circulation (Pulses, ABI) before compressing



2. EDEMA

Control swelling with Compression (Standard of Care for VLU)



3. DEBRIDEMENT

Remove necrosis and 'saucerize' edges (Sharp > Enzymatic)



4. ENVIRONMENT

Select dressing based on moisture balance (Wet -> Absorb; Dry -> Hydrate)



5. ADJUNCTS

Add medication and exercise. Refer atypical wounds.

2. Dermatology-Specific Wounds

- Pyoderma Gangrenosum
- Hidradenitis suppurativa
- Calciphylaxis

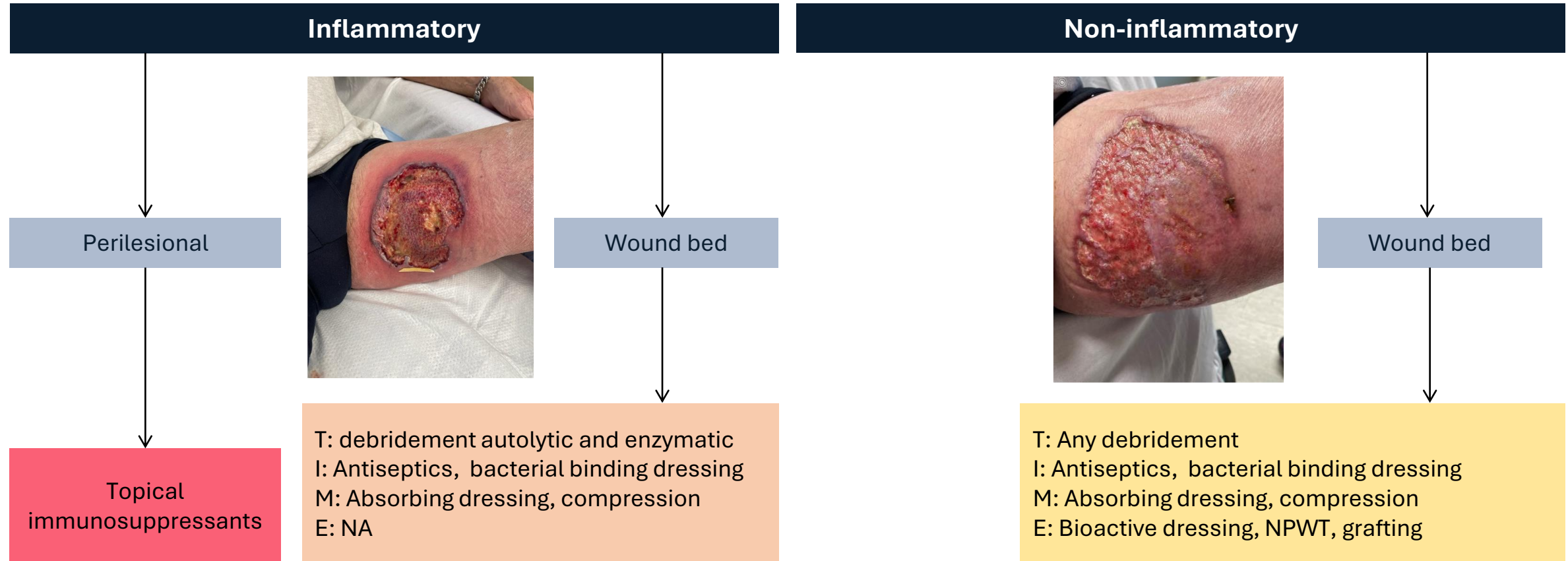
Pyoderma Gangrenosum

- Inflammation
 - → Medical management
 - → Rule out infection
- Debridement
 - → Once immunosuppressive therapy has started
- Pain



Baricitinib 4 mg once a day for 24 weeks(steroid taper for 8 weeks)

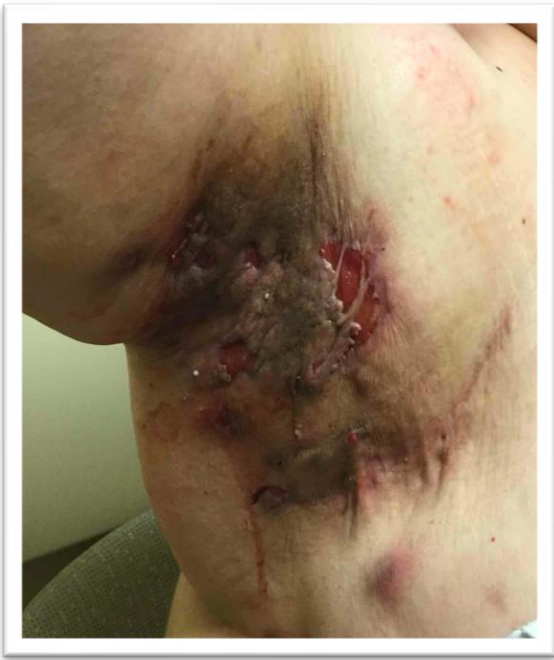
Wound management: debridement and compression are essential



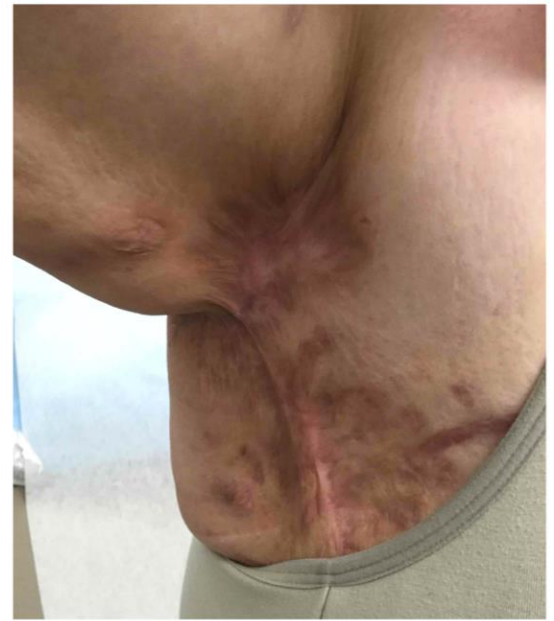
T: Tissue; I: Infection; M: Moisture balance; E: Epithelial advancement edges

Hidradenitis suppurativa

- Inflammation
 - → Medical management
- Drainage (exudate)
 - → moderate: foams
 - → heavy: alginate/hydrofiber/superabsorbents
 - → malodor: dressings with antiseptics
- Surgical
- Pain



Inflectra followed excision



Dressings and anatomic locations



Day to Day



Surgical



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Reduce the Pain of your HS Flares

HidraWear is the world's first and only Hidradenitis Suppurativa (HS) specific wound dressing system, for use by people with flares in the armpit, buttocks & groin. HidraWear is the perfect self-care solution for managing HS flares.

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SHOP NOW

Calciophylaxis



IVSTS 2/week for 3 months

- Systemic therapy
 - → Sodium Thiosulfate + Vitamin K (oral or IM)
 - → Anticoagulation
 - → Stop triggering medications
- Debridement
 - → Necrotic tissue
- Pain

3. Cases

- **Case 1:** “My Mycosis fungoides is worsening”
- **Case 2:** “I have a painful wound on my buttocks”
- **Case 3:** “A curbside consult from West Palm beach: is this pyoderma?”
- **Case 4:** “I need surgery for my peristomal pyoderma gangrenosum”
- **Case 5:** “I have pyoderma gangrenosum”

“My mycosis fungoides is worsening”

70 yo female

Wound age: 4 months

MF, hypogammaglobulinemia



“Diagnosis: MF with HSV superinfection”



Skin biopsy: MF
Viral culture: HSV-1

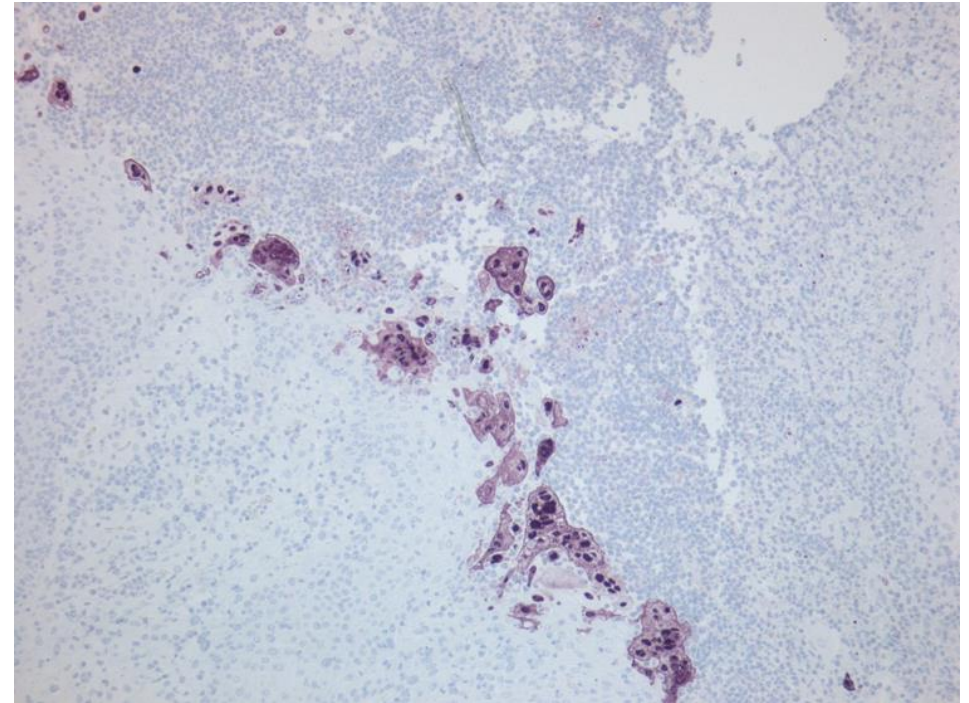


Follow up: 2 months

Infections on intertriginous areas:

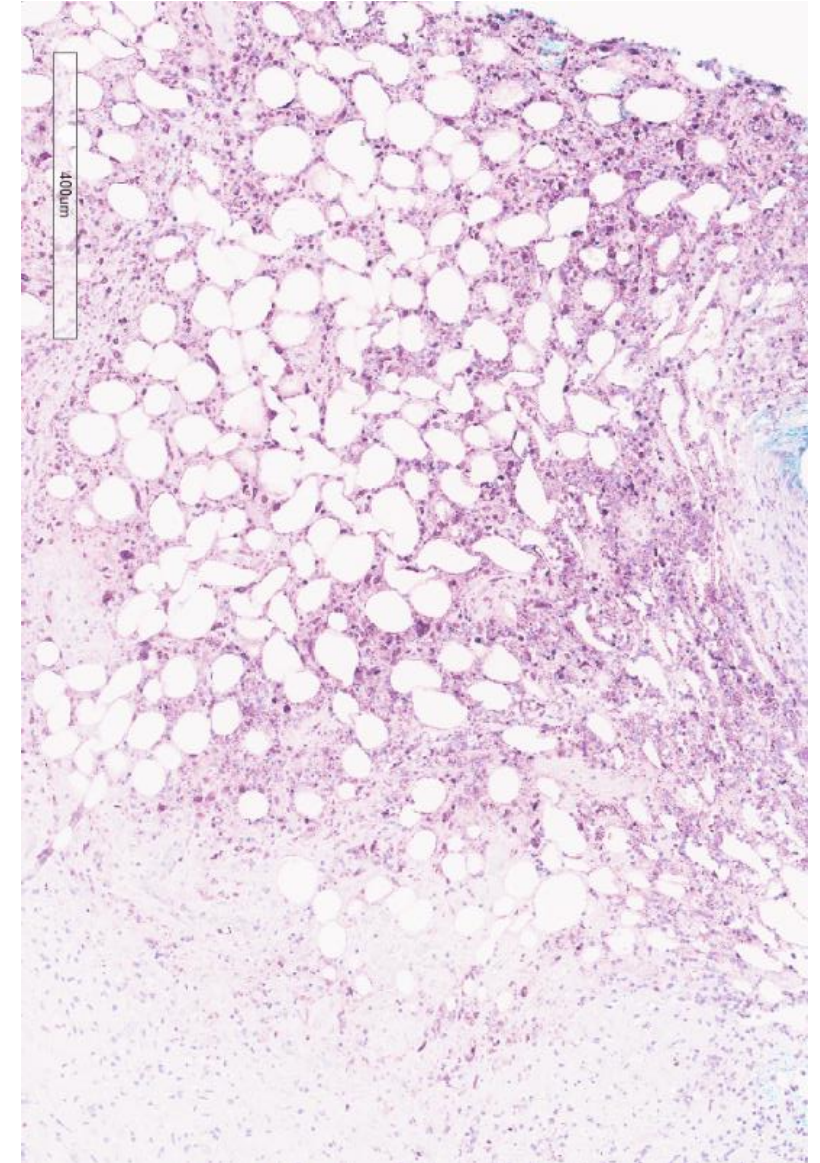
- Bacterial
- Fungal/yeast
- Viral (HSV, CMV)—especially in immunocompromised

Rare variants of herpetic infections



Herpes vegetans

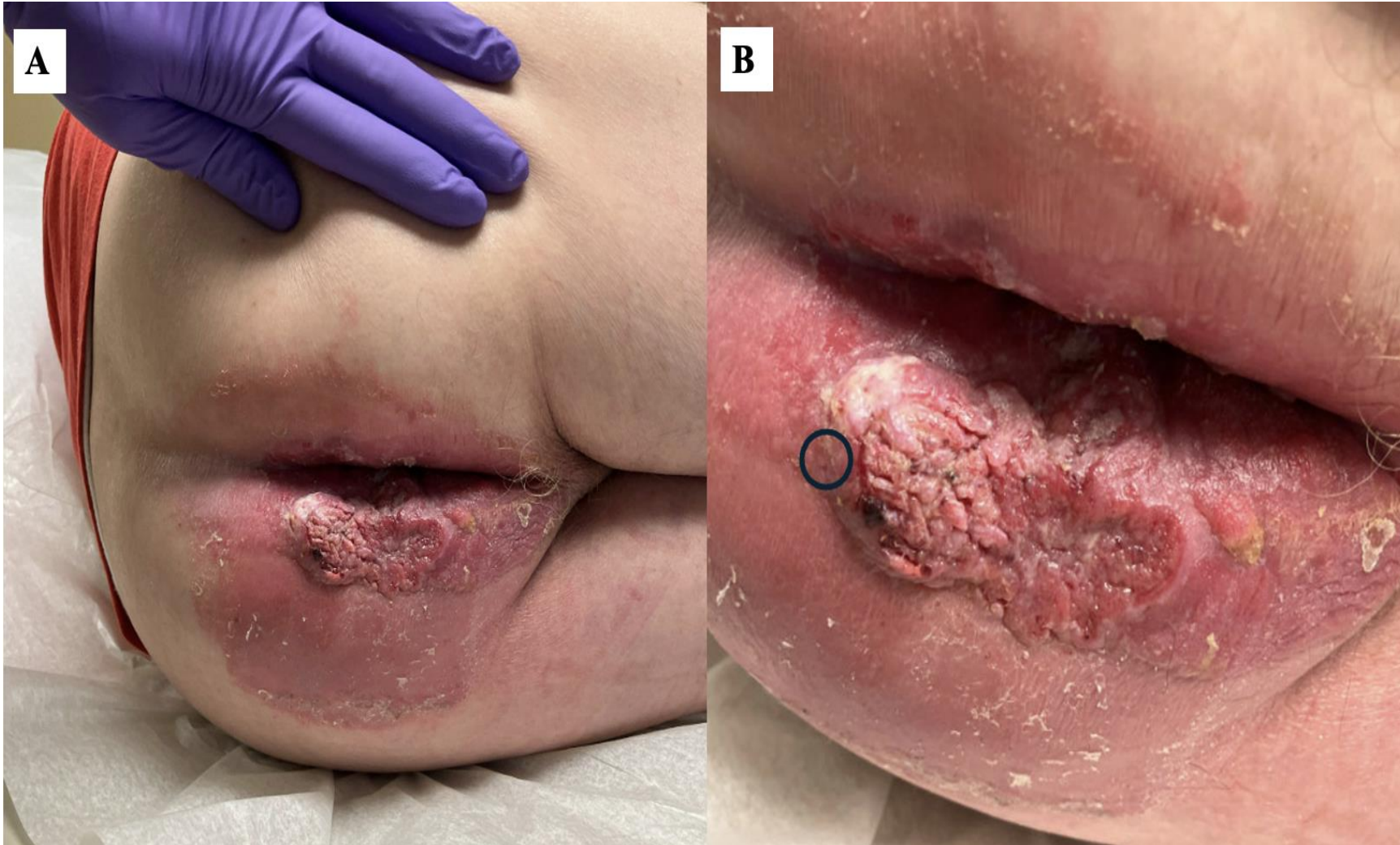
Rare variants of herpetic infections



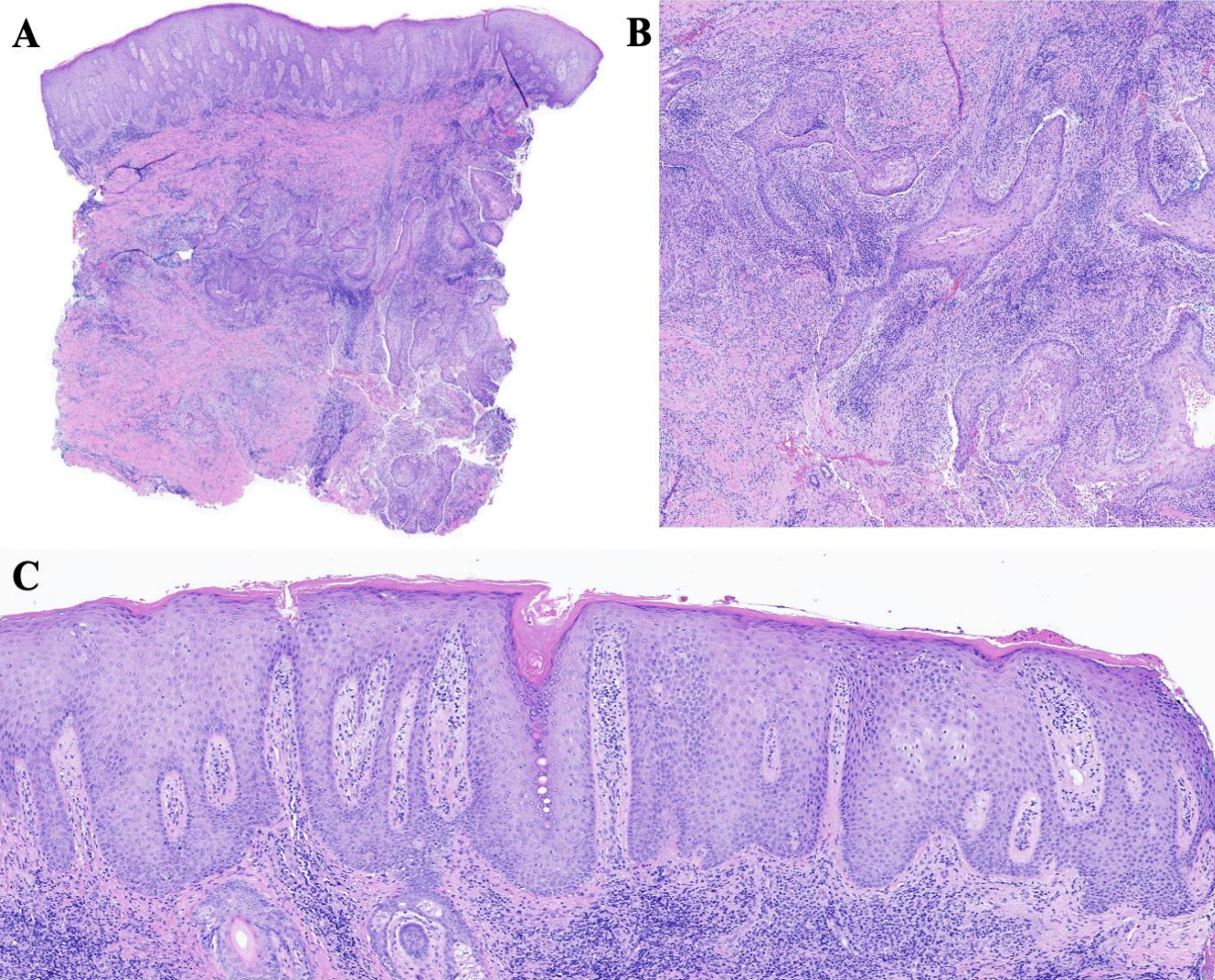
Herpetic Panniculitis

Case 2: “I have a painful wound on my buttocks”

- 70-year-old male with a painful wound on the right buttocks for 3 years.
- PMH: Diabetes mellitus, high blood pressure, inverse psoriasis.



Perianal squamous cell carcinoma



Perianal squamous cell carcinoma

- SCC can present as a nonhealing ulcer, fissure, nodule, or plaque in the anogenital region.
- Infections with HPV types 16 and 18 are associated with SCC in younger adults,
 - → chronic inflammatory conditions, such as LSNA or PsO are associated with SCC in older adults.

Case 3: “A curbside consult: is this pyoderma?”





Unusual presentations for PG:

- 50-80% of PG lesions affect lower extremities
- Uncommon locations: soles and scars
- If breast is affected: also think of idiopathic granulomatous mastitis

Idiopathic granulomatous mastitis



Case 4: “I need surgery for my peristomal PG”

- 39-year-old female with peristomal pyoderma gangrenosum unresponsive to TNF inhibition along with ILK for several months.
- PMH: Ulcerative colitis, psoriasis, psoriatic arthritis.

Peristomal pyoderma gangrenosum



Surgical intervention: Stoma revision and relocation



4/2021



5/2021

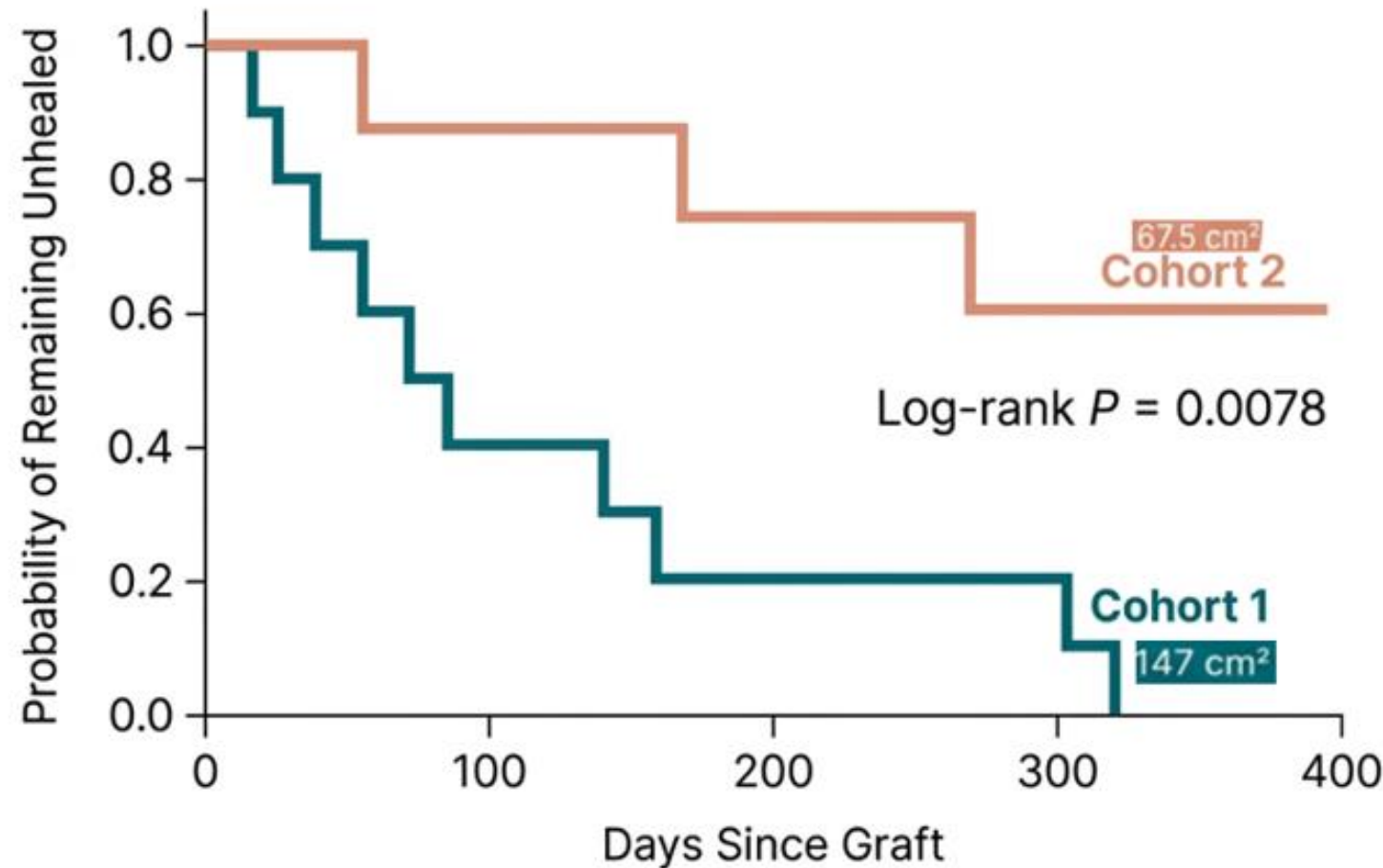


2/2022

Peristomal Pyoderma Gangrenosum

- Uncommon subtype of PG occurring near abdominal stoma sites,
 - ~ 15% of all PG cases.
- Types of surgical intervention:
 - Debridement.
 - Resection of active bowel disease.
 - Stoma revision and relocation.
 - Stoma closure.

Healing time is shorter in the cohort that received the diagnosis of PG before skin grafting

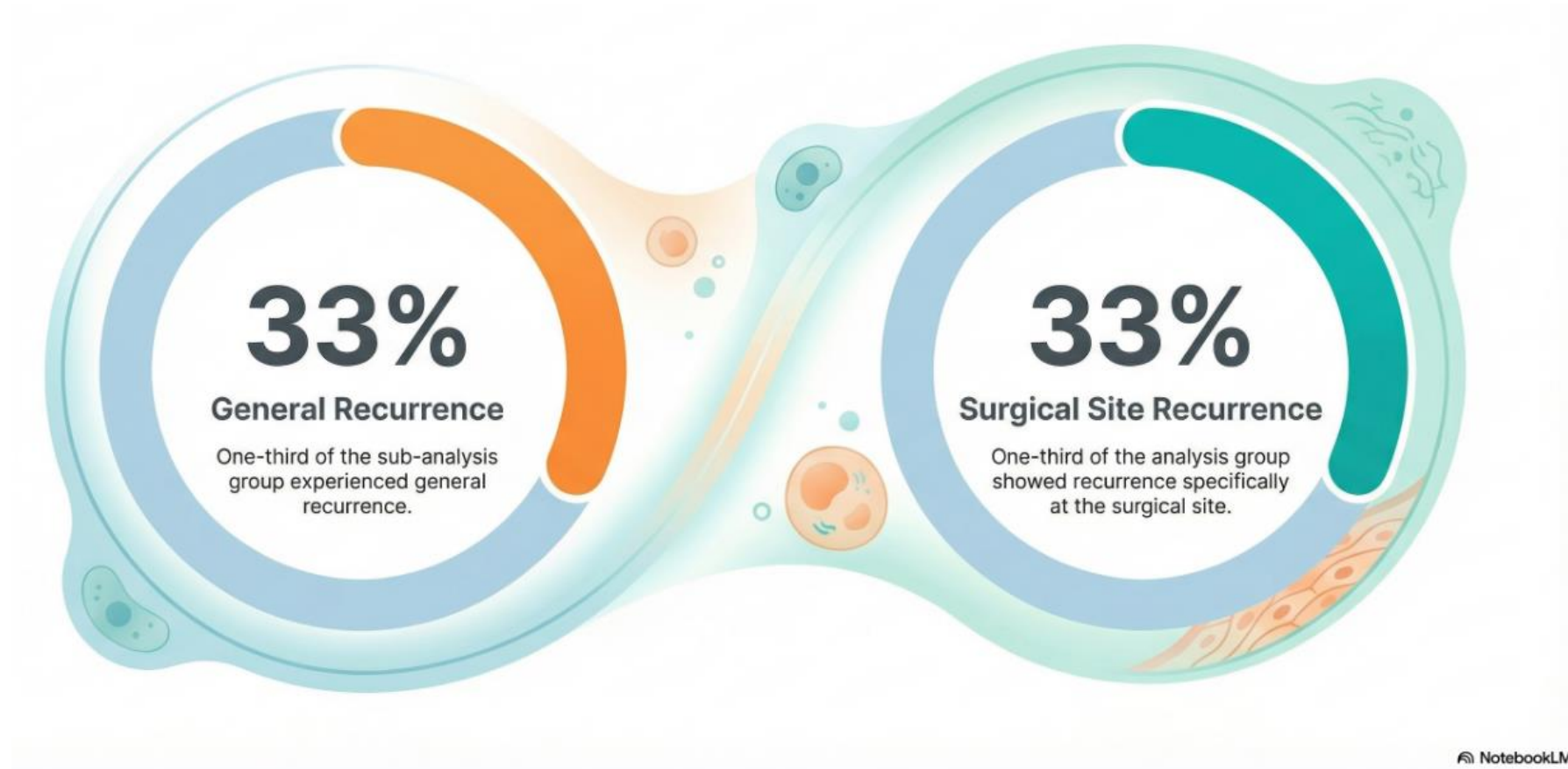


Median time to healing
(Cohort 1): 64 days

Cohort 2 could not be
estimated (<50% healed)

Log-rank $P = 0.0078$

Recurrence Rates Similar to Clinical Trials



Across all healed grafts
33% surgical site recurrence Cohort 1
33% general recurrence (25% cohort 1, 8% cohort 2)

Case 5: “I have pyoderma gangrenosum”

59 yo male

Wound age: 4 months

Htn, alcoholic



Two months later

CALCIPHYLAXIS



12/2019



5/2020



9/2020



7/2021



Skin biopsy x 2

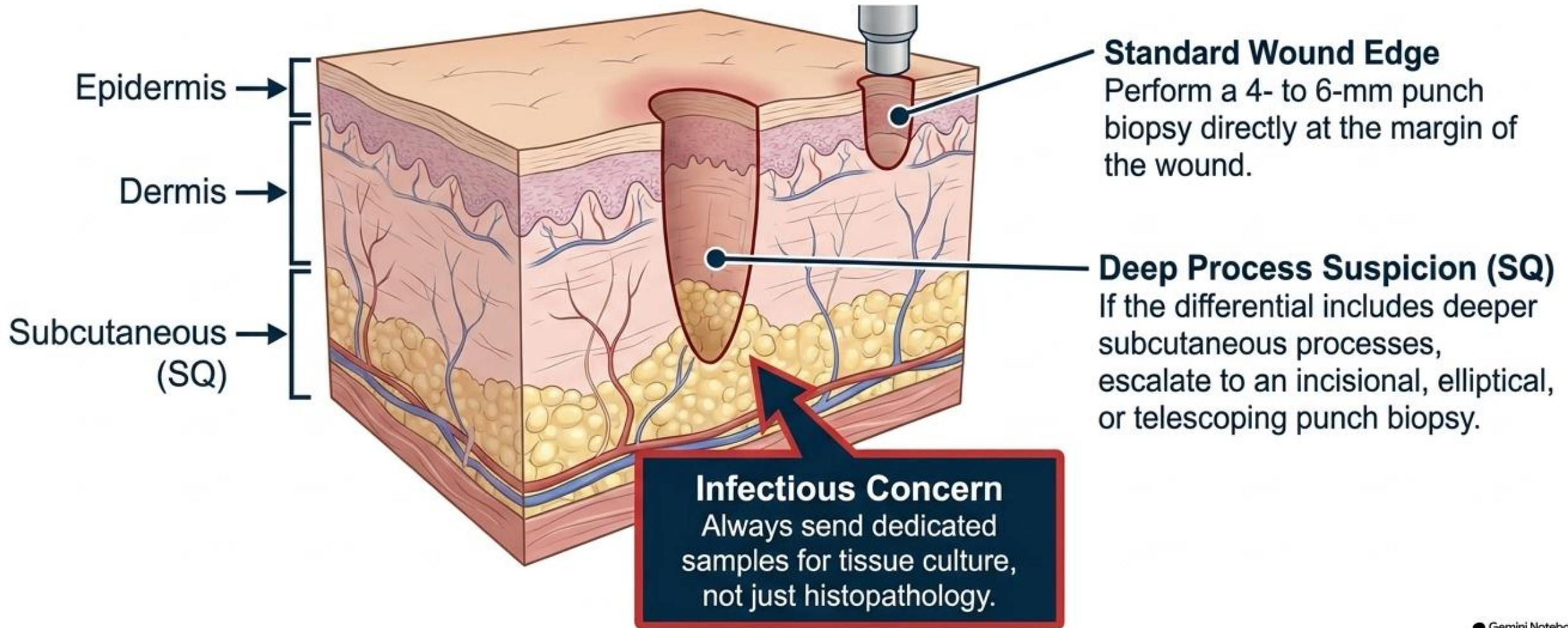
SKIN BIOPSY HAS SEVERAL LIMITATIONS TO IDENTIFY THE ETIOLOGY OF ATYPICAL ULCERS:

- Can identify ~1/3 etiology of atypical ulcers
→ neoplasms and infections
- Classic findings of PG in skin biopsies: ~1/3 patients
- Sensitivity 1st skin biopsy in calciphylaxis: ~1/3-2/13

The 12-Week Failsafe and Biopsy Guidelines

The Trigger Parameter

Failure to respond to standard of care for ~12 weeks mandates a biopsy.



TAKE HOME MESSAGE

- Every wound deserves a diagnosis
 - Clinical, laboratory, imaging and histopathological correlations
- Most wounds fail to heal because the cause remains unaddressed
- Compression is drastically underused
- Dressings alone do not heal wounds
- Pain is data



I WANT YOU
to play a crucial role
in wound care management