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Dermatologic Manifestations of Systemic Diseases

Steven Nwe, DO
IL ACP Chapter Meeting
Friday, October 25, 2019

Conflict of interest

I HAVE NO CONFLICT OF INTERESTS TO REPORT

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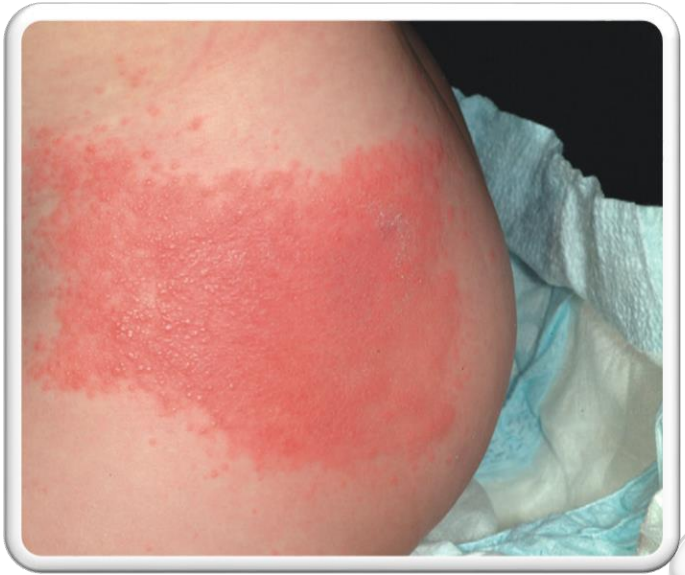
Learning objectives

The healthcare provider will be able to

1. Recognize commonly encountered dermatologic conditions and employ clues to distinguish them from other differentials
2. Predict dermatologic conditions that may be associated with a systemic disease
3. Employ knowledge of interrelated conditions to create a wholistic approach to patient care

”I HAVE THIS RASH”

- A majority of rashes are diagnosed and treated by Primary Care Physicians
- 30-40% of patients who presented to their PCP have at least one skin concern
- FEAR



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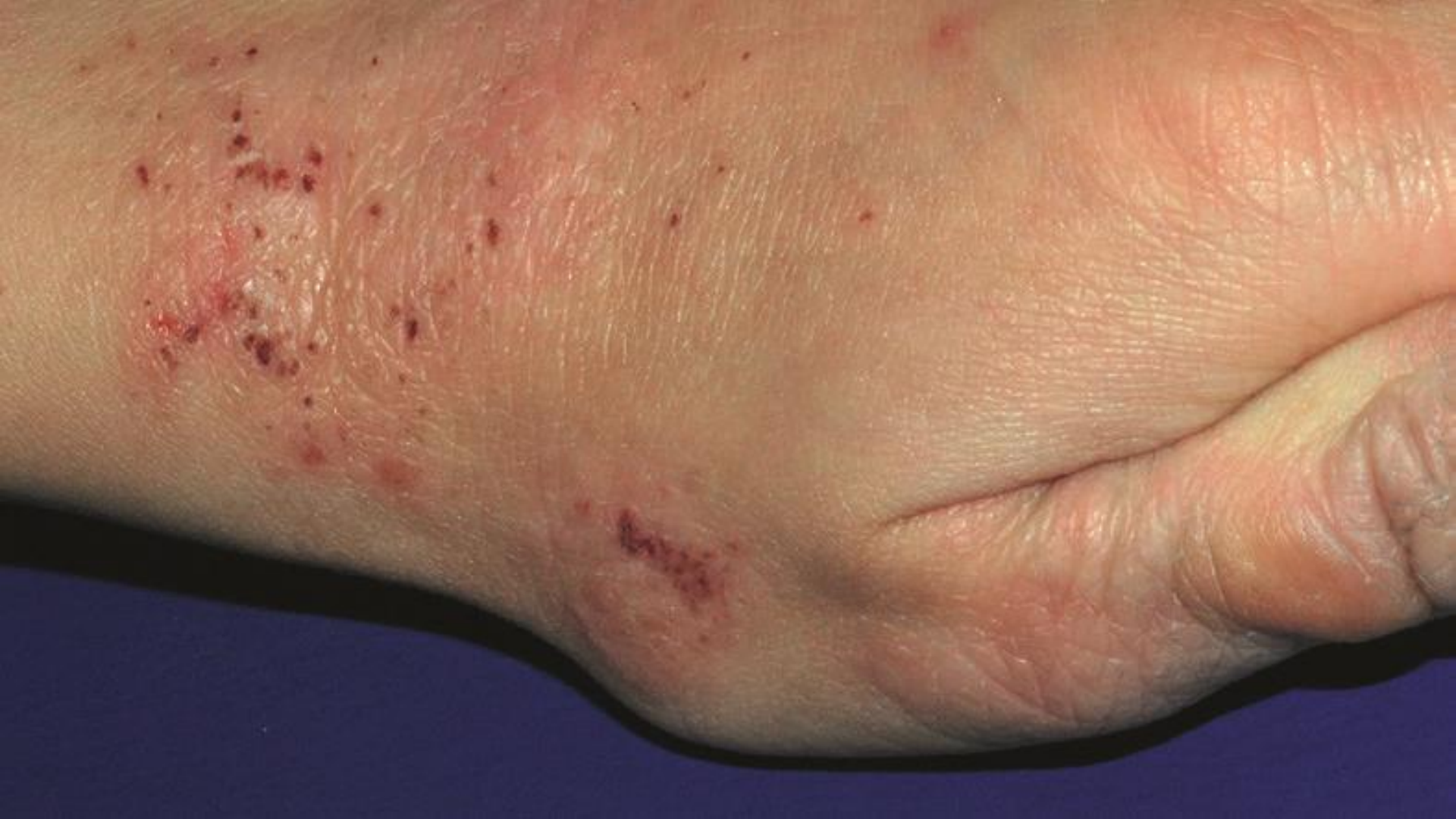
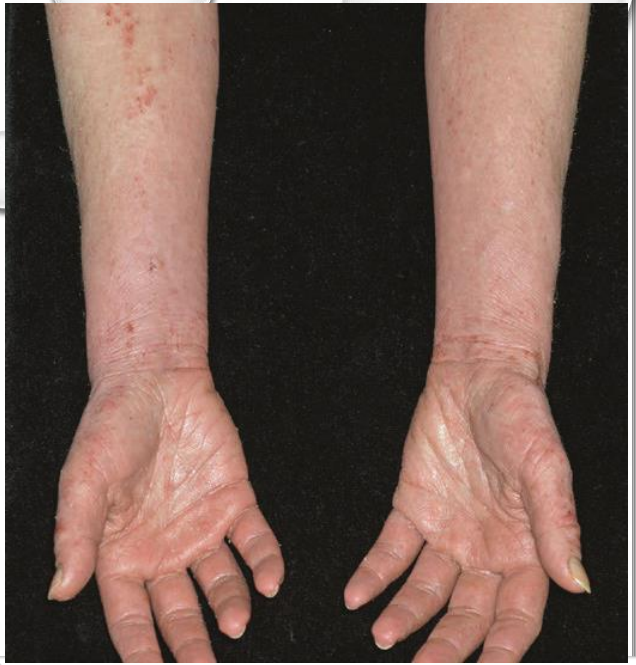
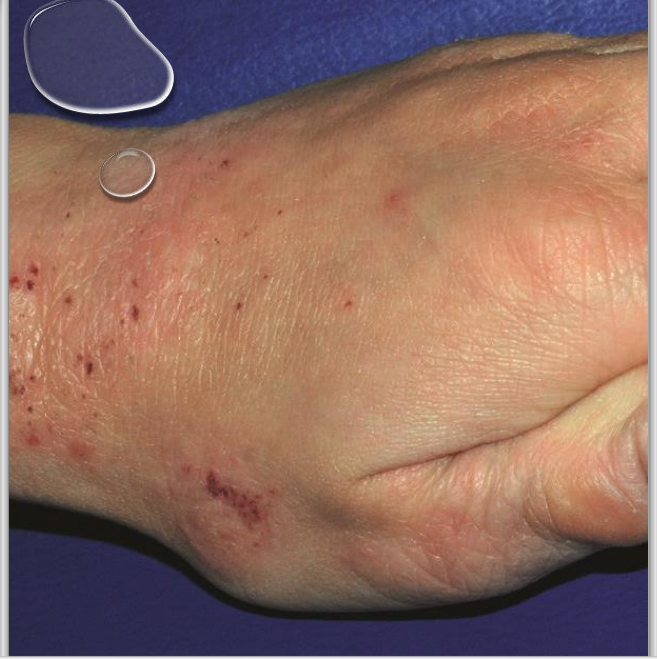
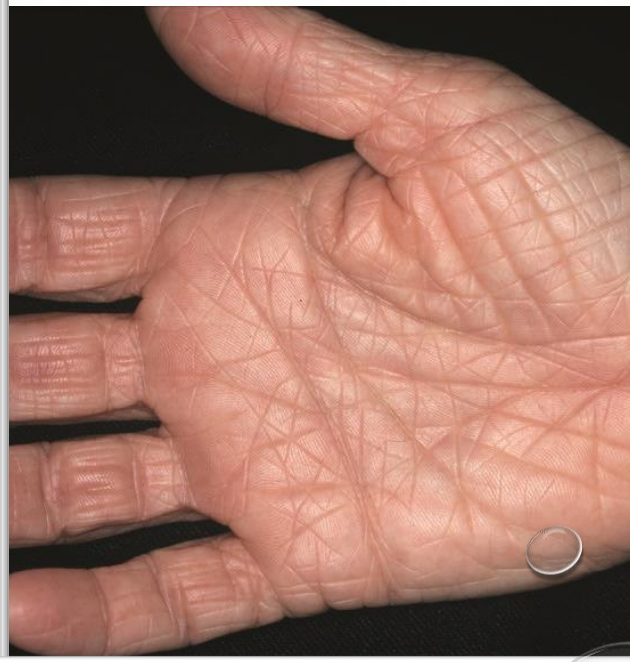
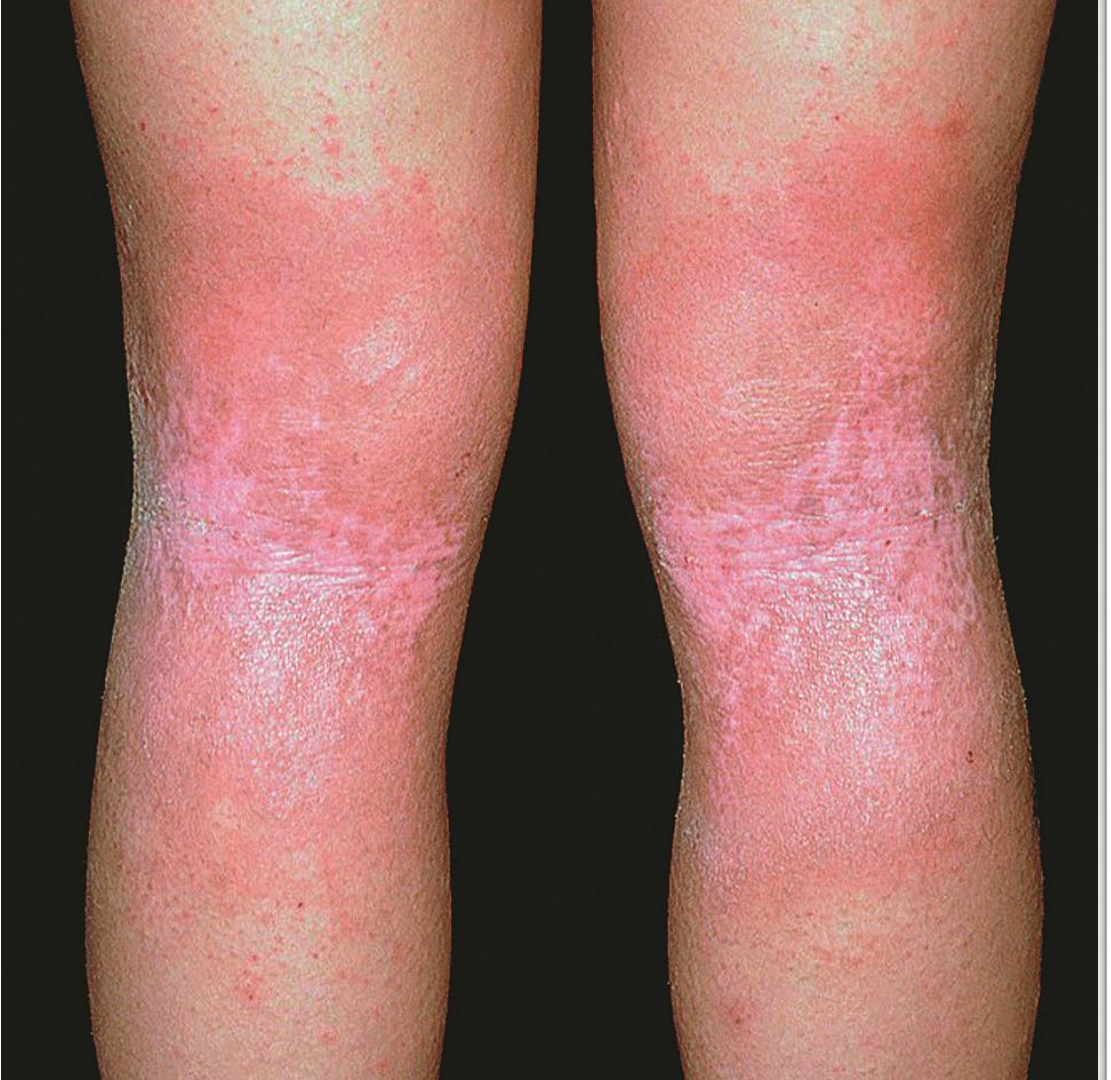
Breakdown

- Discuss the most commonly encounter rashes and differentials
- Dermatologic conditions that have systemic implications
- Dermatologic signs of systemic disease
- Potpourri

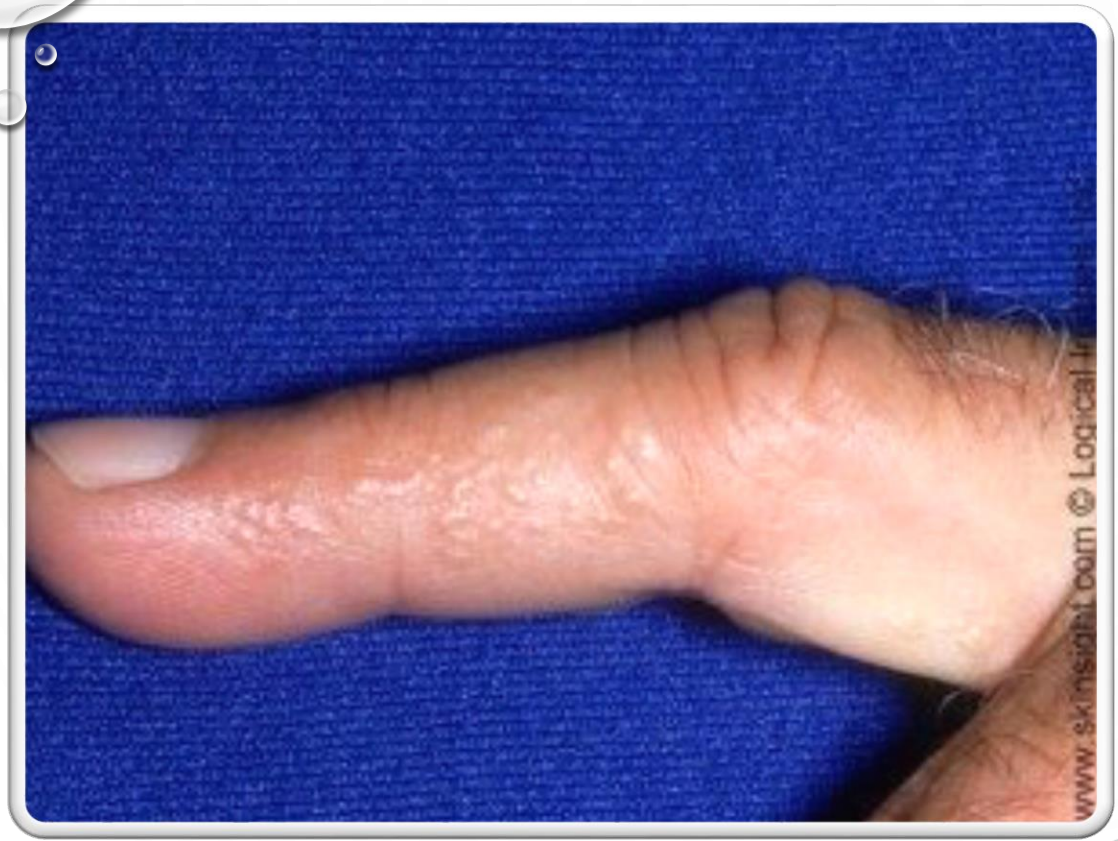


Atopic dermatitis



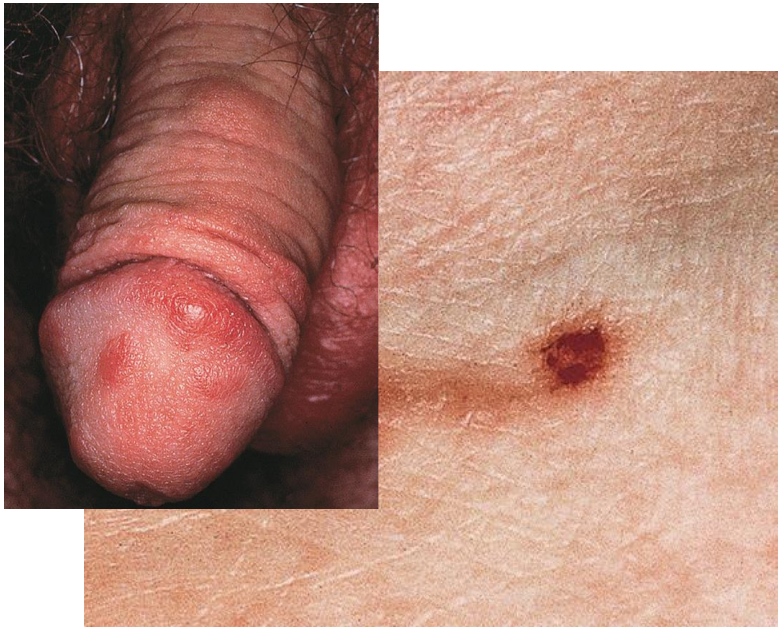
Atopic dermatitis



Dyshidrotic Eczema (Pomphylox)

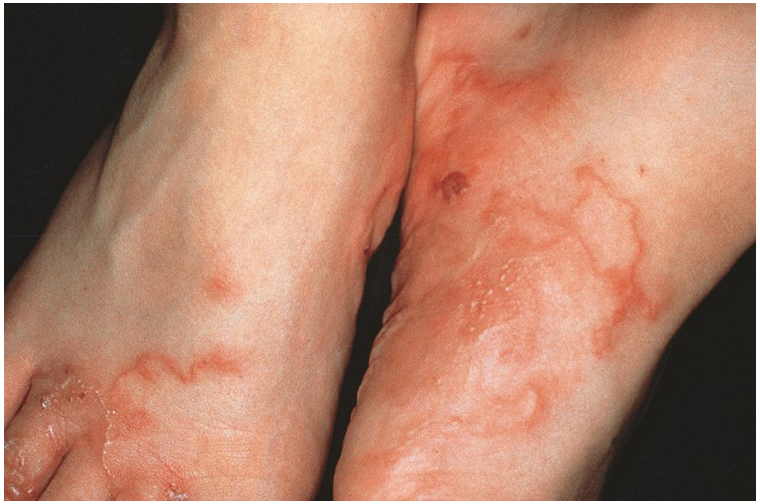
- Very common presentation in adulthood
- Notable for “tapioca-like” firm and deep seated pruritic vesicles
- Often chronic and relapsing

SCABIES

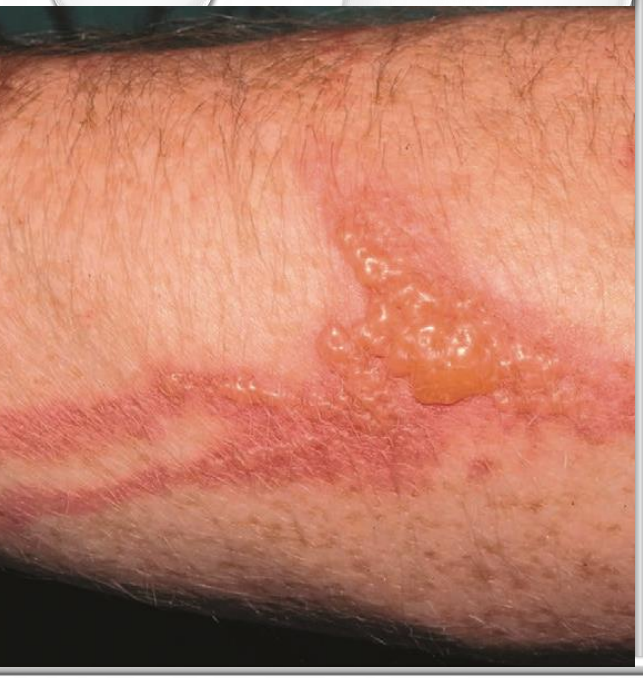
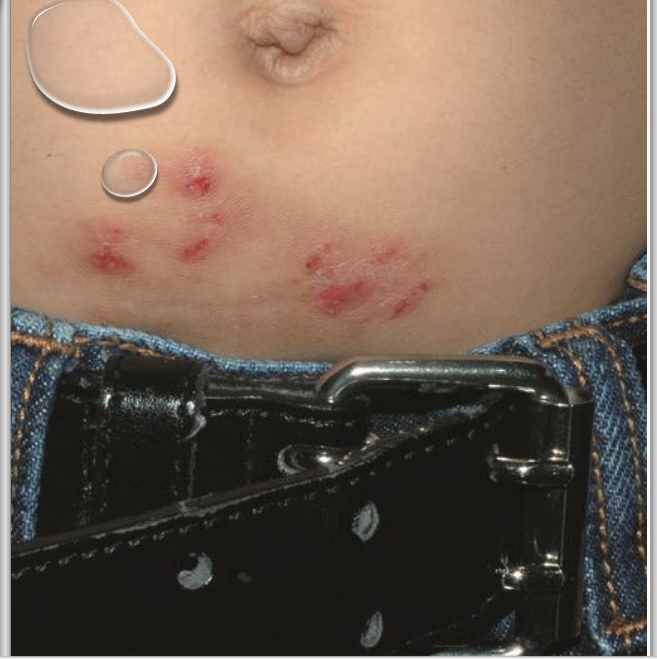
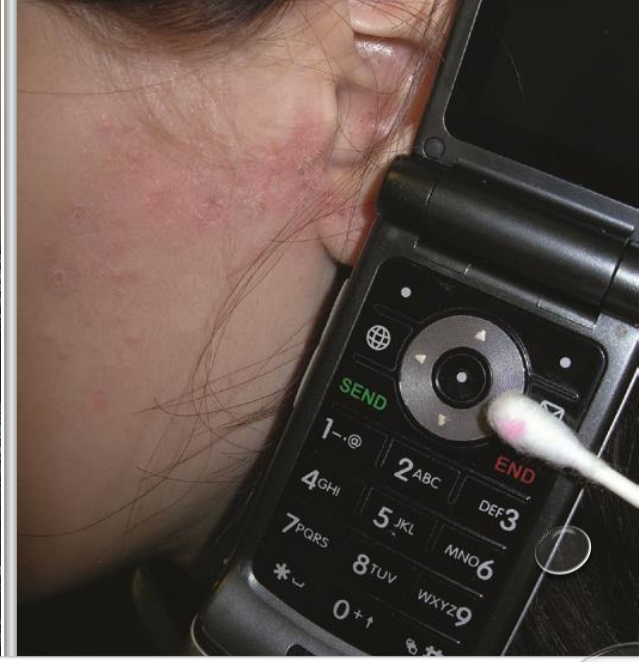


- Burrows
- Scabetic nodules
- Incredibly pruritic
- Intertriginous involvement

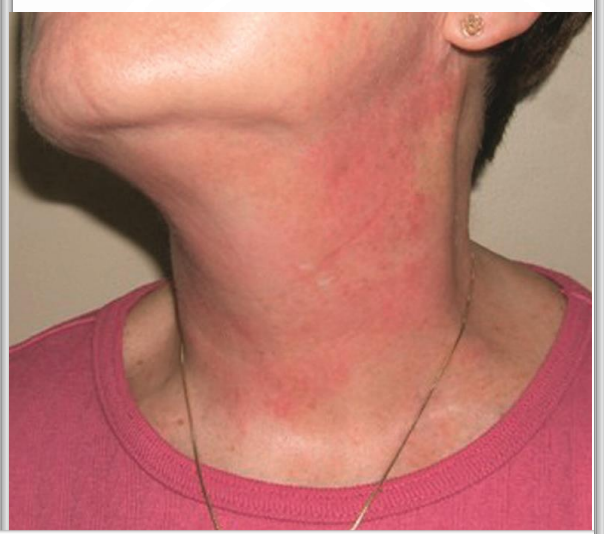
Cutaneous Larva Migrans

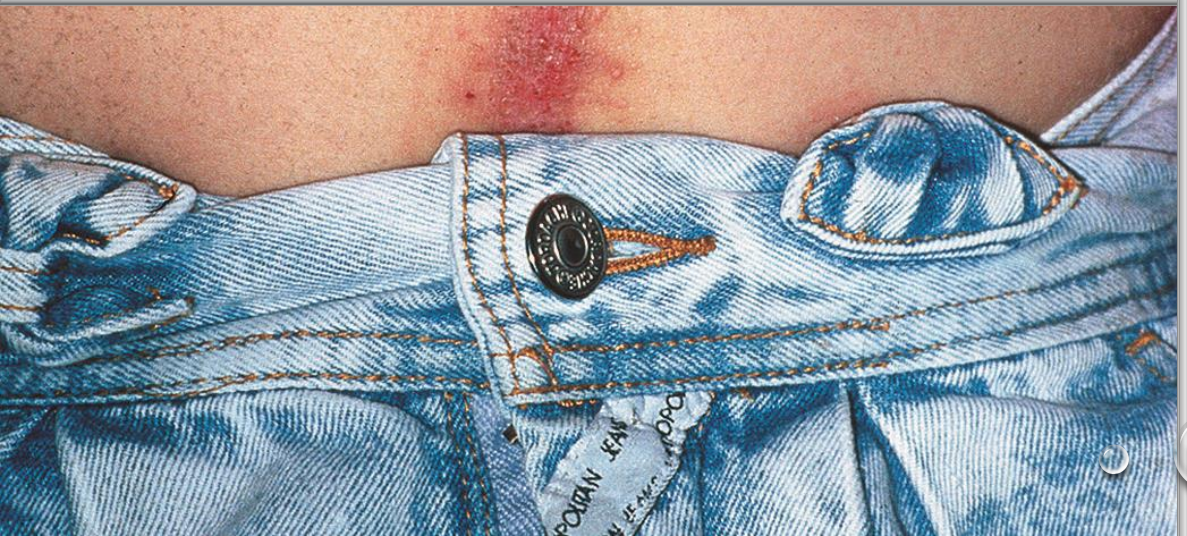


- “Creeping eruption”
- Caused by larvae of hookworms (ancylostamatidae)
- Serpentine, linear streaks mostly on the feet
- Pruritic
- Move about 2 cm a day
- Exposure to animal feces on soil/sand

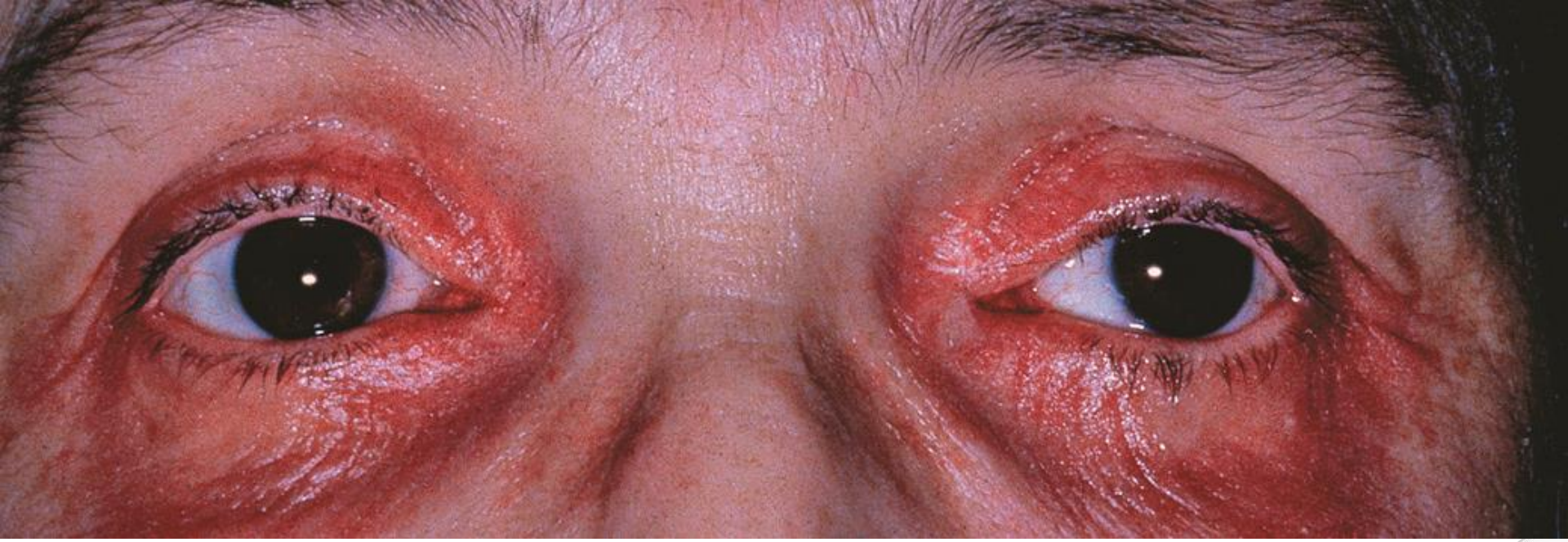
Allergic Contact dermatitis



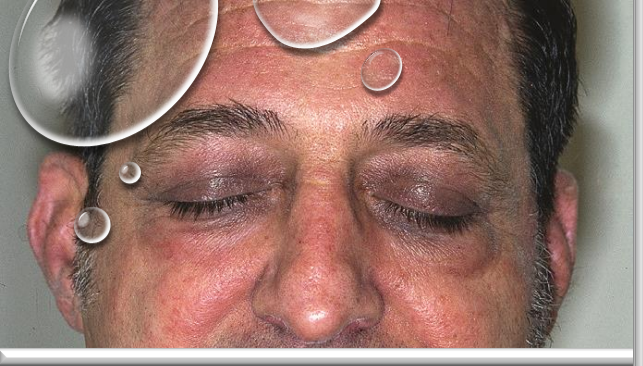


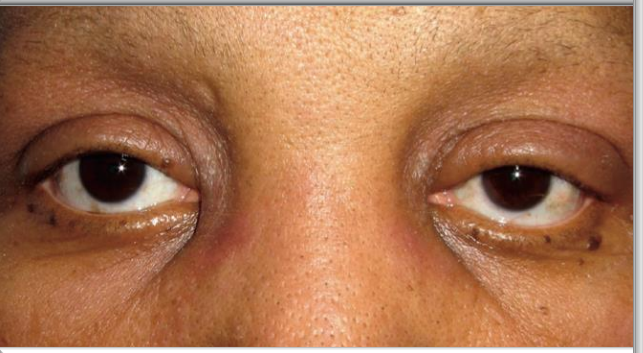
Allergic contact dermatitis

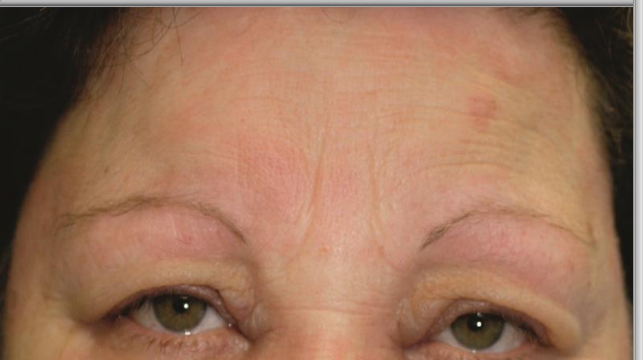
- Patterns
- Exposures
- Occupation



Eyelid dermatitis

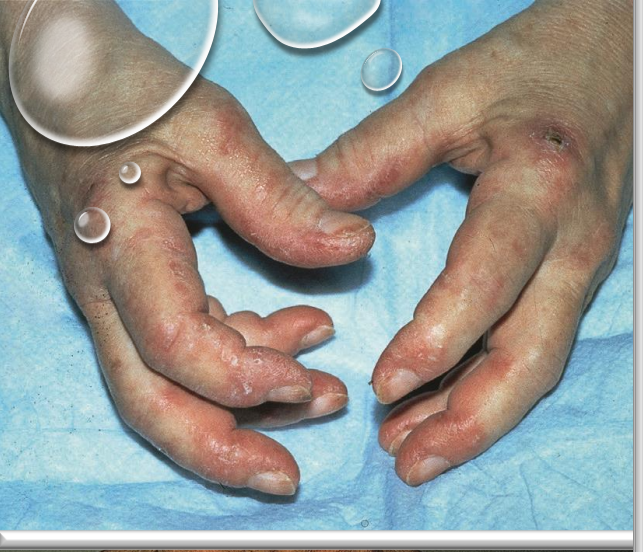


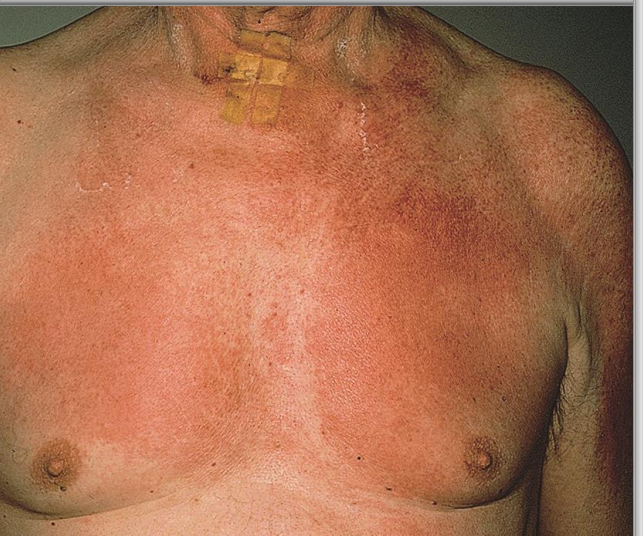




Dermatomyositis

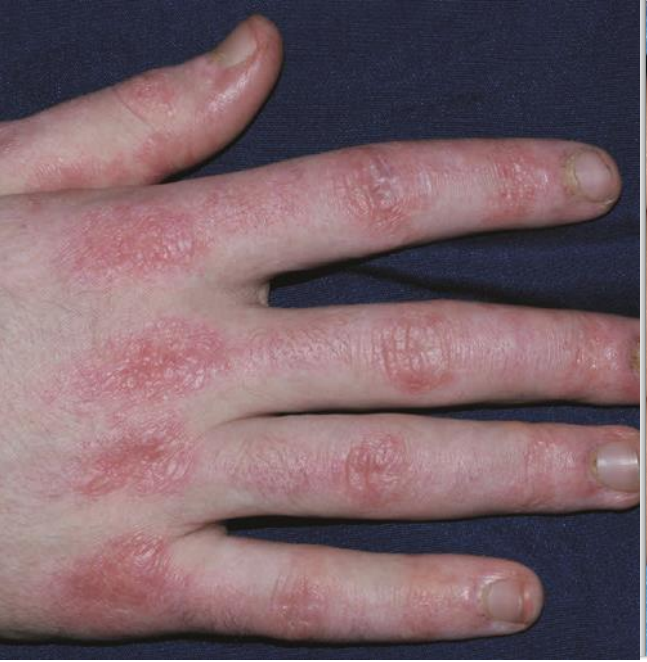
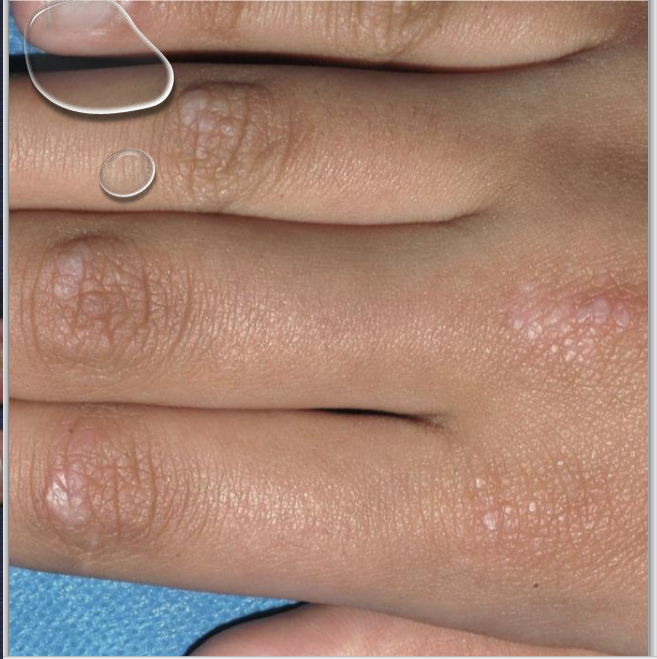
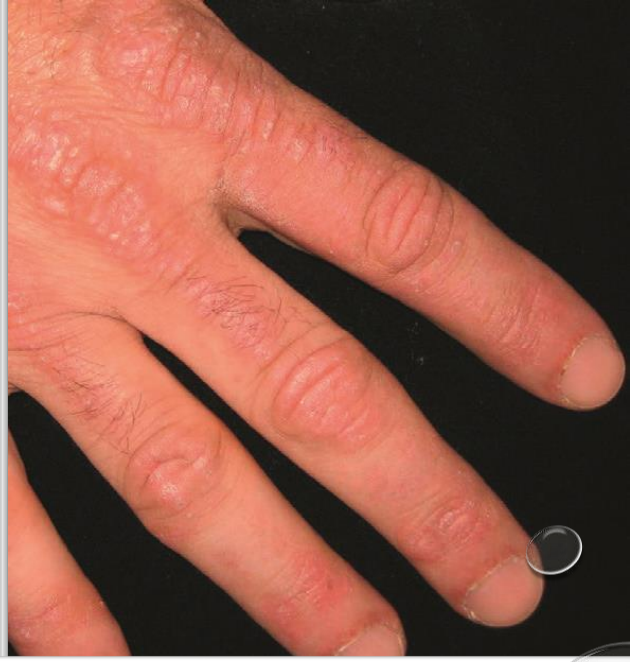
- Heliotrope Rash
- More edema that epidermal changes
- Arises as a result of inflammation of underlying orbicularis oculi muscle





Dermatomyositis

- Clinical and laboratory signs of proximal extensor inflammatory myopathy
- Distinctive, photo-distributed, pink–violet poikiloderma favoring the scalp, periocular region, and extensor surfaces, in addition to nail fold telangiectasias

Gottrons papules

Nail changes

- Cuticular hypertrophy
- Splinter hemorrhages
- Periungual telangiectasia

Okay but back to Eczema

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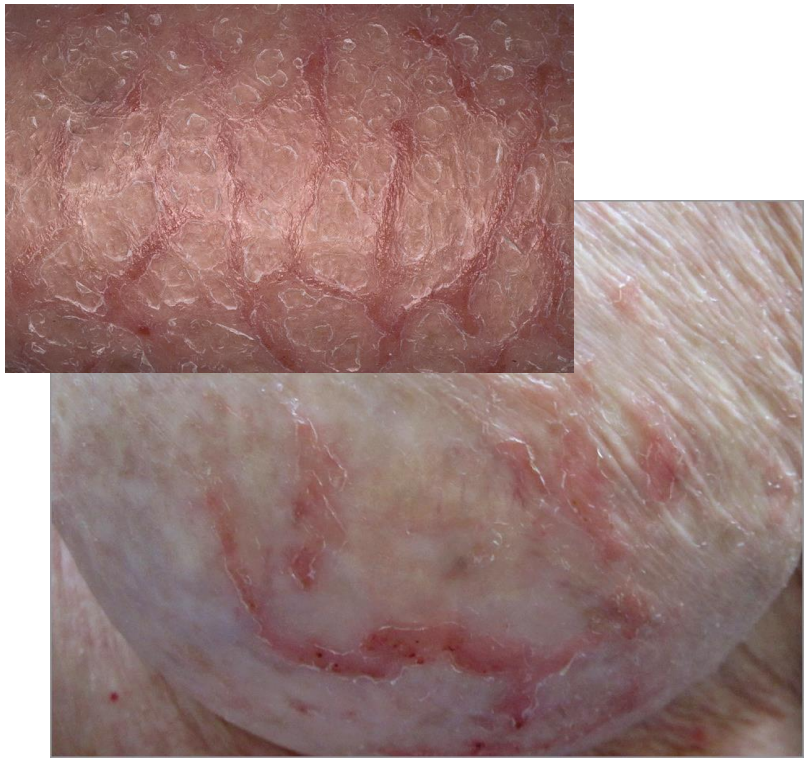
Asteatotic Dermatitis (Eczema Craquele)



- Typically > 60 YO
- Favors lower legs
- Resembles cracked porcelain

JAMA Dermatol. 2014 Oct;150(10):1088-90. doi: 10.1001/jamadermatol.2014.394.

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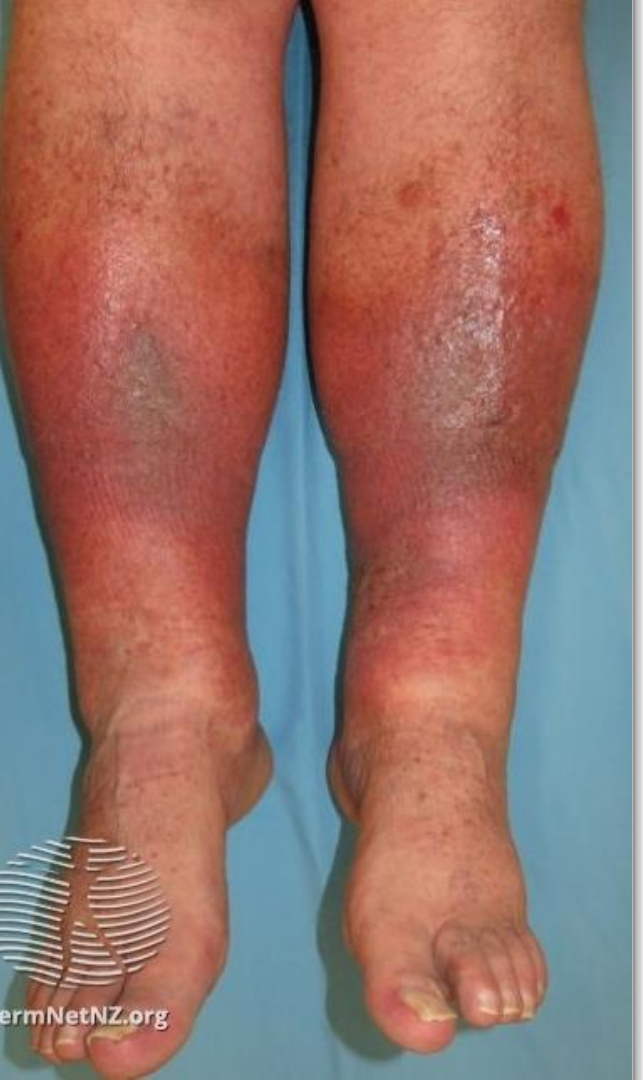

Stasis Dermatitis

- Very common mimic of cellulitis
- Bilateral
- Edema, hemosiderin deposits
- Skin changes often begin on medial ankle
- Leg elevation, compression stockings

Treatment

- Emollients
- Dry skin care
- Avoiding triggers
- Topical steroid use for itching and erythema

Class	Generic Name	Formulation
Class 1 Very High Potency		
	Betamethasone dipropionate	0.05% G O (diprolene)
	Clobetasol	0.05% C F G L O
	Diflorasone diacetate	0.05% O
	Halobetasol propionate	0.05% C O
Class 2 High Potency		
	Amcinonide	0.1% O
	Betamethasone dipropionate	0.05% C (diprolene)
	Desoximetasone	0.05% G, 0.25% C O
	Fluocinonide	0.05% C G O S
	Halcinonide	0.1% C
	Mometasone furoate	0.1% O
Class 3 High Potency		
	Amcinonide	0.1% C L
	Betamethasone dipropionate	0.05% C (non-diprolene)
	Betamethasone valerate	0.1% O
	Desoximetasone	0.05% C
	Diflorasone diacetate	0.05% C
	Fluticasone propionate	0.005% O
	Halcinonide	0.1% O S
	Triamcinolone	0.1% O
Class 4 Mid Potency		
	Betamethasone valerate	0.12% F
	Flucinolone acetonide	0.025% O
	Flurandrenolide	0.05% O
	Hydrocortisone valerate	0.2% O
	Mometasone furoate	0.1% C
	Triamcinolone	0.1% C
Class 5 Mid Potency		
	Betamethasone dipropionate	0.05% L
	Betamethasone valerate	0.1% C
	Flucinolone acetonide	0.025% C
	Fluticasone propionate	0.05% C
	Flurandrenolide	0.05% C
	Hydrocortisone butyrate	0.1% C
	Hydrocortisone valerate	0.2% C
Class 6 Low Potency		
	Alcometasone dipropionate	0.05% C O
	Betamethasone valerate	0.1% L
	Desonide	0.05% C L O
	Flucinolone acetonide	0.01% C S
Class 7 Low Potency		
	Hydrocortisone acetate	0.5% C L O, 1% C O F
	Hydrocortisone hydrochloride	0.25% C L, 0.5% C L O S, 1% C L O S, 2% L, 2.5% C L O S

C = Cream, F = Foam, G = Gel, L = Lotion, O = Ointment, S = Solution

Easy general rules

- Ointments are stronger than creams
- Creams are more user friendly, but can burn more on open sores
- Foams and solutions work well for scalp
- Low Potency for Face, intertriginous areas, genital skin
- Hands, feet and scalp may need stronger potency steroids

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Class	Generic Name	Formulation
Class 1 Very High Potency		
	Betamethasone dipropionate	0.05% G O (diprolene)
	Clobetasol	0.05% C F G L O
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	Halobetasol propionate	0.05% C O
Class 2 High Potency		
	Amcinonide	0.1% O
	Betamethasone dipropionate	0.05% C (diprolene)
	Desoximetasone	0.05% G, 0.25% C O
	Fluocinonide	0.05% C G O S
	Halcinonide	0.1% C
	Mometasone furoate	0.1% O
Class 3 High Potency		
	Amcinonide	0.1% C L
	Betamethasone dipropionate	0.05% C (non-diprolene)
	Betamethasone valerate	0.1% O
	Desoximetasone	0.05% C
	Diflorasone diacetate	0.05% C
	Fluticasone propionate	0.005% O
	Halcinonide	0.1% O S
	Triamcinolone	0.1% O
Class 4 Mid Potency		
	Betamethasone valerate	0.12% F
	Flucinolone acetonide	0.025% O
	Flurandrenolide	0.05% O
	Hydrocortisone valerate	0.2% O
	Mometasone furoate	0.1% C
	Triamcinolone	0.1% C
Class 5 Mid Potency		
	Betamethasone dipropionate	0.05% L
	Betamethasone valerate	0.1% C
	Flucinolone acetonide	0.025% C
	Fluticasone propionate	0.05% C
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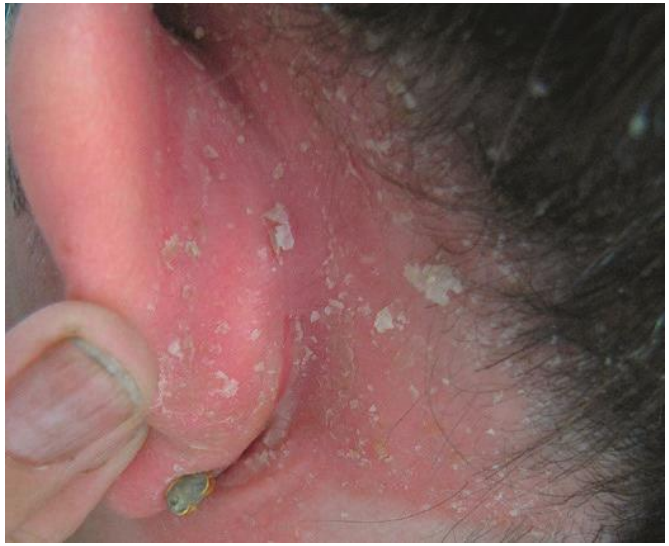
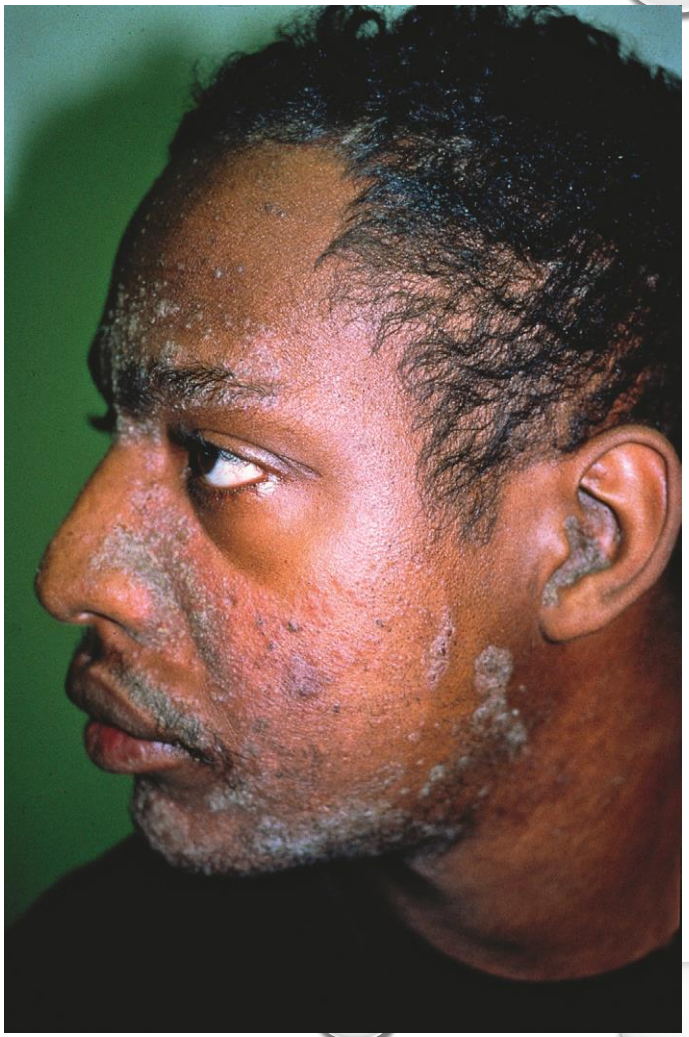
	Hydrocortisone valerate	0.2% C
Class 6 Low Potency		
	Alcometasone dipropionate	0.05% C O
	Betamethasone valerate	0.1% L
	Desonide	0.05% C L O
	Flucinolone acetonide	0.01% C S
Class 7 Low Potency		
	Hydrocortisone acetate	0.5% C L O, 1% C O F
	Hydrocortisone hydrochloride	0.25% C L, 0.5% C L O S, 1% C L O S, 2% L, 2.5% C L O S

C = Cream, F = Foam, G = Gel, L = Lotion, O = Ointment, S = Solution

Seborrheic Dermatitis





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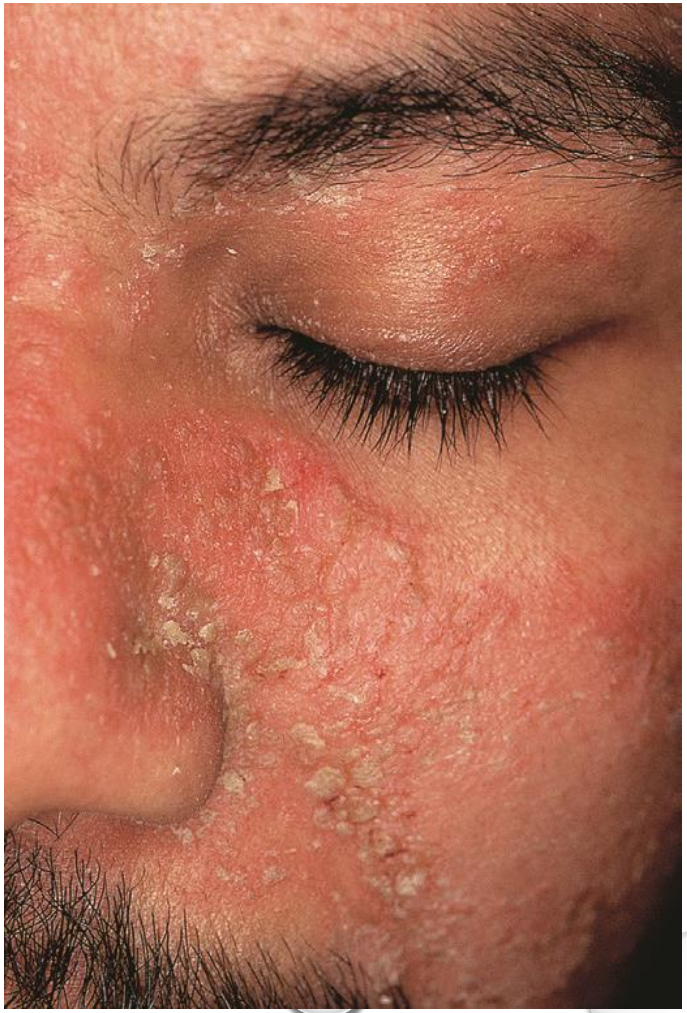
Seborrheic Dermatitis

- HIV
- Parkinsonism
- CVA



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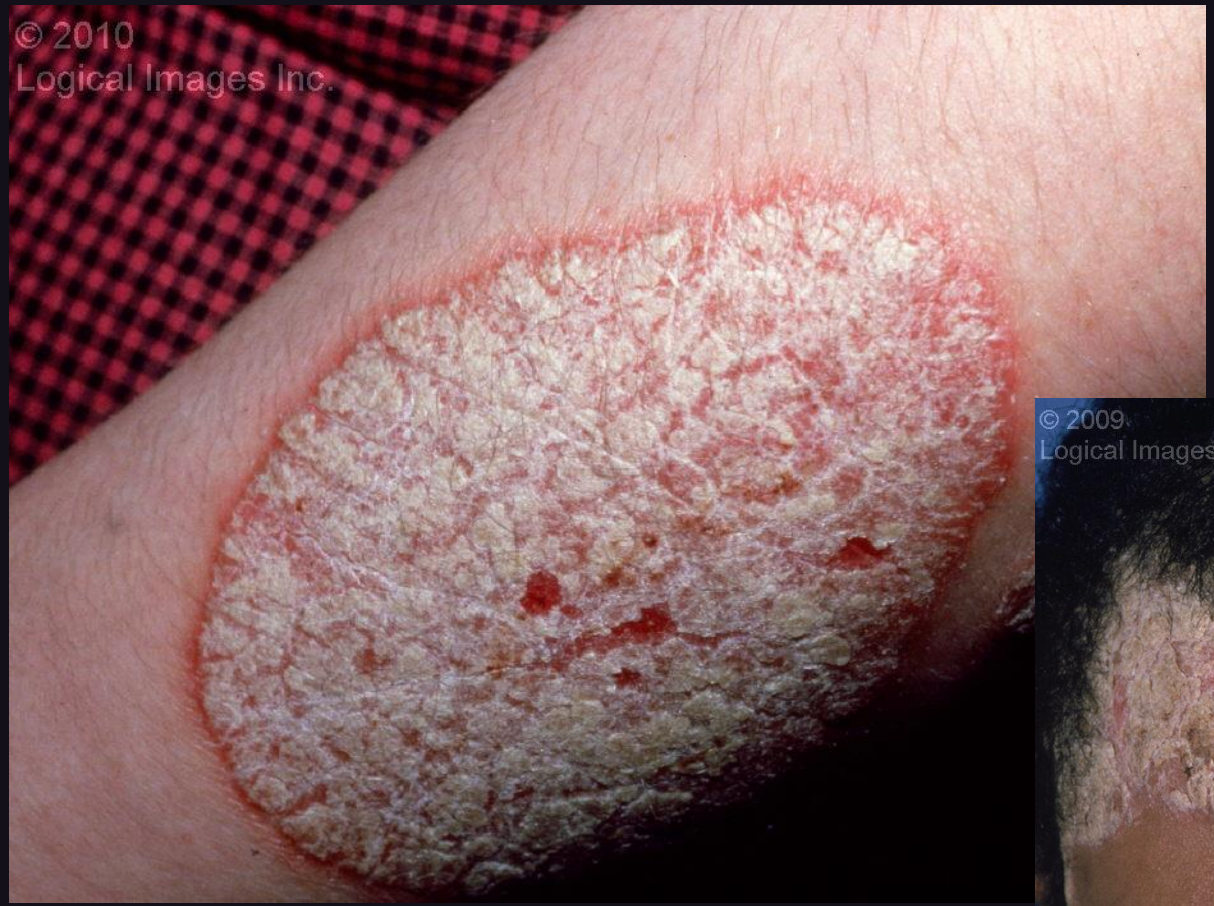
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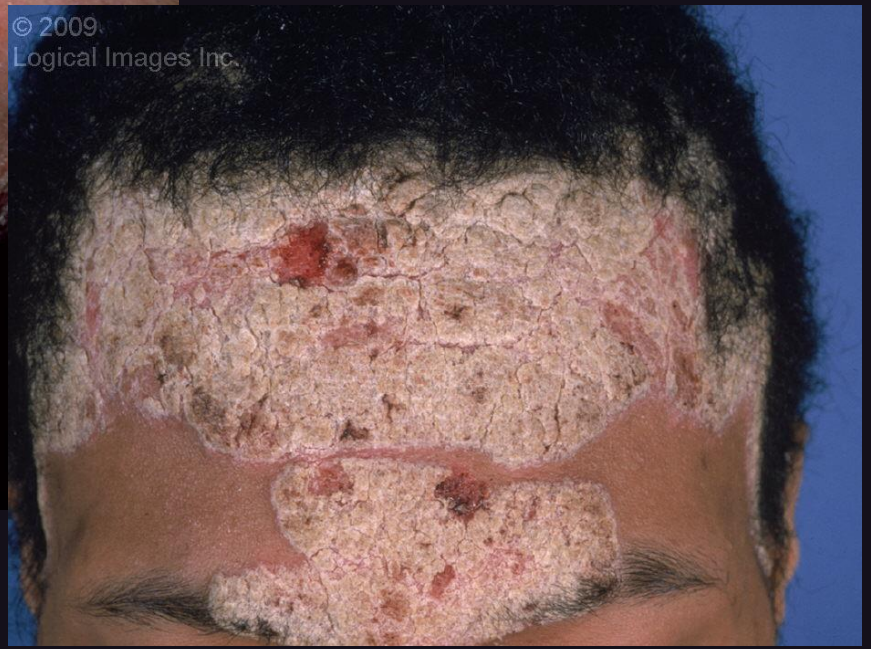
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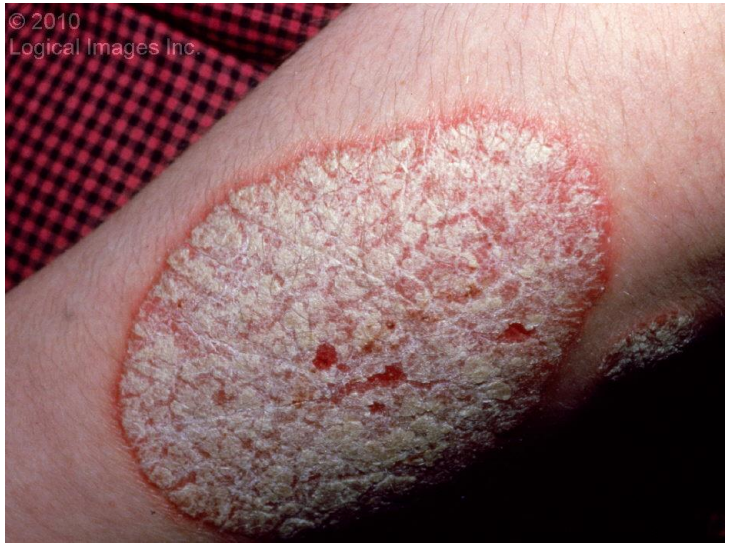
Psoriasis

- Affects 2% of the population
- Extensor surfaces
- Occipital and post auricular scalp
- Superior, intergluteal fold



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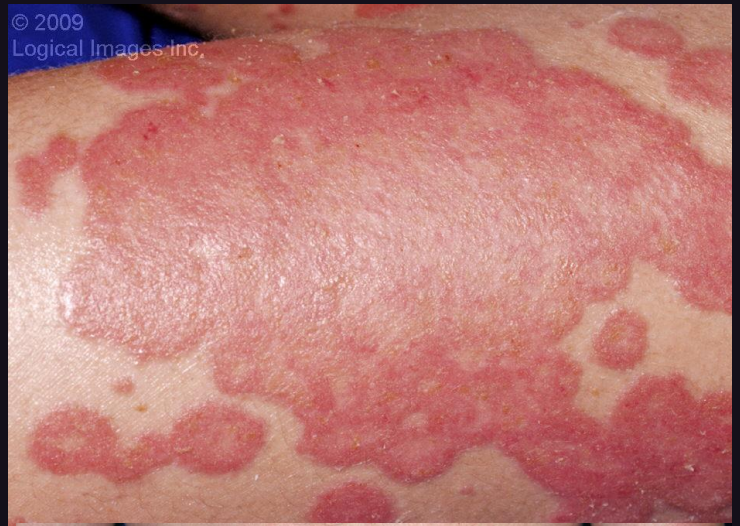
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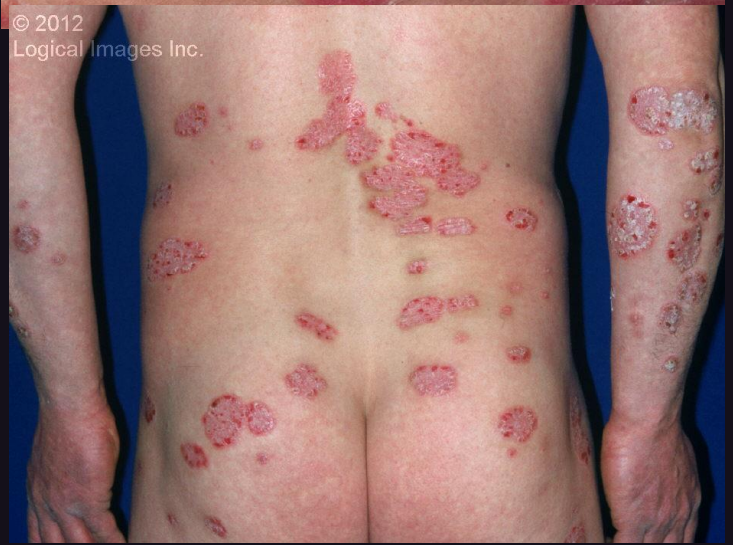
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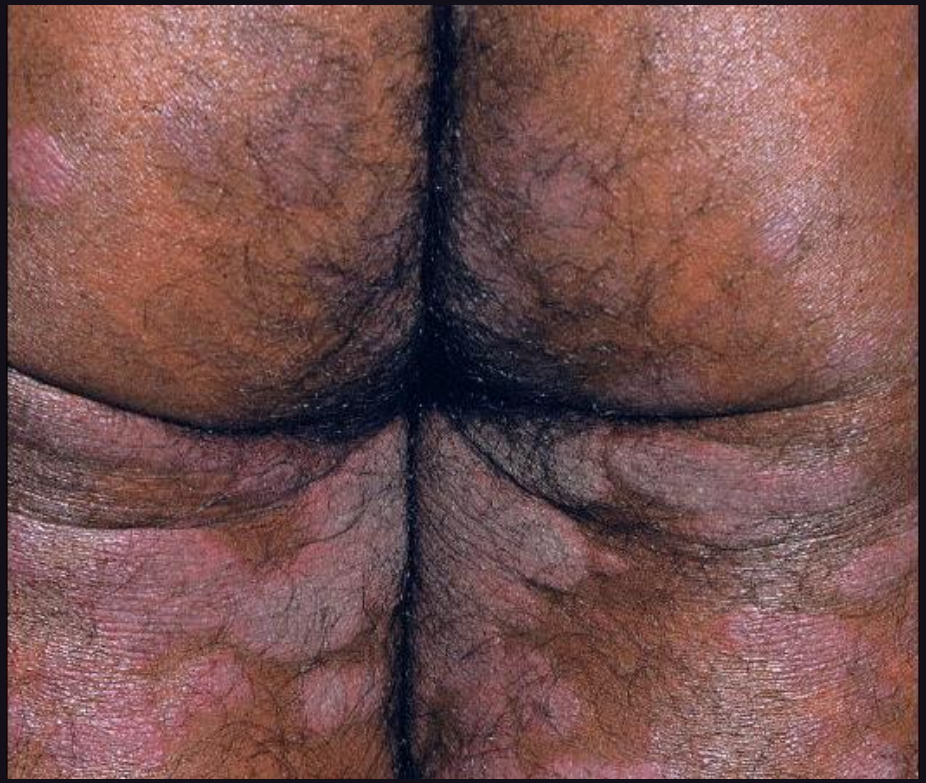

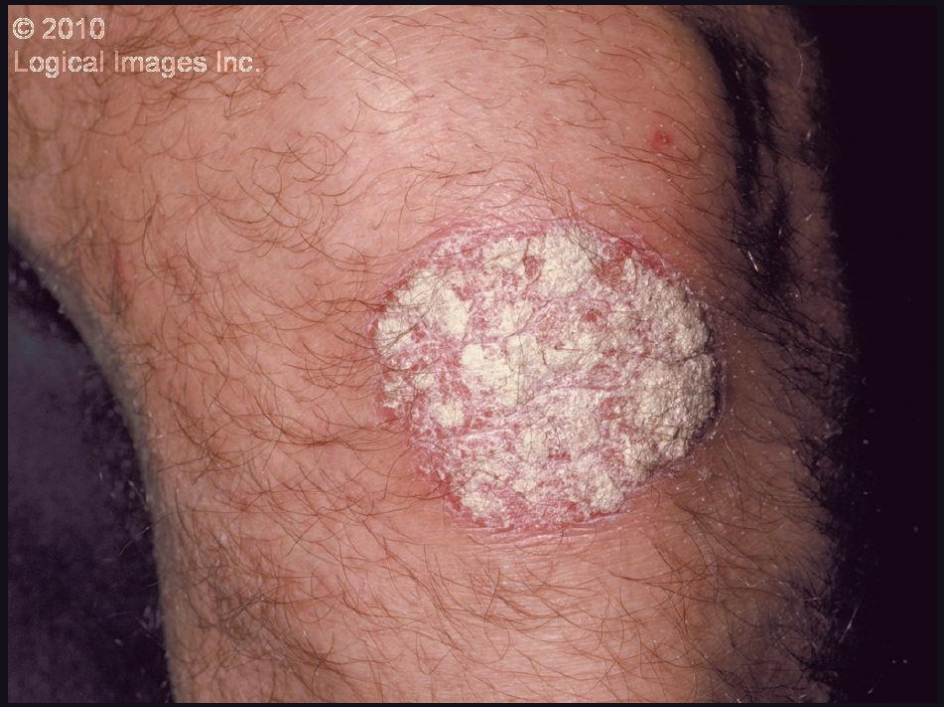
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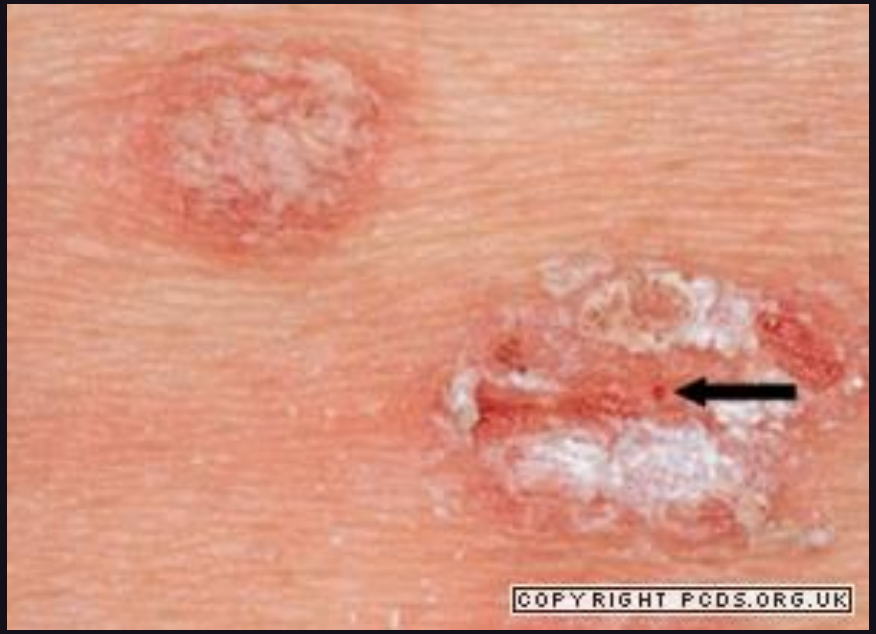
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Psoriasis as a systemic disease

Joint AAD-NPF guidelines of care for the management and treatment of psoriasis with awareness and attention to comorbidities

Table I. Clinical questions

What are the available screening and/or therapeutic interventions in managing the following comorbidities in adults:

i. Psoriatic arthritis
ii. Cardiovascular disease
iii. Metabolic syndrome
iv. Mental health
v. Lifestyle choices
vi. Inflammatory bowel disease
vii. Malignancy
viii. Renal disease
ix. Sleep apnea
x. Chronic obstructive pulmonary disease
xi. Uveitis
xii. Hepatic disease

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www.psoriasis.org

NATIONAL PSORIASIS FOUNDATION®

Talk Pso

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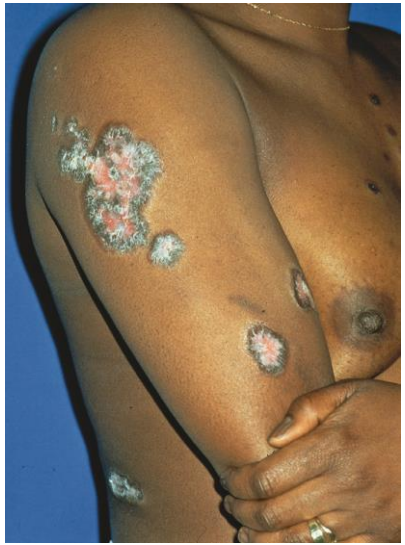
Have questions about psoriatic disease?

Talk to an NPF Patient Navigator
1-800-723-9166 | Submit a Question | Learn More | En Español

National Psoriasis Foundation provides you with the help you need to best manage your psoriasis or psoriatic arthritis, while promoting research to find a cure

Discoid Lupus



- Begin with red macules or plaques
- Atrophy, Scarring, central hypopigmentation and peripheral hyperpigmentation
- ANA + in 5-25%
- 5-25% progress to SLE
  - 5% for just head involvement
  - 20% for diffuse involvement

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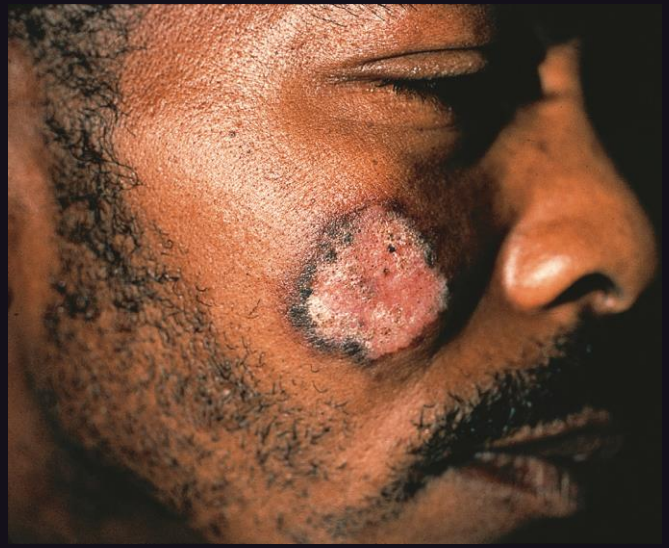
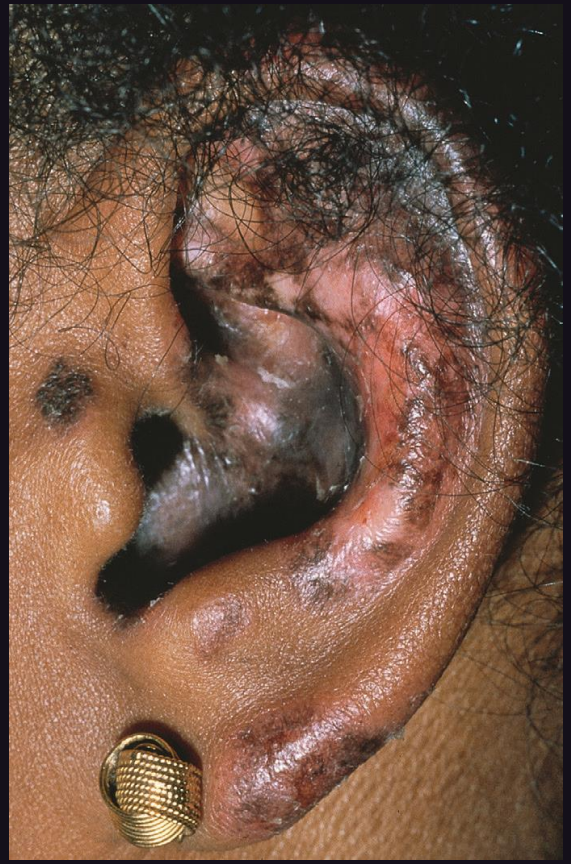
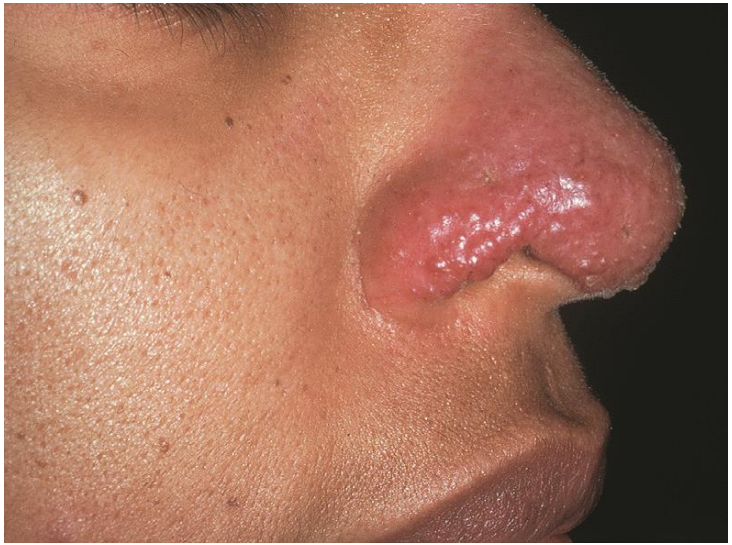
Discoid Lupus



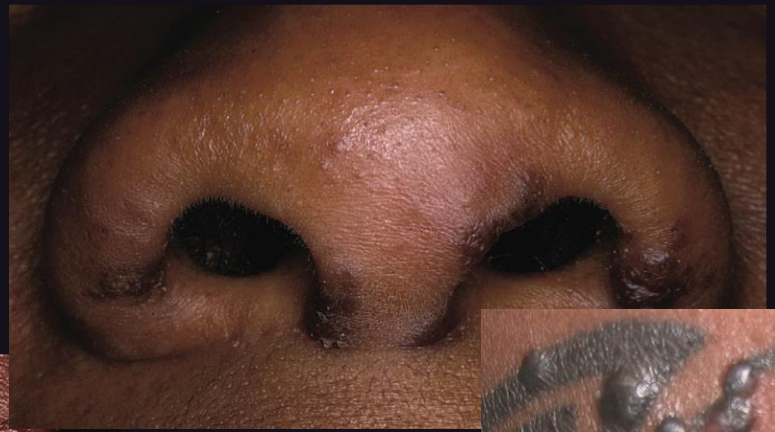


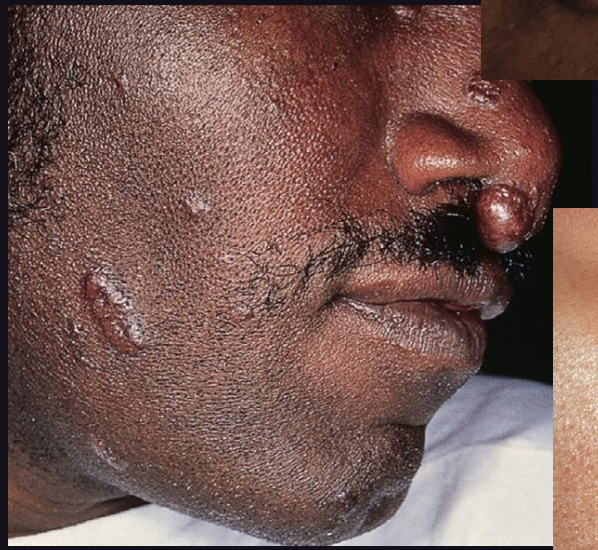
Sarcoidosis

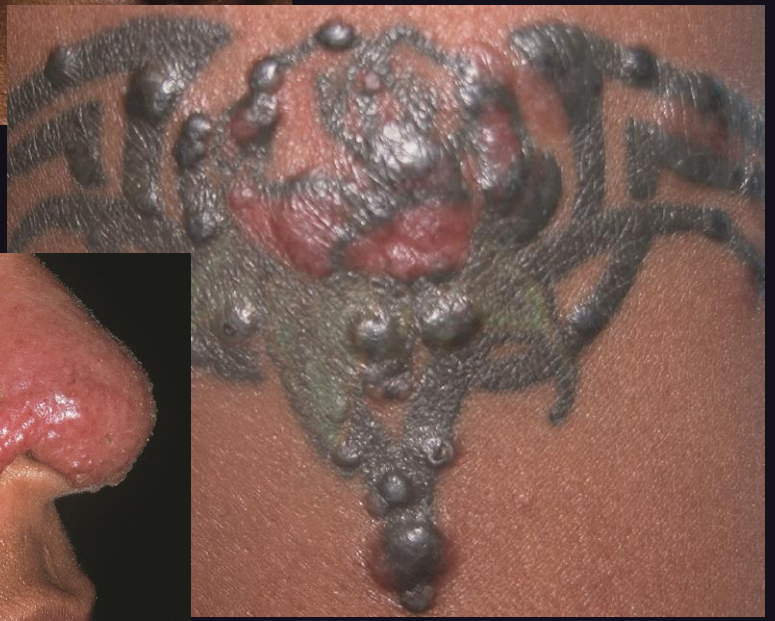


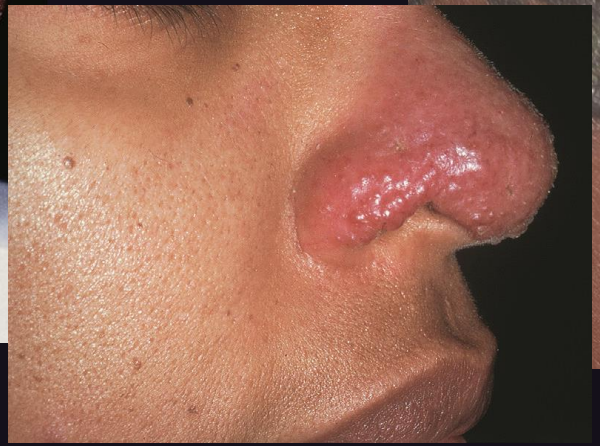
- Multisystem granulomatous disease
- 35% of sarcoidosis with skin lesions
- Red brown, or erythematous papules and plaques with apple jelly color with diascopy

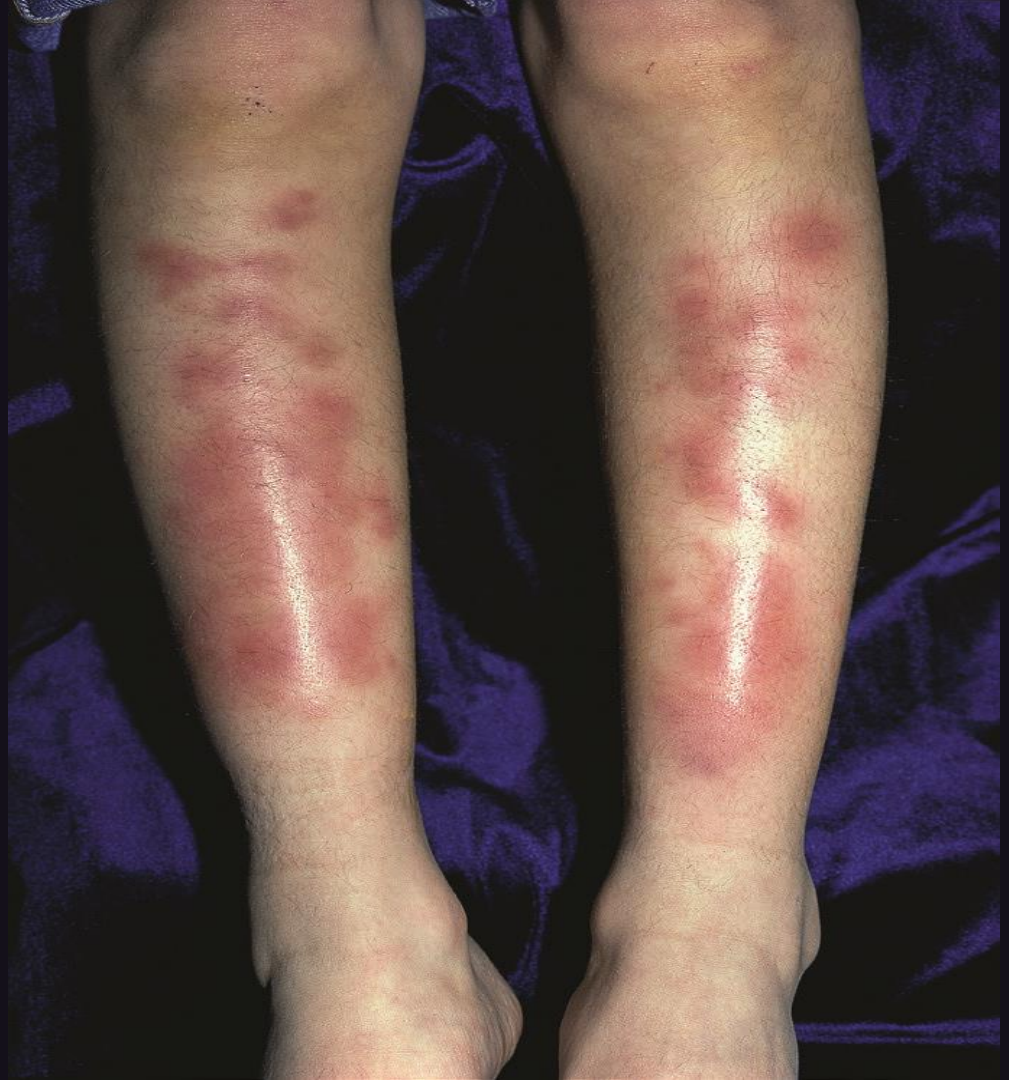
Sarcoidosis



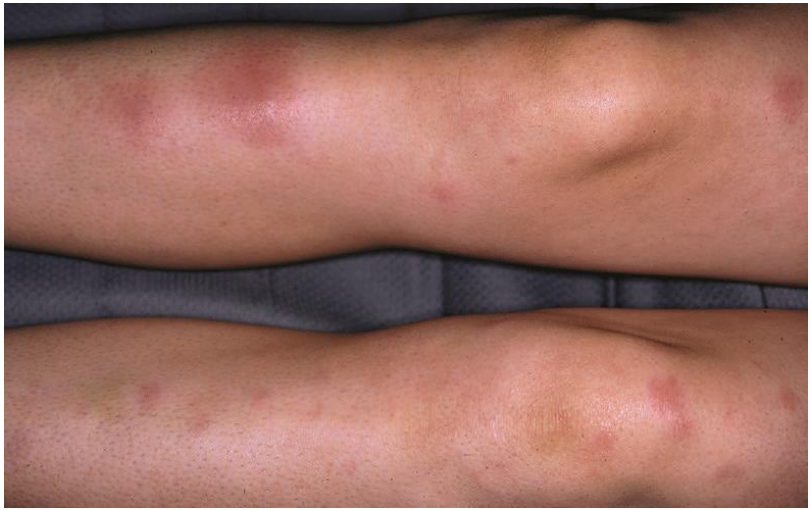




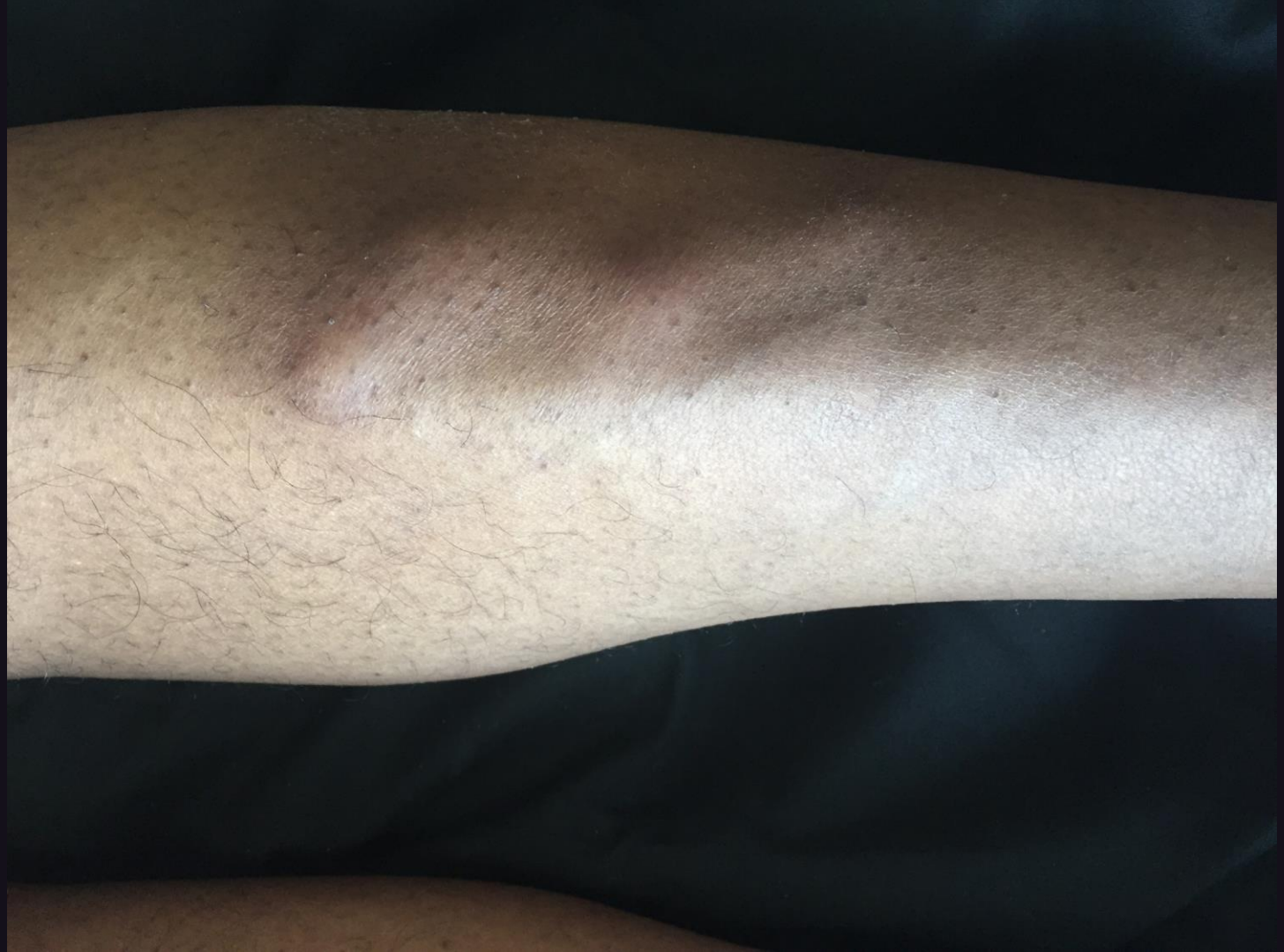


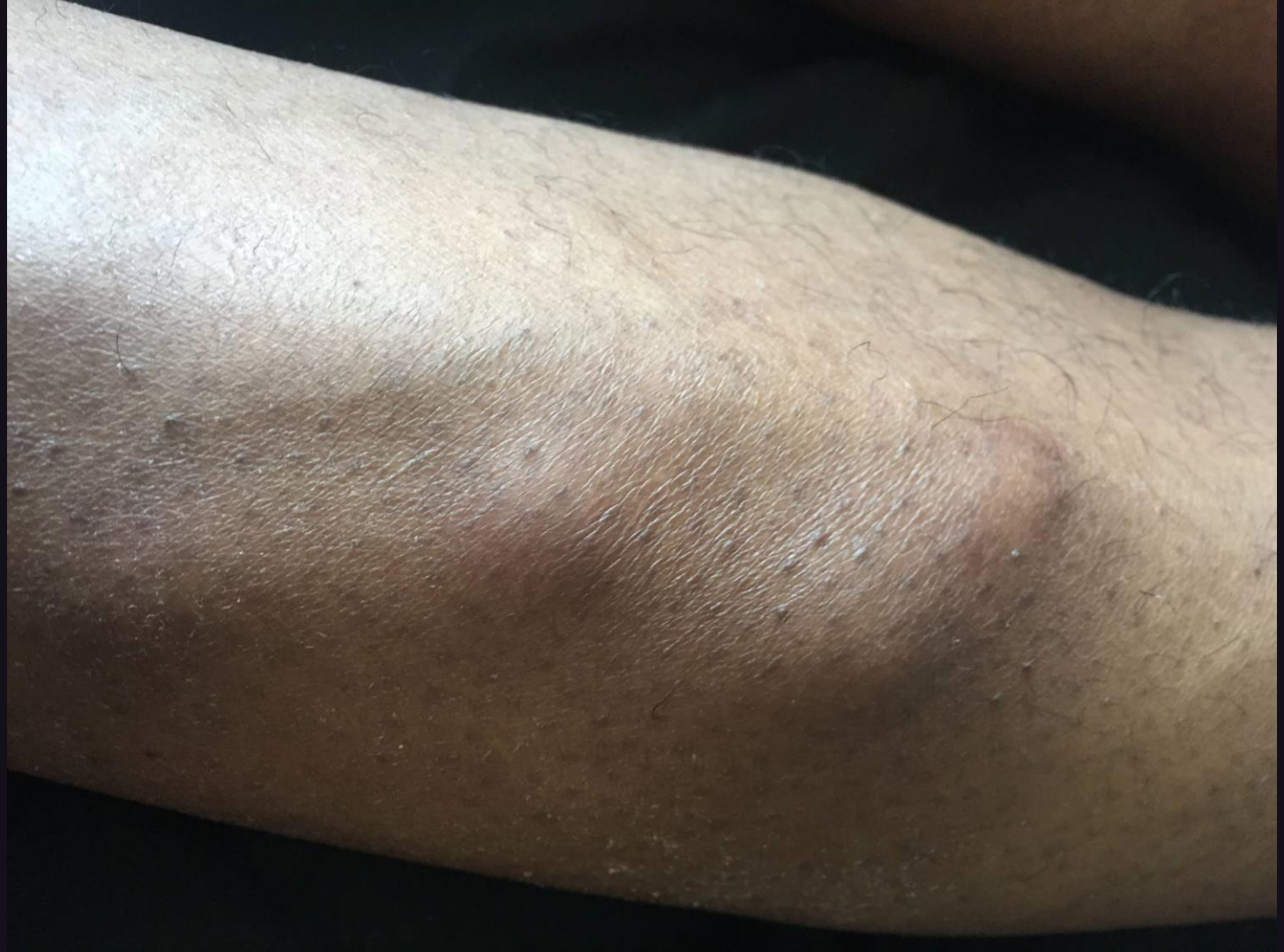


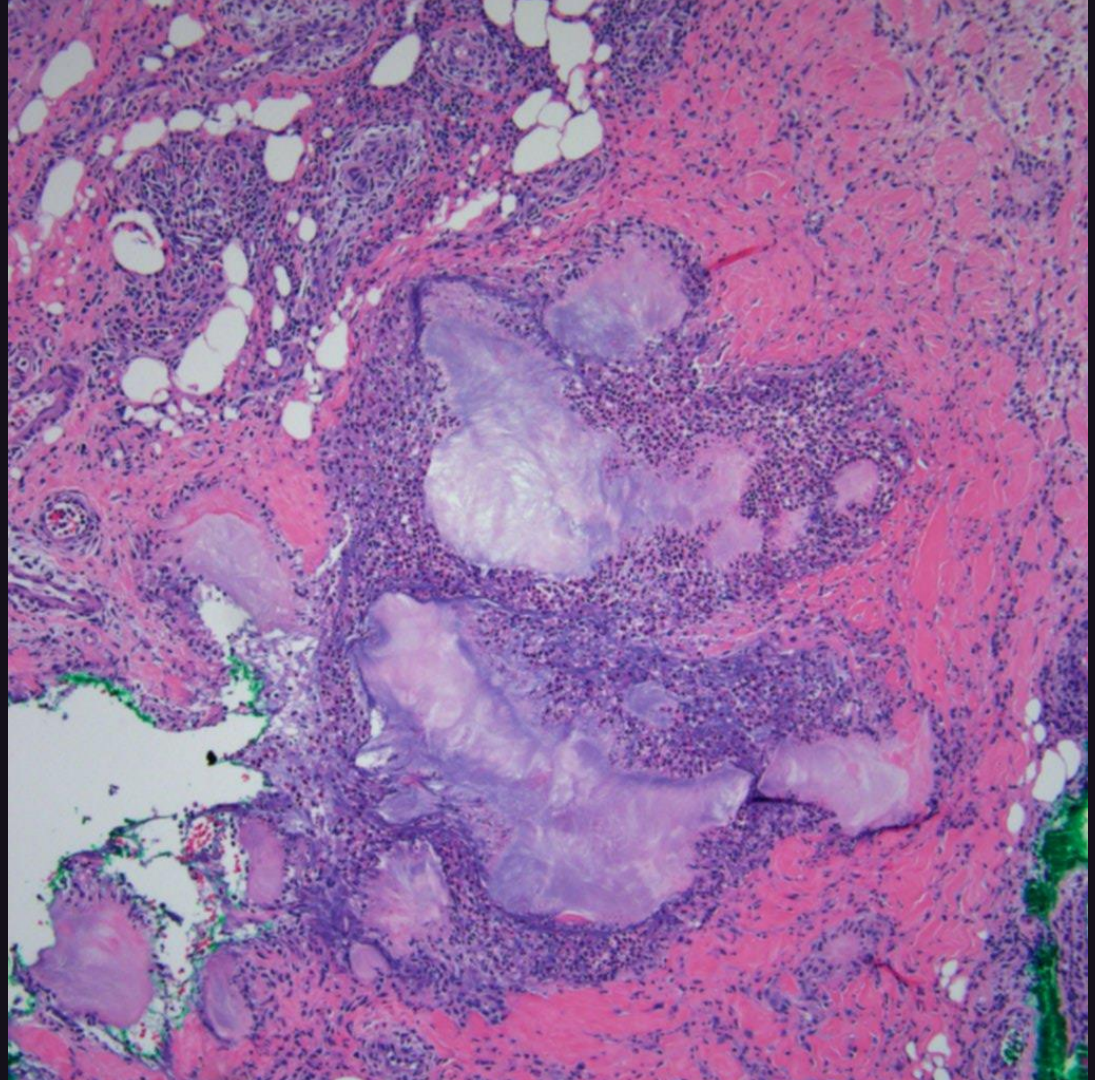
Erythema Nodosum

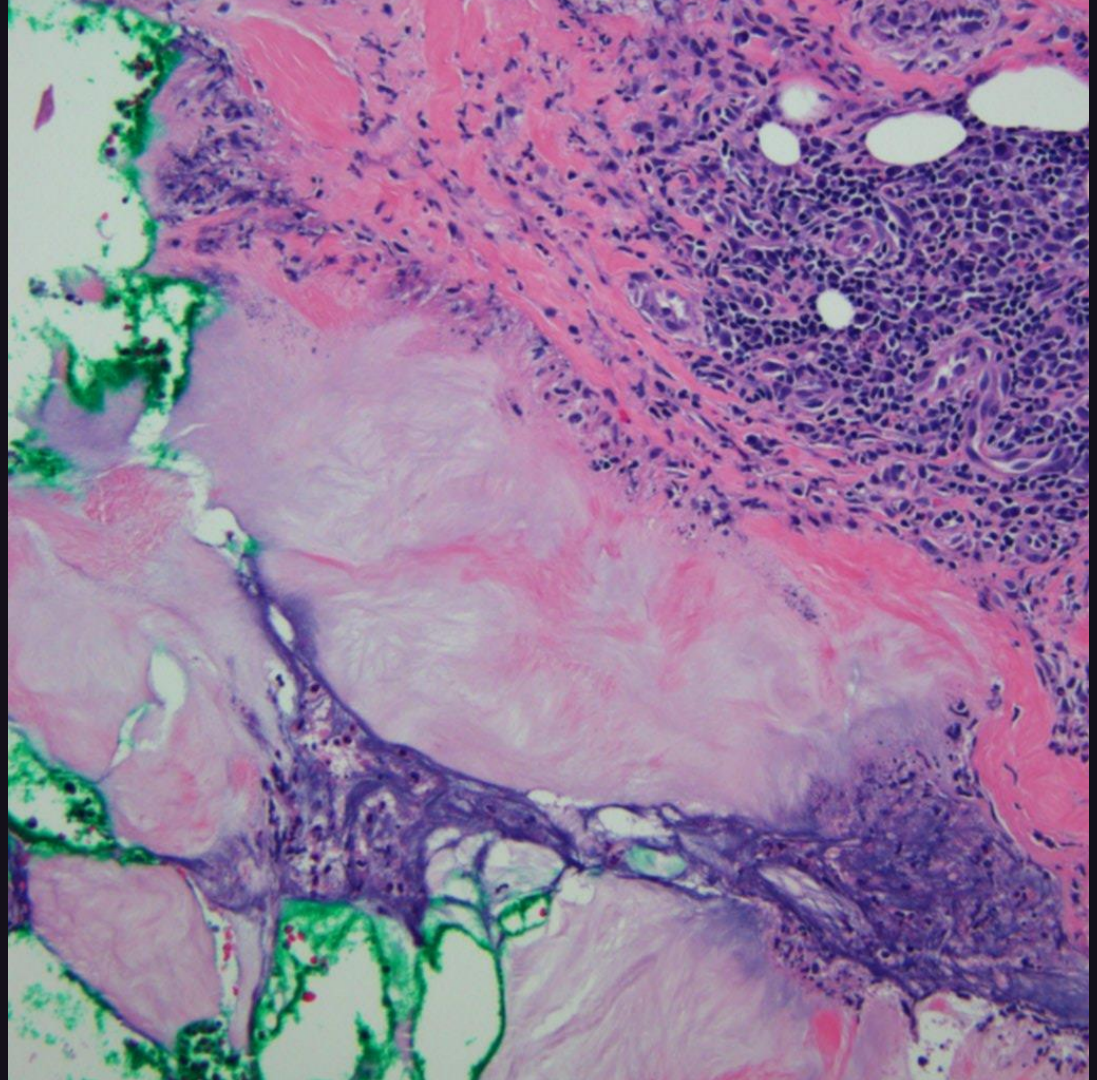


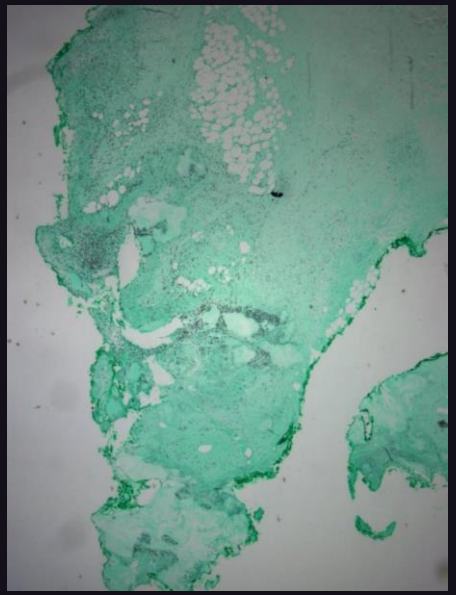
- Most common panniculitis
- Women in 2nd to 4th decades
- Idiopathic, Streptococcal infection, GI infection (Yersinia, Salmonella, Campylobacter), Viral URI, Coccidiomycosis, TB, histoplasmosis
- Drugs: OCPs, sulfa, NSAIDS
- Sarcoidosis (Lofgrens)
- IBD (Crohns > UC)

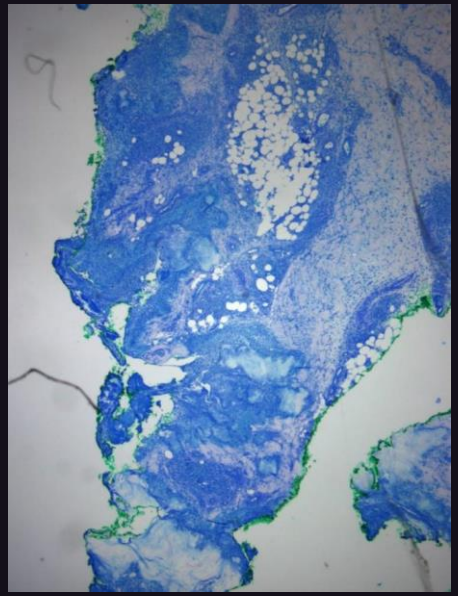






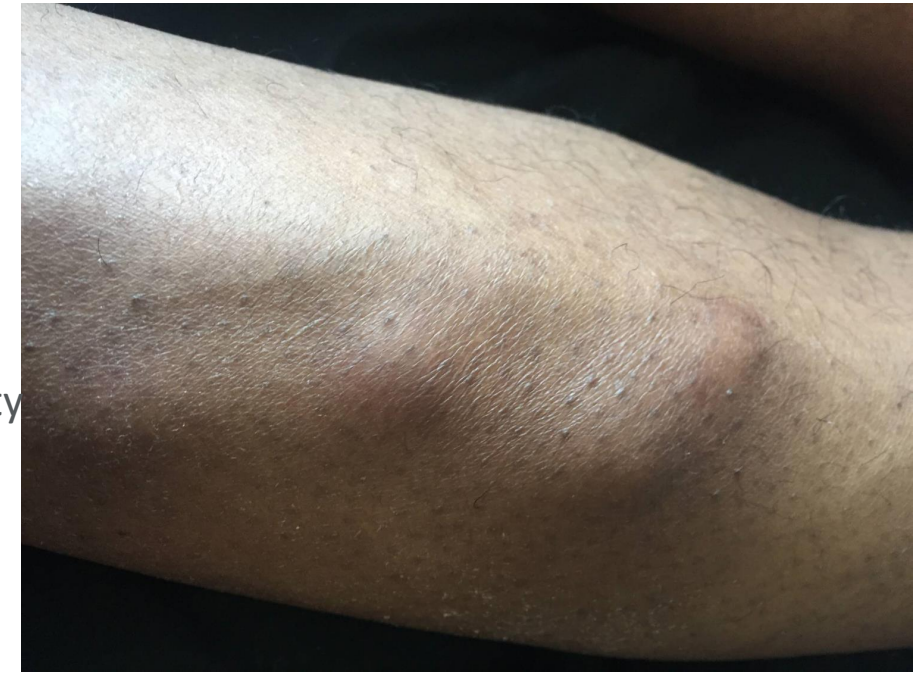






Gouty Panniculitis

- While gouty tophi are relatively common, gouty panniculitis is rare
- May precede or follow the onset of arthritic changes
- Since Neimi et al. first described gouty panniculitis in 1977, there have only been a few case reports



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Diabetes related skin changes

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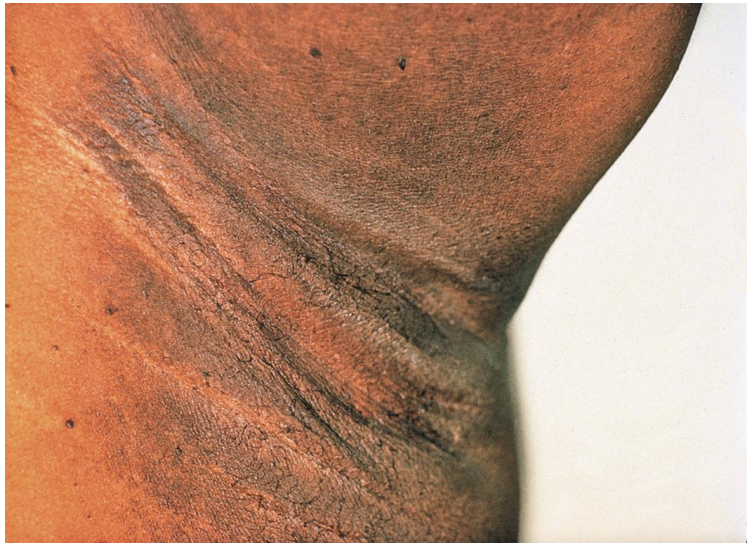
Acanthosis Nigricans



- Dark velvety patches
- Armpits, groin and neck
- Insulin resistance
- Hypothyroidism
- Malignancy associated AN tends to be more inflammatory than asymptomatic

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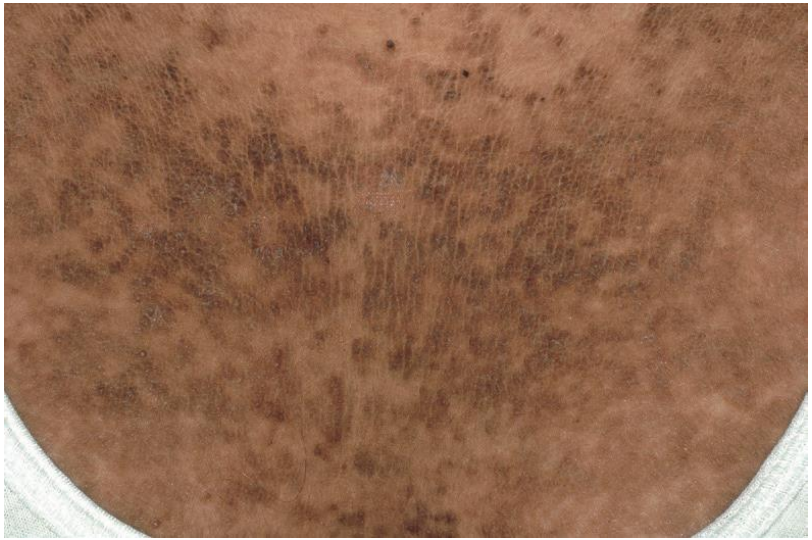
Confluent and Reticulated Papillomatosis



- Starts at puberty
- F > M
- More common in black > whites
- Unknown etiology
- Responds well to minocycline x 6 weeks

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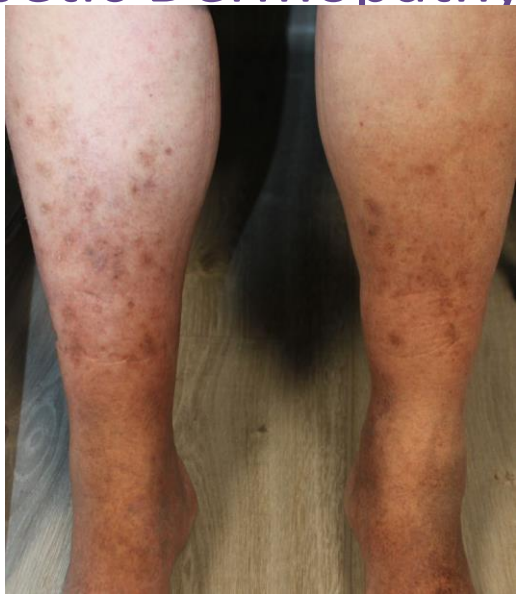
Diabetic Dermopathy



- Most common skin condition in patients with DM
- Small, round, atrophic skin lesions on the shins

http://www.pcds.org.uk/clinical-guidance/diabetic-dermopathy

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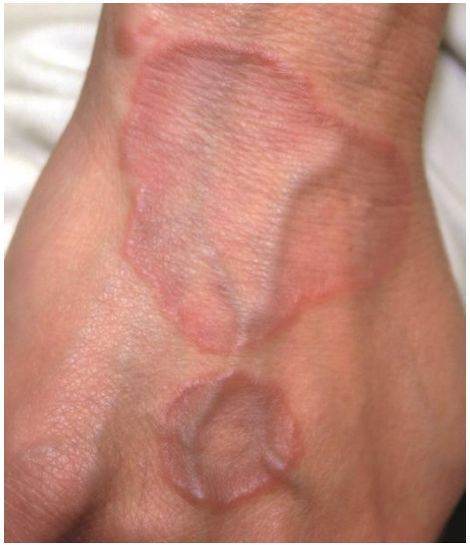
Granuloma Annulare



- Benign self limiting
- Asymptomatic annular/arciform plaques composed of multiple small non scaly papules
- Dorsal hands most common, but can be generalized
  - Dyslipidemia 45%
  - DM in 21% (10% in localized version)

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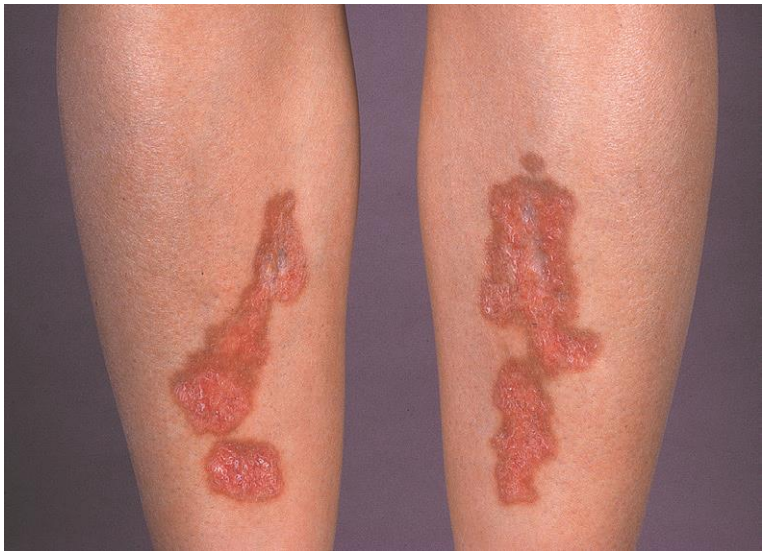
Necrobiosis lipoidica Diabeticorum



- Firm reddish papules that lead to atrophic plaques on both shins.
  - Erythematous borders and central yellow brown discoloration
- Only 0.03% of patients with DM will have NLD, but 22% of patients with NLD will develop DM
- Those with both NLD and DM have an increased risk of retinopathy, neuropathy and joint immobility

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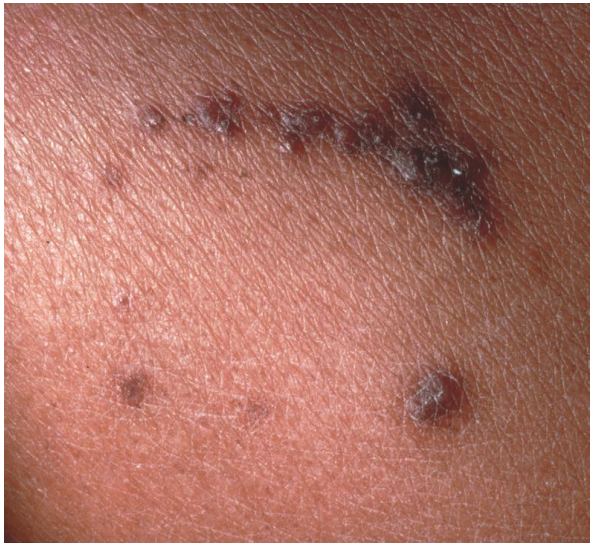
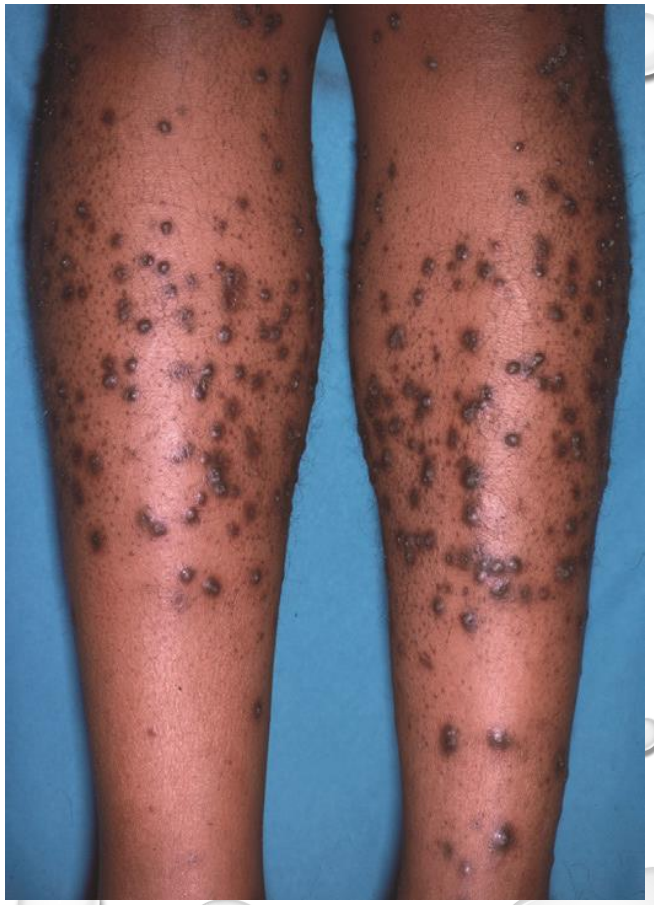
Acquired perforating disorders





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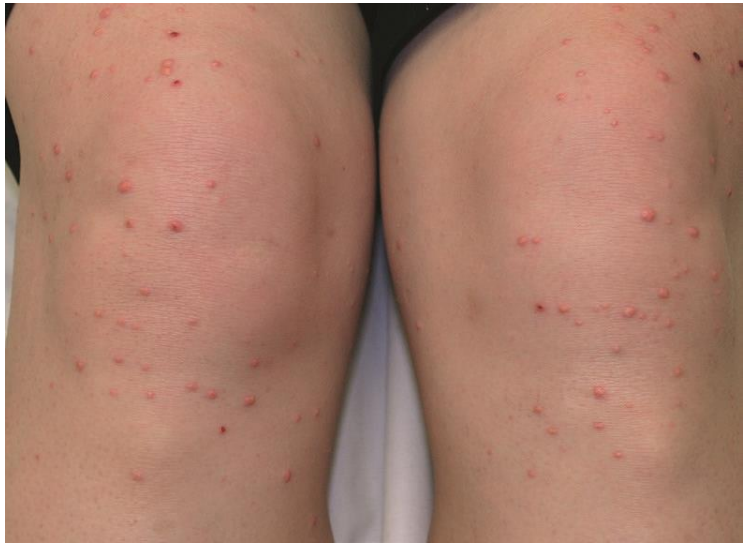
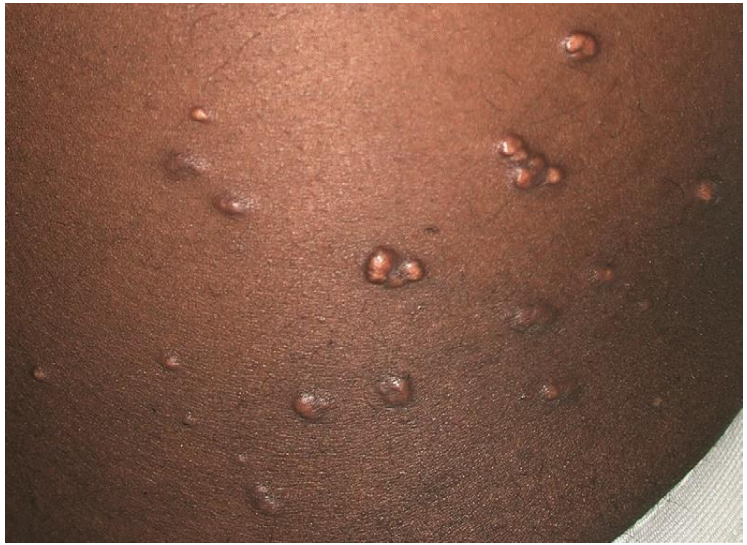
Eruptive Xanthomas





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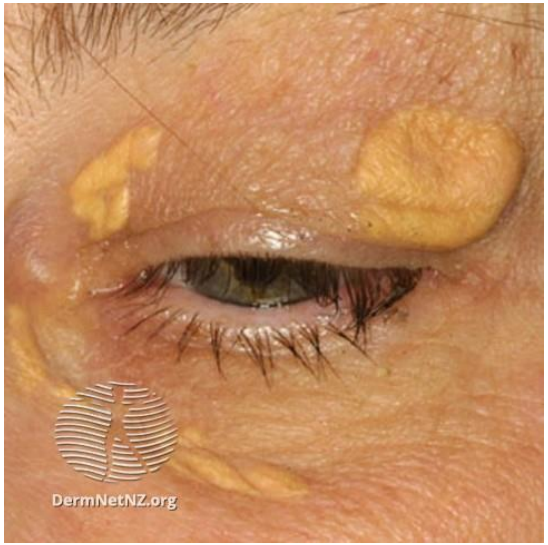
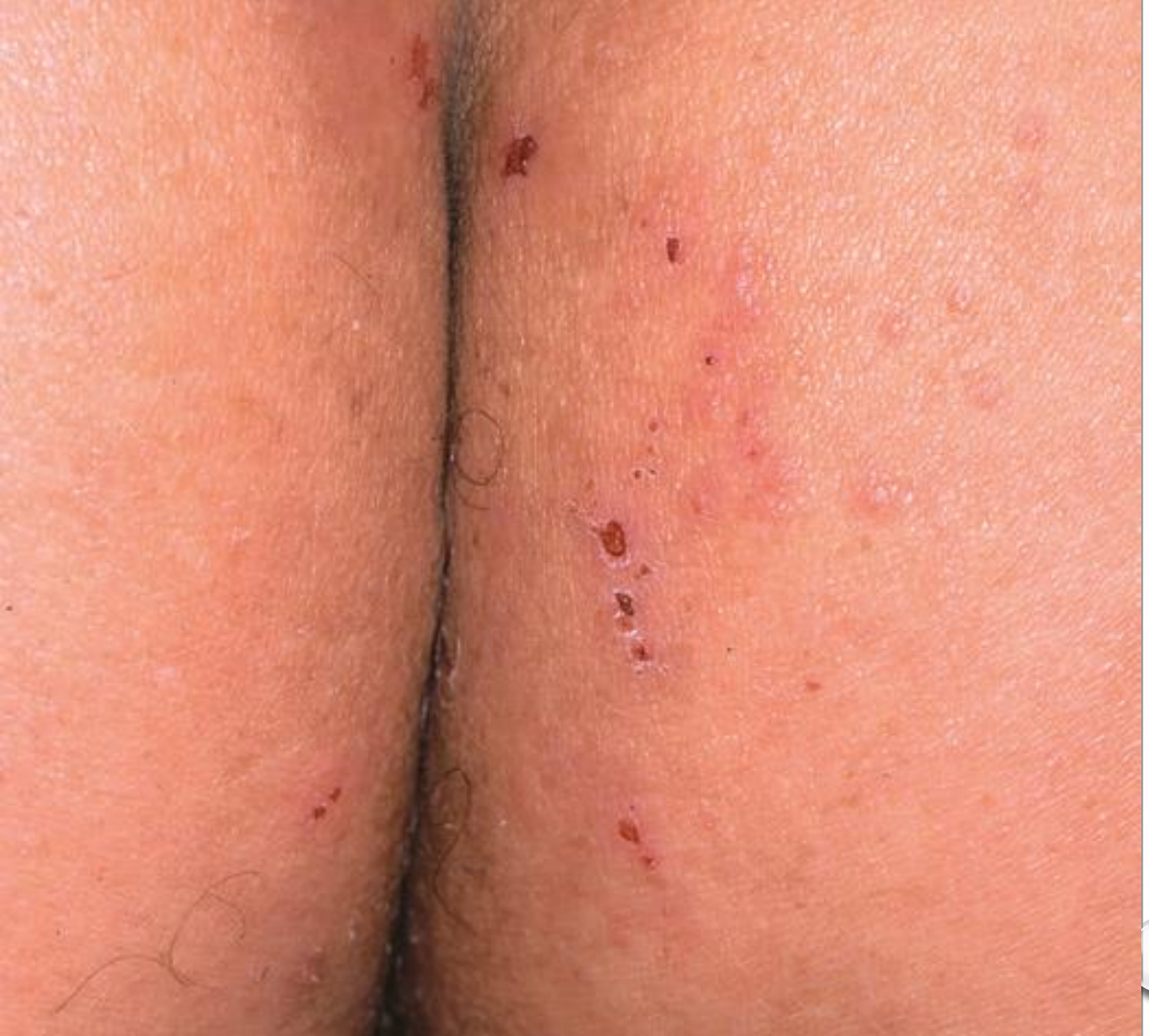
Xanthelasma



- Sharply demarcated yellow deposits around the eye
- Dyslipidemia, hypothyroidism, DM

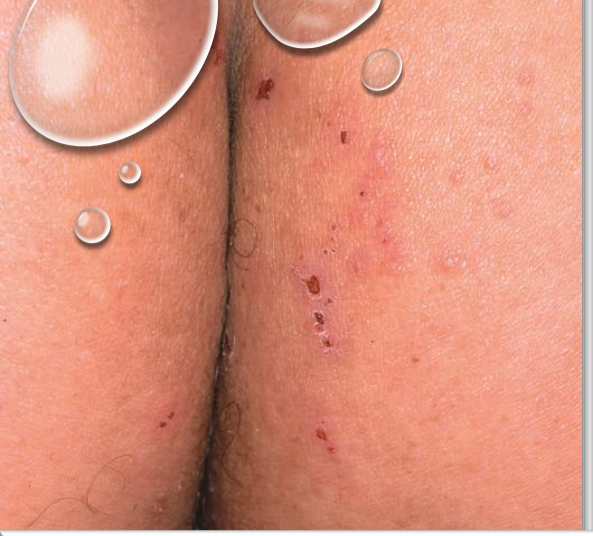
https://www.dermnetnz.org/topics/xanthoma

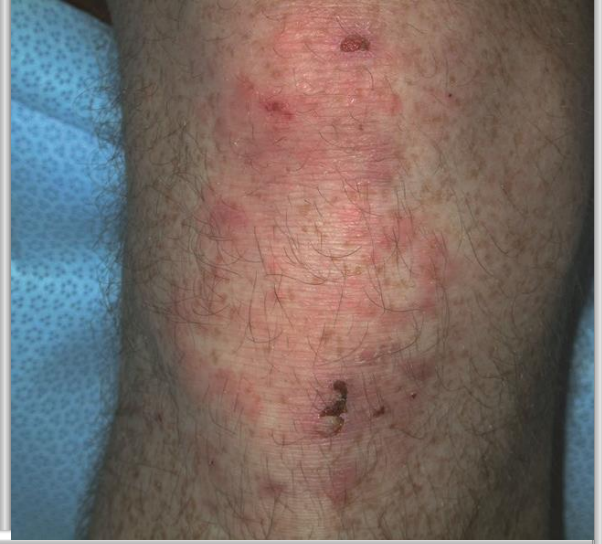
Skin manifestations of GI disease

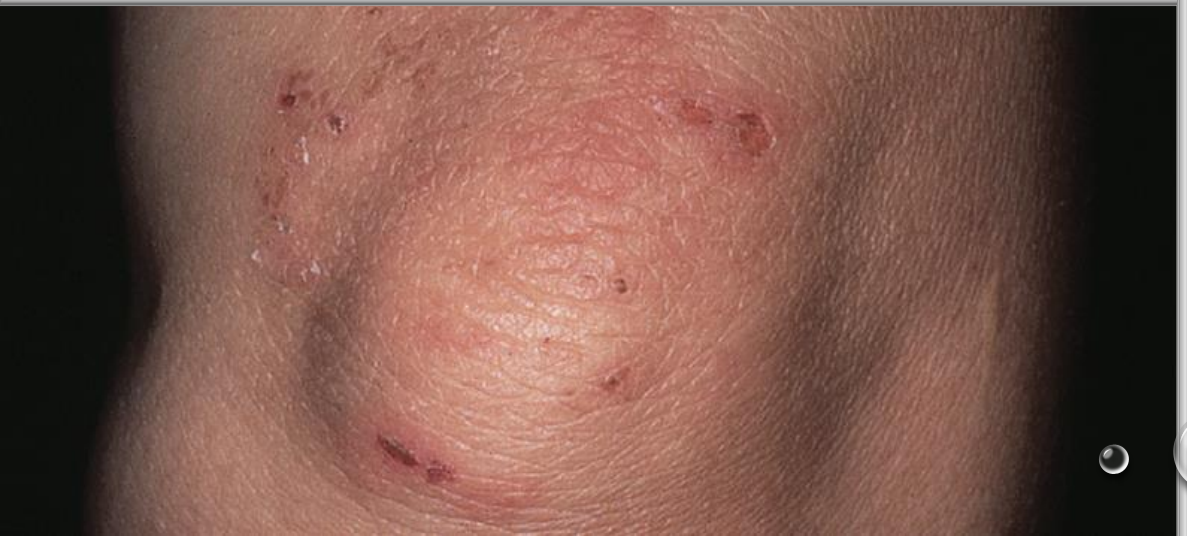


Dermatitis Herpetiformis

- Extremely pruritic herpetiform vesicles on urticarial plaques
- Vesicles rupture easily
- Extensor extremities, buttocks, back/neck
- Hemorrhagic palmoplantar lesions
- Only 20% of patients with DH have symptomatic GI disease, but over 90% have some degree of gluten-sensitive enteropathy on GI biopsy (Celiacs)

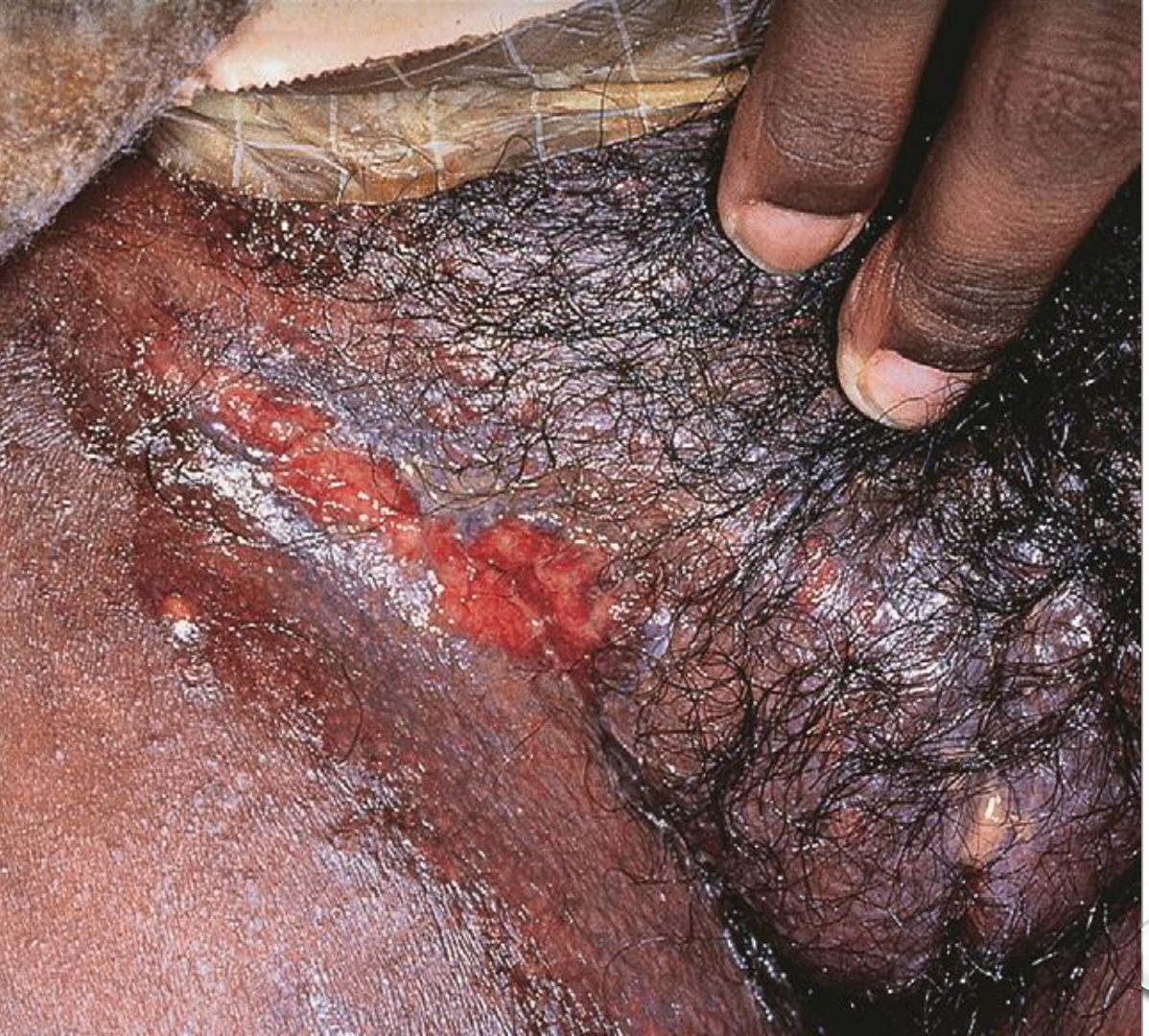






Dermatitis herpetiformis

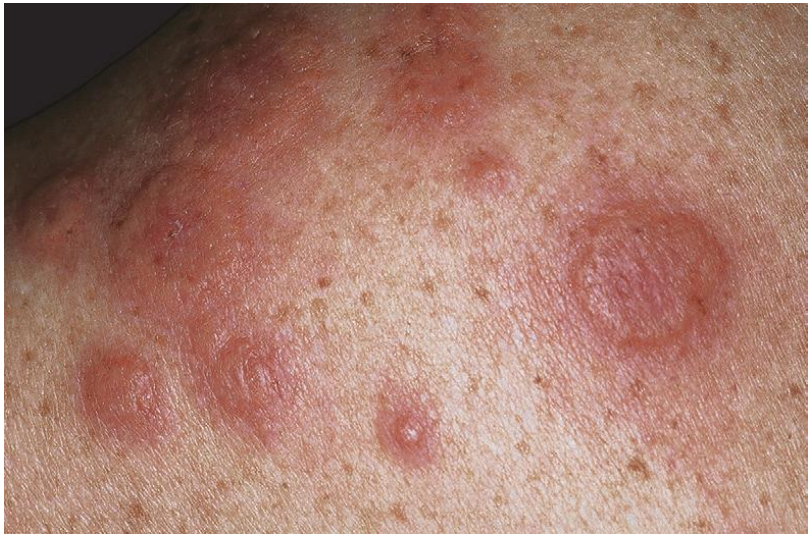
- Strongly associated with other autoimmune diseases:
- Hashimotos thyroiditis
- insulin dependent DM
- pernicious anemia
- alopecia areata
- myasthenia gravis
- vitiligo
- SLE



Cutaneous Crohns

- Can be either contiguous or distant “metastatic”
- Dusky red papules, plaques that lead to ulcerations with undermined edges, fistulas, sinuses and scarring
- Most common sites
  - Lower extremities 38%
  - Abdomen/trunk 24%
  - Upper extremities 15%
  - Face 11%
  - Flexures 8%

Sweet's Syndrome



- Neutrophilic dermatosis
- F> M (for classic Sweets)
  - M=F for cancer associated
- Tender, burning, well demarcated, juicy plaques with rapid onset
- Favors head and neck
- Infections (strep and yersinia), AML, IBD
- Drugs: G-CSF, minocycline, OCPs

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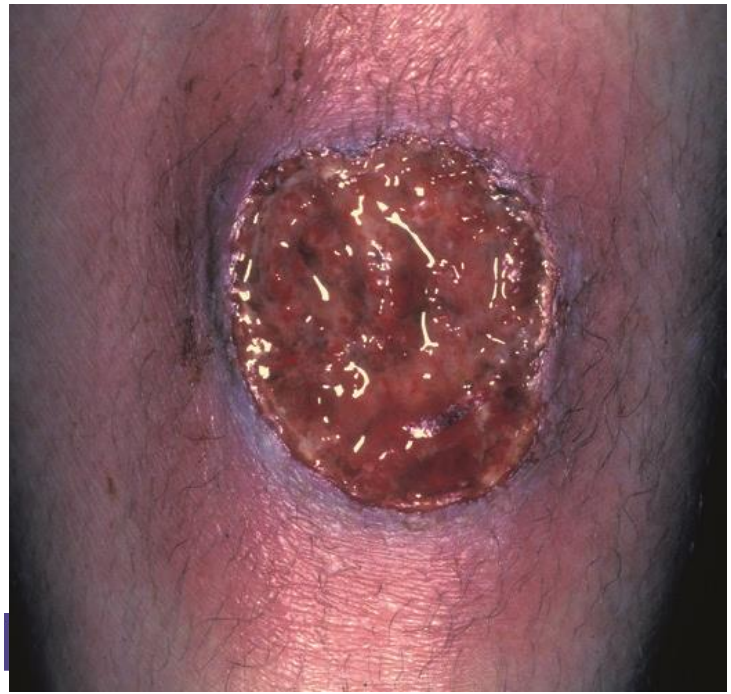
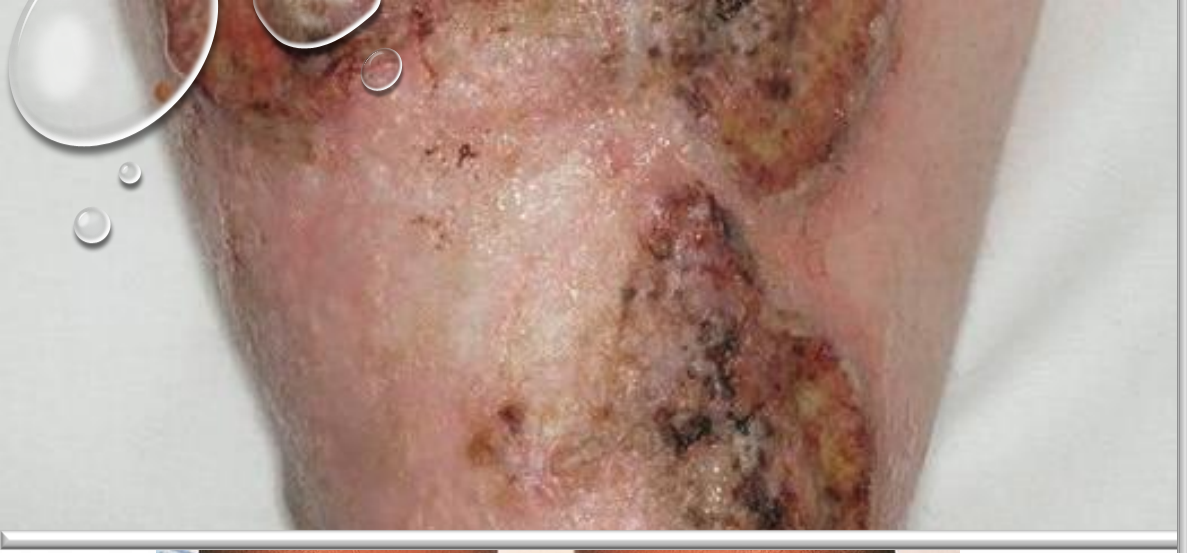
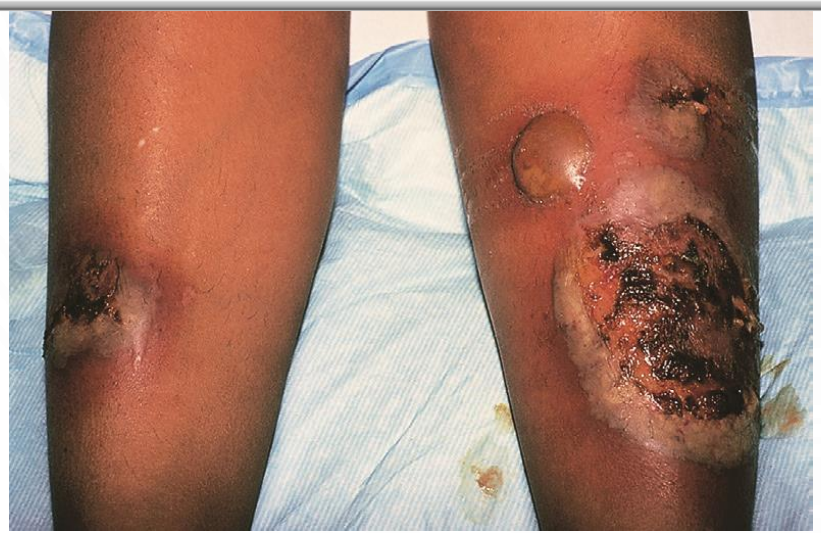
Pyoderma Gangrenosum



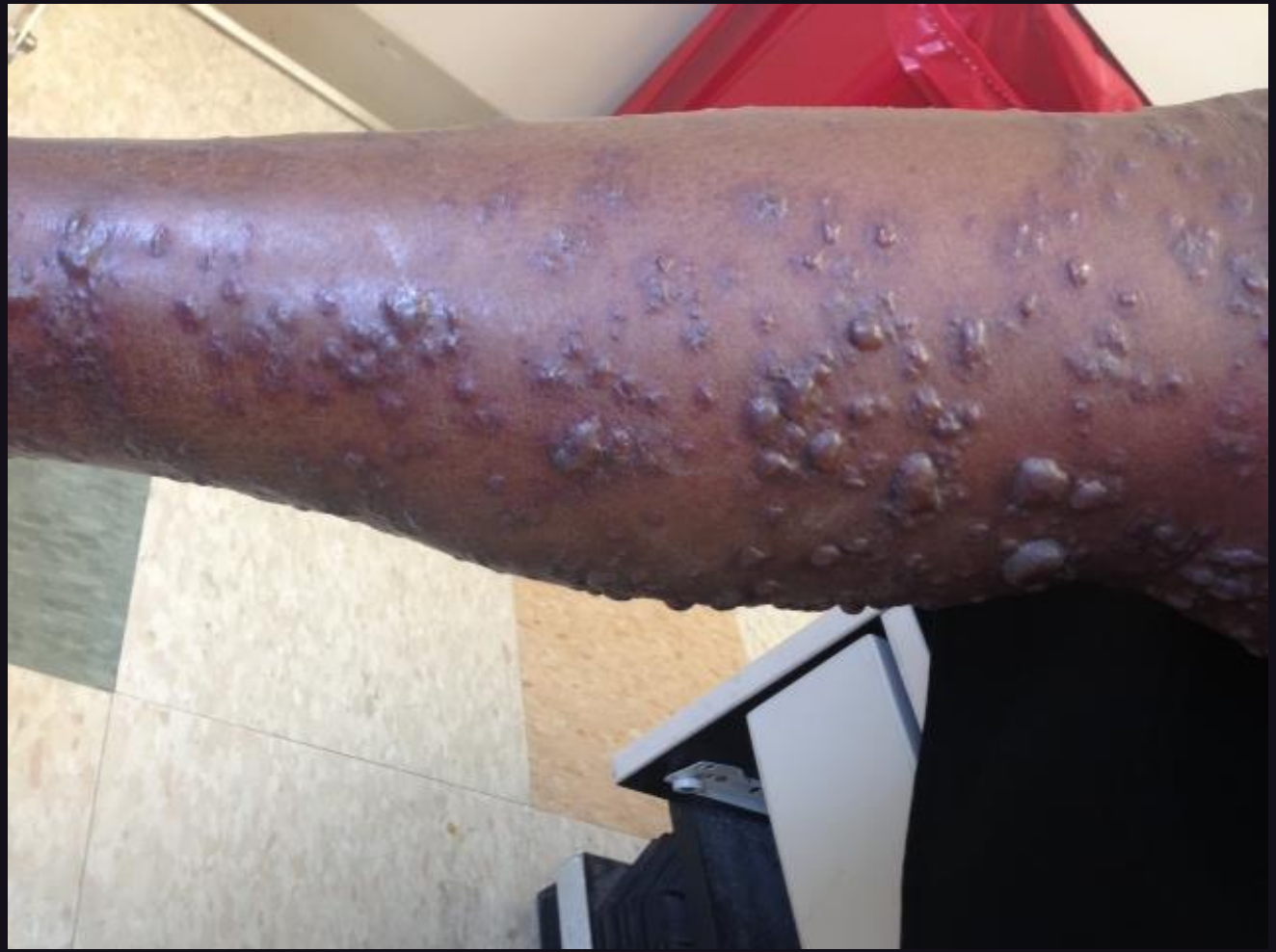
- Starts as inflammatory bullae leading to painful undermining ulcer with overhanging, violaceous border on a vegetative base
- Heals with cribriform scaring
- PATHERGY
- IBD, AML, CML

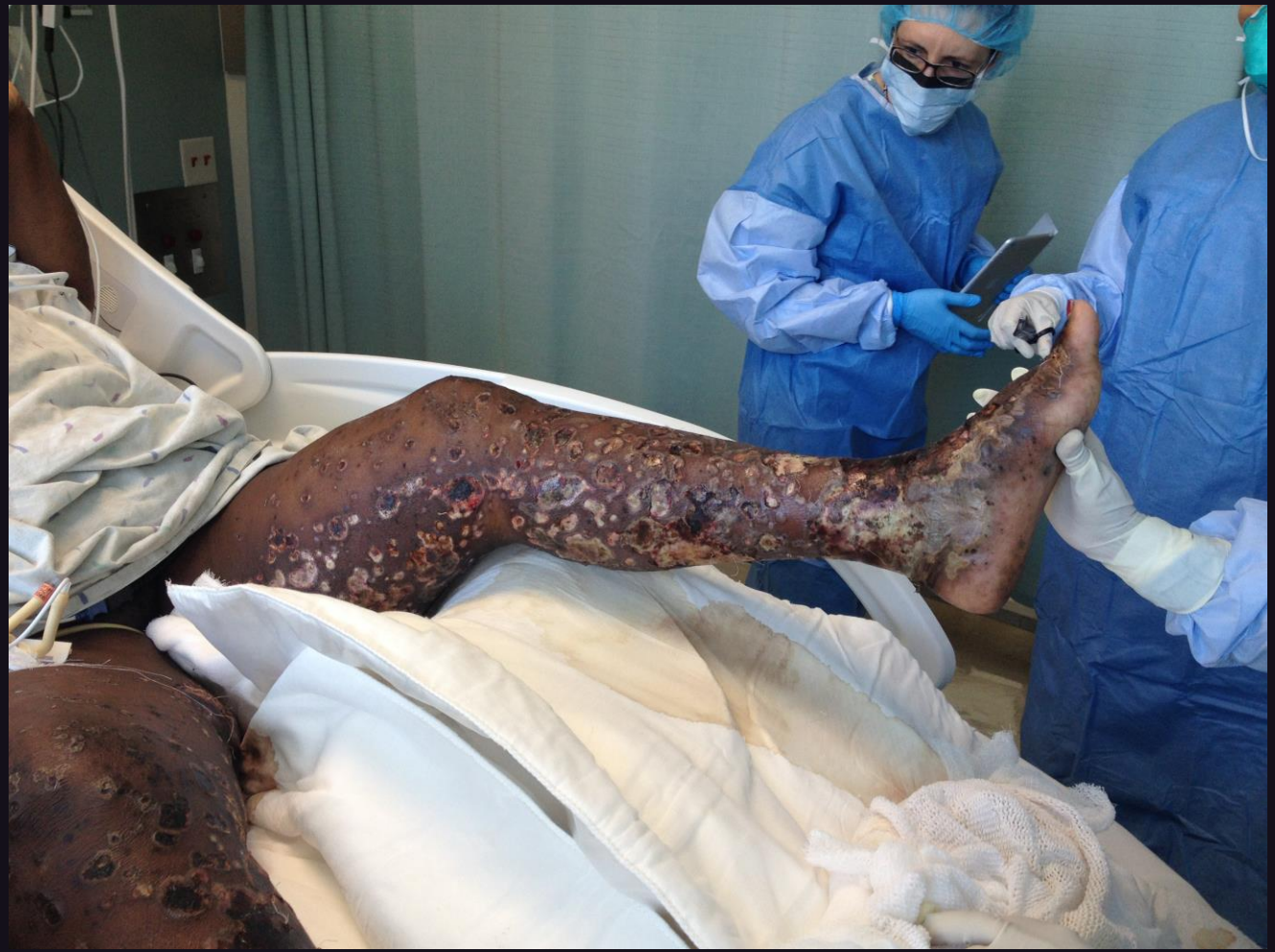


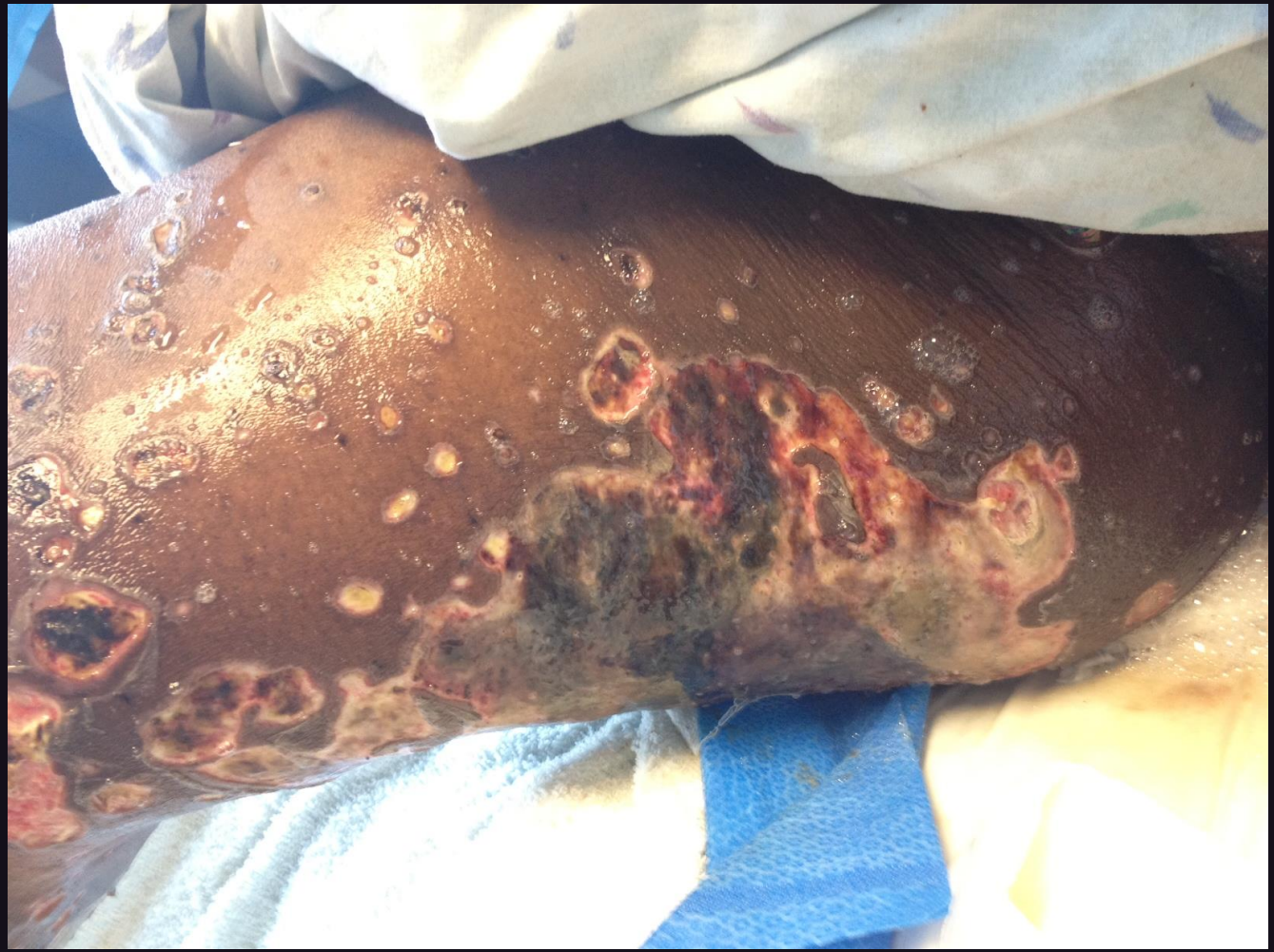


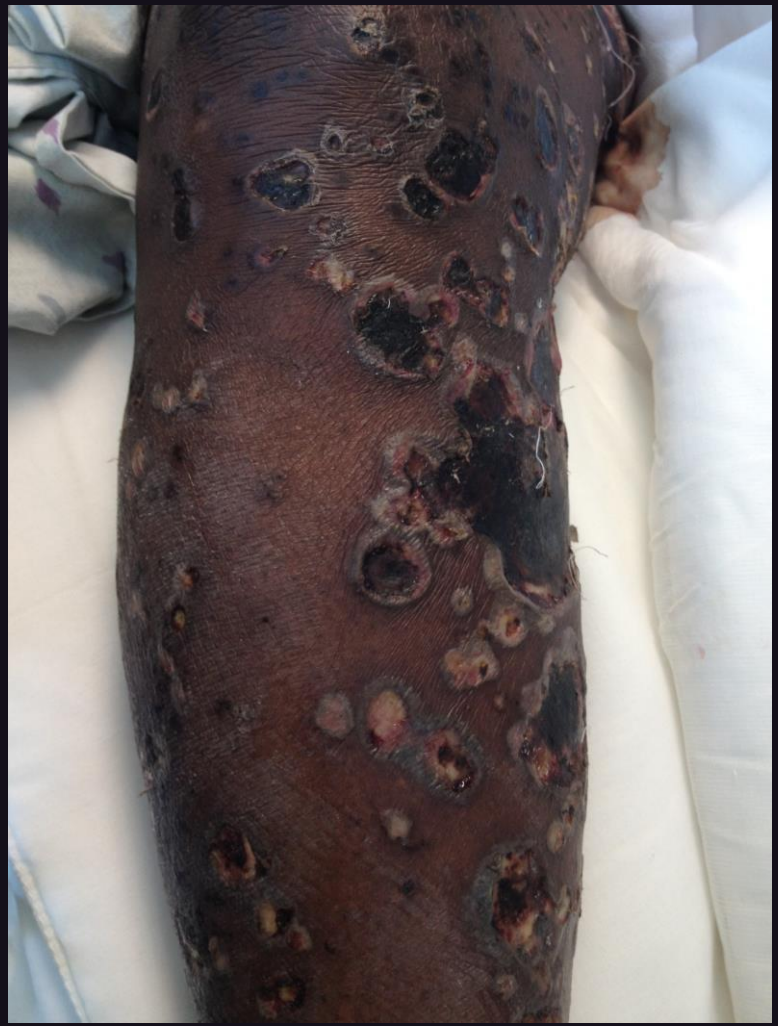
Pyoderma Gangrenosum

- Diagnosis of exclusion









Pyoderma gangrenosum

Major Criteria

- rapid progression of a painful, necrotic cutaneous ulcer with an irregular, violaceous, undermined border and 1 to 2 cm per day or 50 percent increase in size within one month
- exclusion of other causes of ulceration such as infection, systemic vasculitides, autoimmune diseases, and vascular insufficiency

Pyoderma Gangrenosum

Minor Criteria

- a history suggestive of pathergy
- diagnosis of a systemic disease associated with PG
- compatible histopathologic findings
- rapid treatment response to systemic glucocorticoid therapy

Hepatitis C

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Dermatologic associations in HCV: Cryoglobulinemia

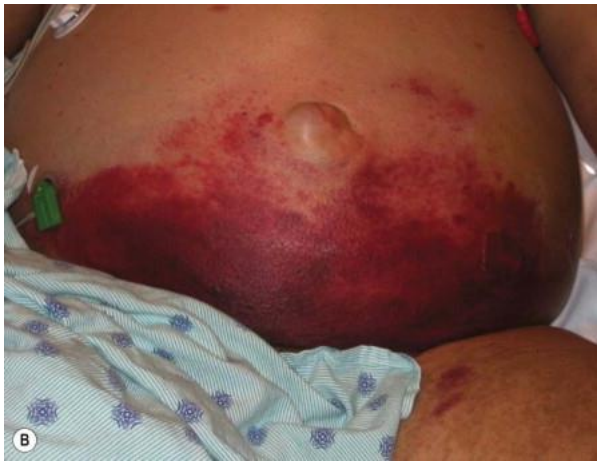
- Essential mixed cryoglobulinemia (Type II)
- Deposition of circulating immune complexes in to small and medium sized blood vessels
- More than 90% of patients with essential mixed cryoglobulinemia are infected with HCV

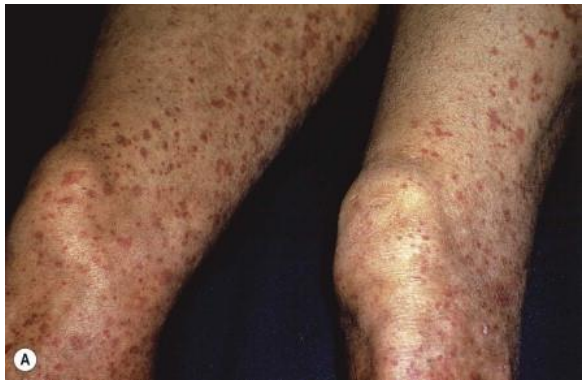
Dermatologic associations in HCV: Cryoglobulinemia

Classification of Cryoglobulins			
Subtype	**Molecular Composition**	**Associations**	**Pathophysiology**
I	Monoclonal IgM or IgG	Plasma cell dyscrasias, lymphoproliferative disorders	Cryogelling → Vascular Occlusion
II	Monoclonal IgM with polyclonal IgG	HCV, HIV, autoimmune connective tissue diseases, lymphoproliferative disorders	Immune complex mediated vasculitis
III	Polyclonal IgM, IgG		

Caliber of affected vessel	Classification	subclassification
Small	Leukocytoclastic vasculitis (LCV, CSVV)	HSP Acute hemorrhagic edema of infancy Urticarial vasculitis Erythema elevatum diutinum Secondary (drugs, infxn, cancer)
Small and medium (mixed)	**Cryoglobulinemia**	**Types II and III**
	ANCA-associated	**Microscopic polyangiitis Wegener's granulomatosis Churg-Strauss syndrome**
	Secondary	**Infxn, inflammatory disorders**
Medium	Polyarteritis nodosa (PAN)	Classic (systemic) PAN Cutaneous PAN
Large	Temporal arteritis	
	Takayasu's arteritis	

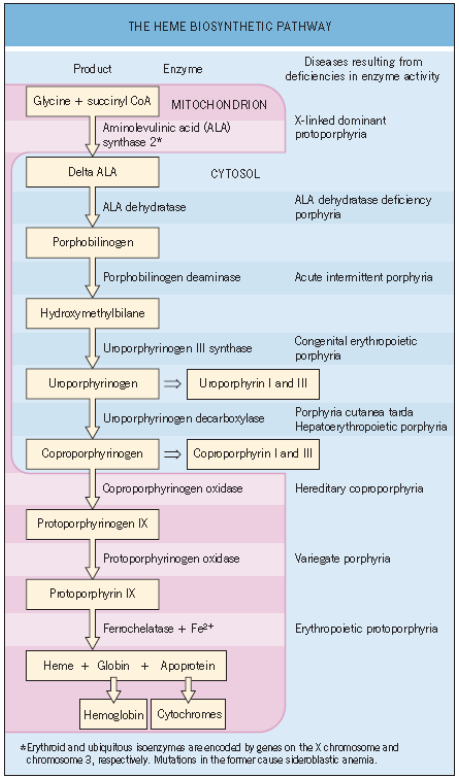
Dermatologic associations in HCV: Cryoglobulinemia





Dermatologic associations in HCV: Porphyria cutanea tarda

- Reduced activity of the enzyme uroporphyrinogen decarboxylase→ increased uroporphyrinogen in blood and urine



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Dermatologic associations with HCV: Porphyria cutanea tarda

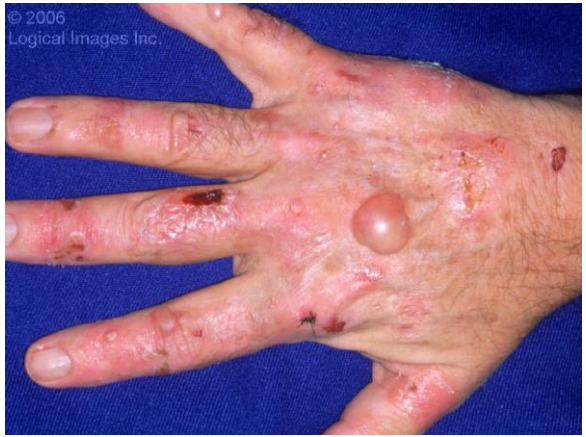
- Risk Factors
  - Alcohol
  - Hereditary hemochromatosis
  - Estrogen therapy
  - Family history
  - Exposure to polyhalogenated compounds
  - Hemodialysis
  - HIV
  - Myeloproliferative diseases

Dermatologic associations with HCV: Porphyria cutanea tarda

Prevalence of hepatitis C virus infection in porphyria cutanea tarda: systematic review and meta-analysis

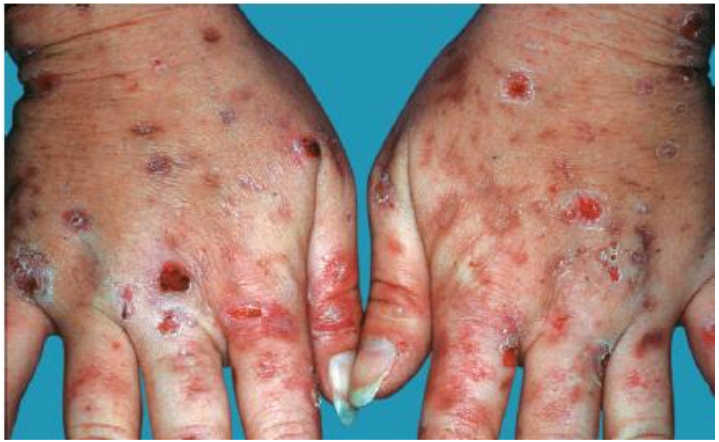
Javier P. Gisbert*, Luisa García-Buey, José María Pajares, Ricardo Moreno-Otero

- A systematic review of 50 studies with 2167 patients with PCT found an overall HCV prevalence of 50%



Journal of Hepatology 39 (2003) 620–627

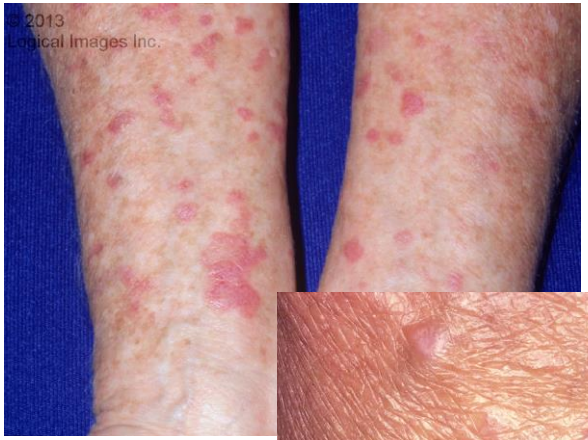
Dermatologic associations with HCV: Porphyria cutanea tarda

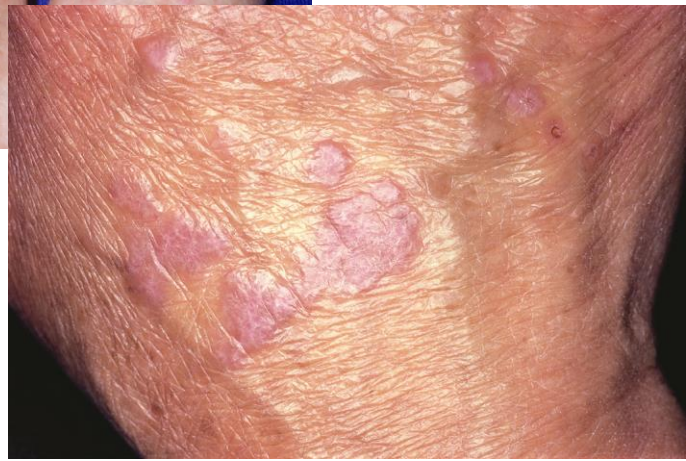


- Unclear mechanism
- Screen for HIV, Hepatitis and iron overload
- Role of HCV treatment

Dermatologic associations with HCV: Lichen planus

- Associations have varied anywhere from 10-40% of patient with LP
- Reports of LP worsening with interferon therapy





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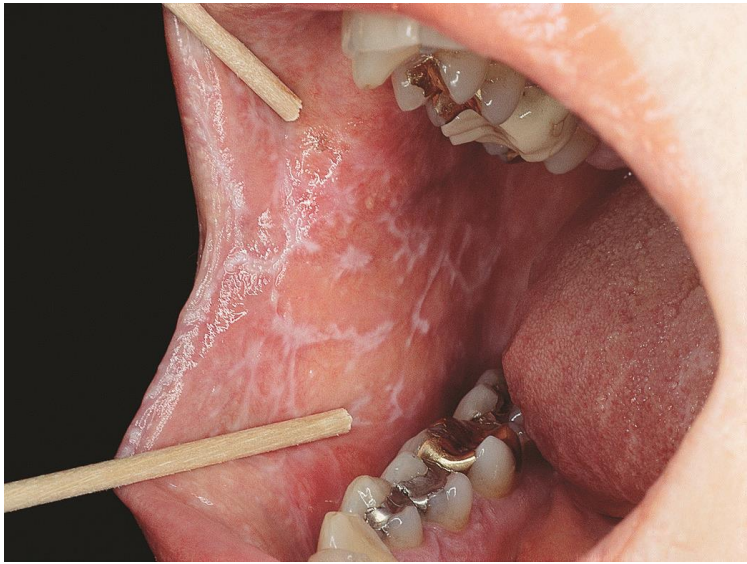
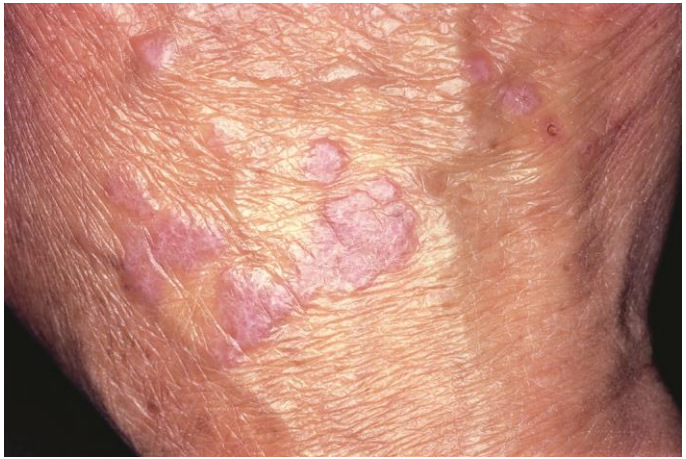
Dermatologic associations with HCV: Lichen planus

- Pruritic, purple, polygonal, flat topped papules
- Wickhams striae
- Koebnerization is common
- Most common sites: oral mucosa, ventral wrists/forearms
- Drugs: HCTZ, B-blockers, ACE-I, antimalarials, gold, TNF-a, NSAID





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Lichen planus and hepatitis C virus: a multicentre study of patients with oral lesions and a systematic review

G.LODI, M.GIULIANI,* A.MAJORANA,† A.SARDELLA, C.BEZ, F.DEMAROSI AND A.CARRASSI

- Both cross sectional and meta analysis
- 309 biopsy proven LP cases and matched controls were tested for HCV antibody
- 19.1% in the LP group vs. 3.2% in controls

British Journal of Dermatology 2004; **151:** 1172–1181.

Summary of response of HCV associated dermatologic conditions to IFN based therapy

Condition	Response to IFN	Level of evidence*
MC	Improvement in symptoms. Antiviral therapy is treatment of choice. Dermatologic symptoms of MC may be an early, sensitive marker for virologic response.	Level 1a for IFN monotherapy Level 2a for combination therapy Level 2a for PEG-IFN
PCT	Insufficient data, variable responses reported.	Level 4
LP	Insufficient data, variable responses reported.	Level 4

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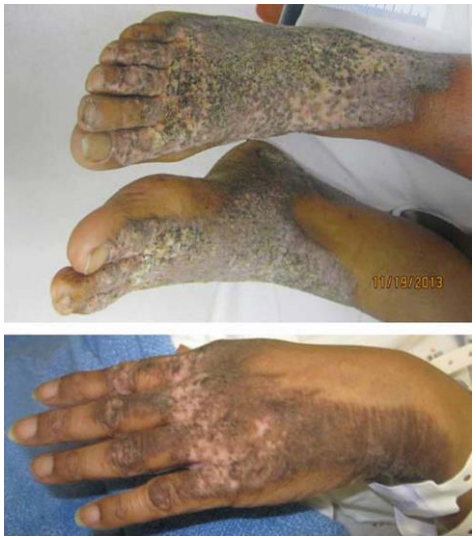
CLINICAL GASTROENTEROLOGY AND HEPATOLOGY 2007;5:142–151

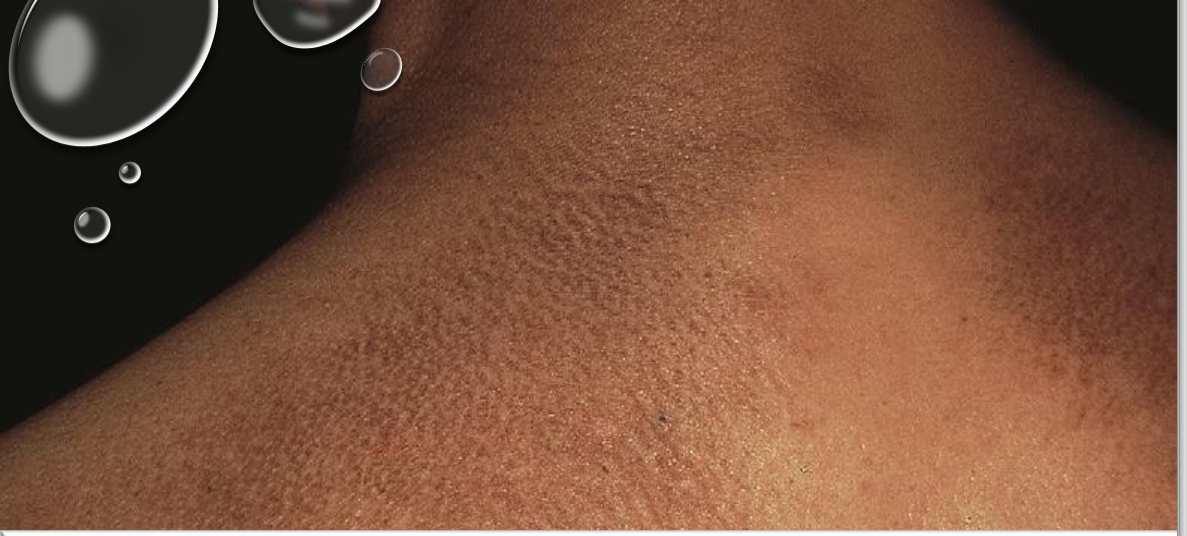
Dermatologic Associations with HCV: Nectoltic Acral erythema

- The only dermatologic disorder diagnostic for HCV infection
- Tender, well demarcated, erythematous, dusky plaque on lower extremities



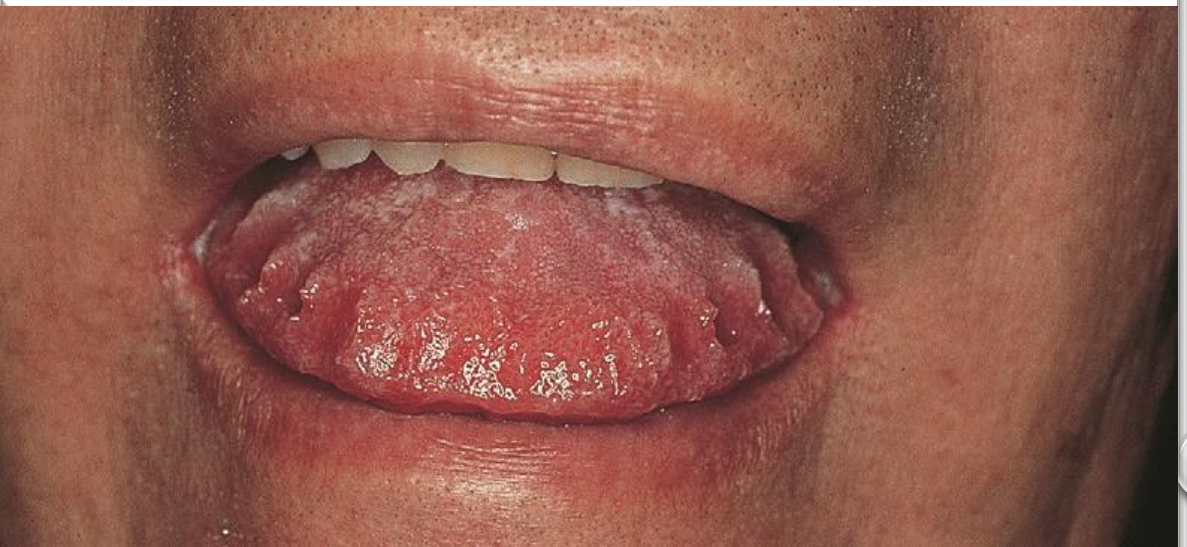
Dermatologic associations with HCV: other dermatologic associations

- Psoriasis
- Psoriatic arthritis
- Sarcoidosis
- Polyarteritis Nodosum
- Pruritus



Amyloidosis

- Primary cutaneous Amyloidsis
- A-Kerartin



Amyloidosis

- Cutaneous signs of systemic amyloidosis

Thank You

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Questions?

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