Skin Signs: Dermatologic Manifestations of Systemic Disease Every NP Should Know

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Skin Signs: Learning Objectives

- Recognize skin signs found in common metabolic conditions
- Identify the next steps in diagnostic or therapeutic intervention
- Discern cutaneous signs of internal disease from benign lookalike conditions
- Recognize morphology of facial rashes including sarcoidosis and dermatomyositis
- Recognize skin rashes concerning for cutaneous metastases
- Recognize rashes and skin findings concerning for liver, renal and multisystem disease

Skin Signs: Disclosures and Acknowledgments

- I have no disclosures
- Thanks to Contra Costa Health Services for supporting NP education
- Thanks to my patients at CCHS who agreed to share their photos to further your education. Do not reproduce or share any photos from this presentation as it would violate the terms of their permission.
- No photos of slides with photos please

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Skin Signs: The Skin is a Window Inside Your Patient

The skin is

Our largest organ

Our most immunologically active and reactive organ

Highly vascular

Strongly influenced by our endocrine system

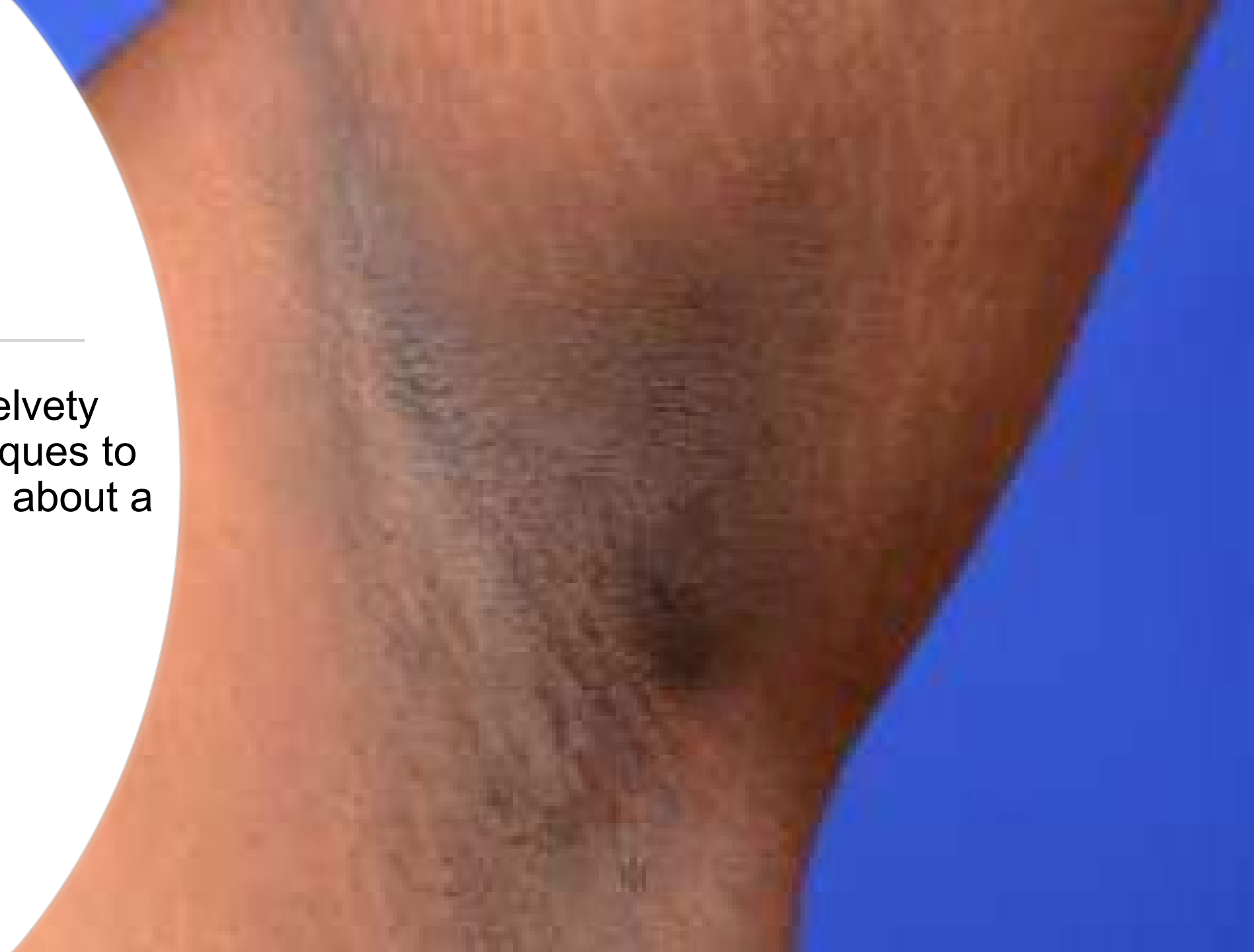
Skin thus reflects vascular, immunologic, endocrine and infectious disorders.

Let’s begin…

Case 1:

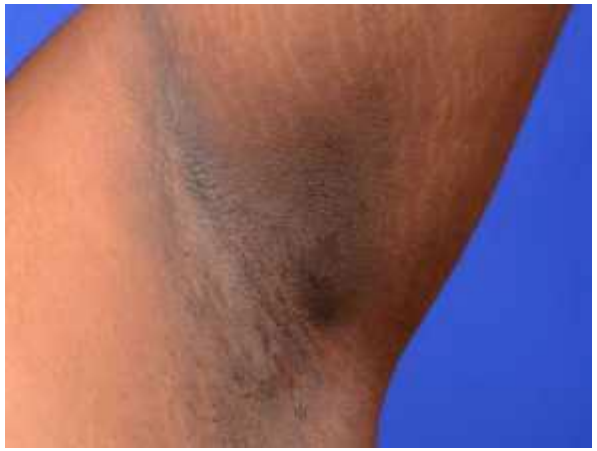
17 yo female with velvety hyperpigmented plaques to bilateral axilla noted about a year ago.

They don’t itch.



Skin Signs: Case 1
What's your next step?

a) Furnish Hydrocortisone 2.5% cream
b) Furnish Clotrimazole 1% cream BID
c) Obtain complete ROS and update HCM to screen for malignancy
d) Order Hgb A1C



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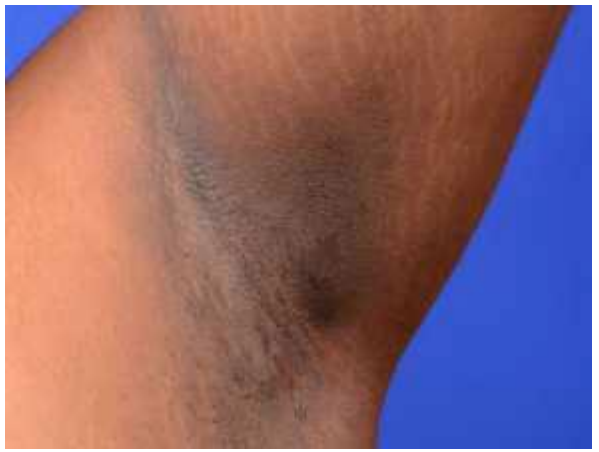
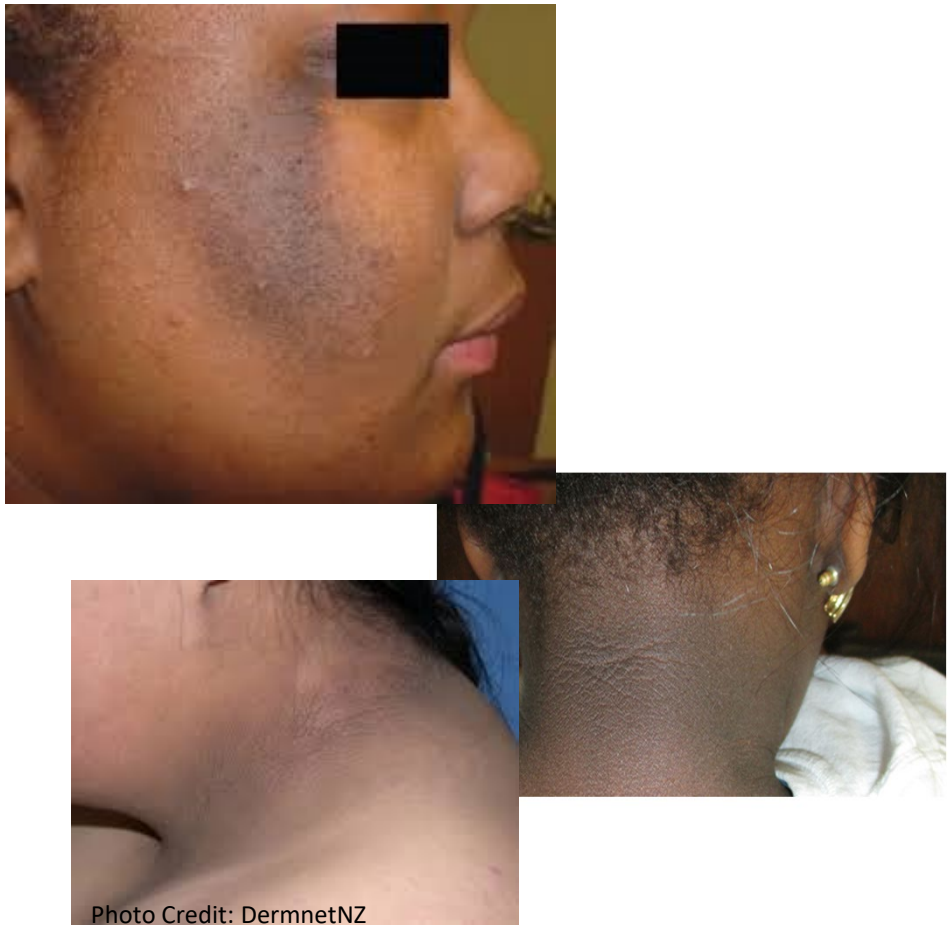


Skin Signs: Acanthosis Nigricans



- Symmetric velvety hyperpigmented patches or plaques
- Distribution to axillae, neck, inframammary skin, inguinal folds
- Associated with **Insulin-resistant and hyperandrogenic states**
- Less commonly, can present on cheeks

Photo credit: Consultant 360

Skin Signs: Acanthosis Nigricans Treatment

- **Address underlying metabolic disorder (DM2, hyperinsulinemia)**
- Weight loss can help, most topicals don’t
- Topical retinoids
- Ammonium lactate 12%
- Topical TXA products ($$)
- Do not give topical steroids for this

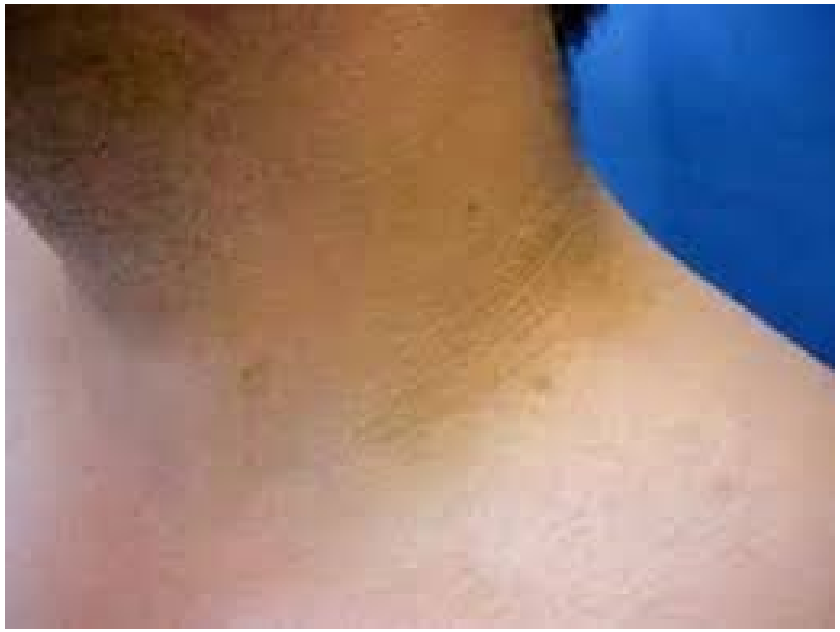
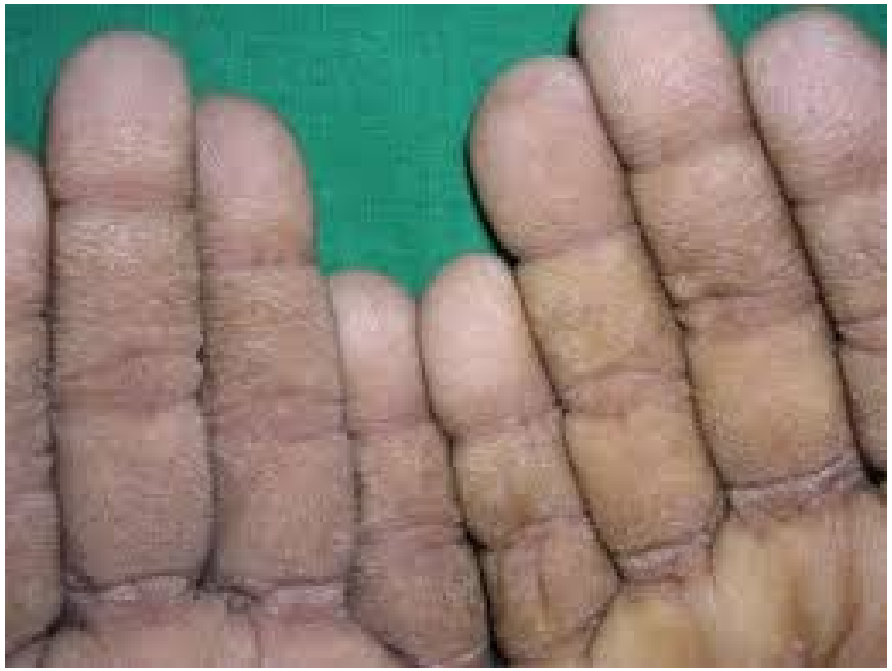


Photo Credit: DermnetNZ

Acanthosis Nigricans Maligna – Very Rare



“tripe palms”

- Adult patients
- Rapid onset
- Extensive
- Non-obese
- No insulin resistant condition or endocrine abnormality
- Thickening of palms and soles
- Pruritus
- **Indicative of underlying malignancy (colorectal most common)**

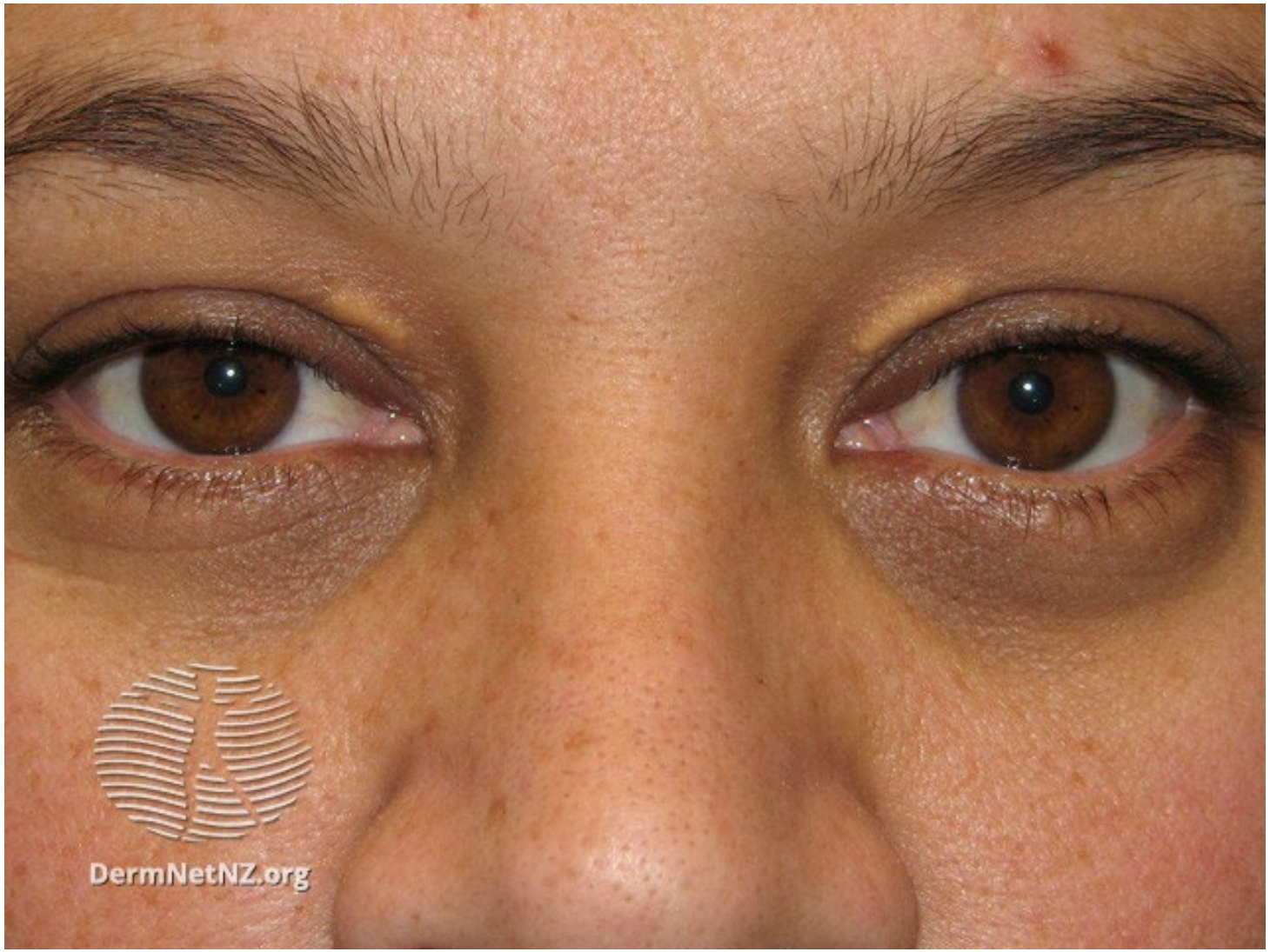
Photo: DermnetNZ

Case 2

50 yo female with bilateral eyelid lesions presents to establish care.

Present over a year. No itching. Slow growth.

On exam there are symmetric waxy papules.



Case 2

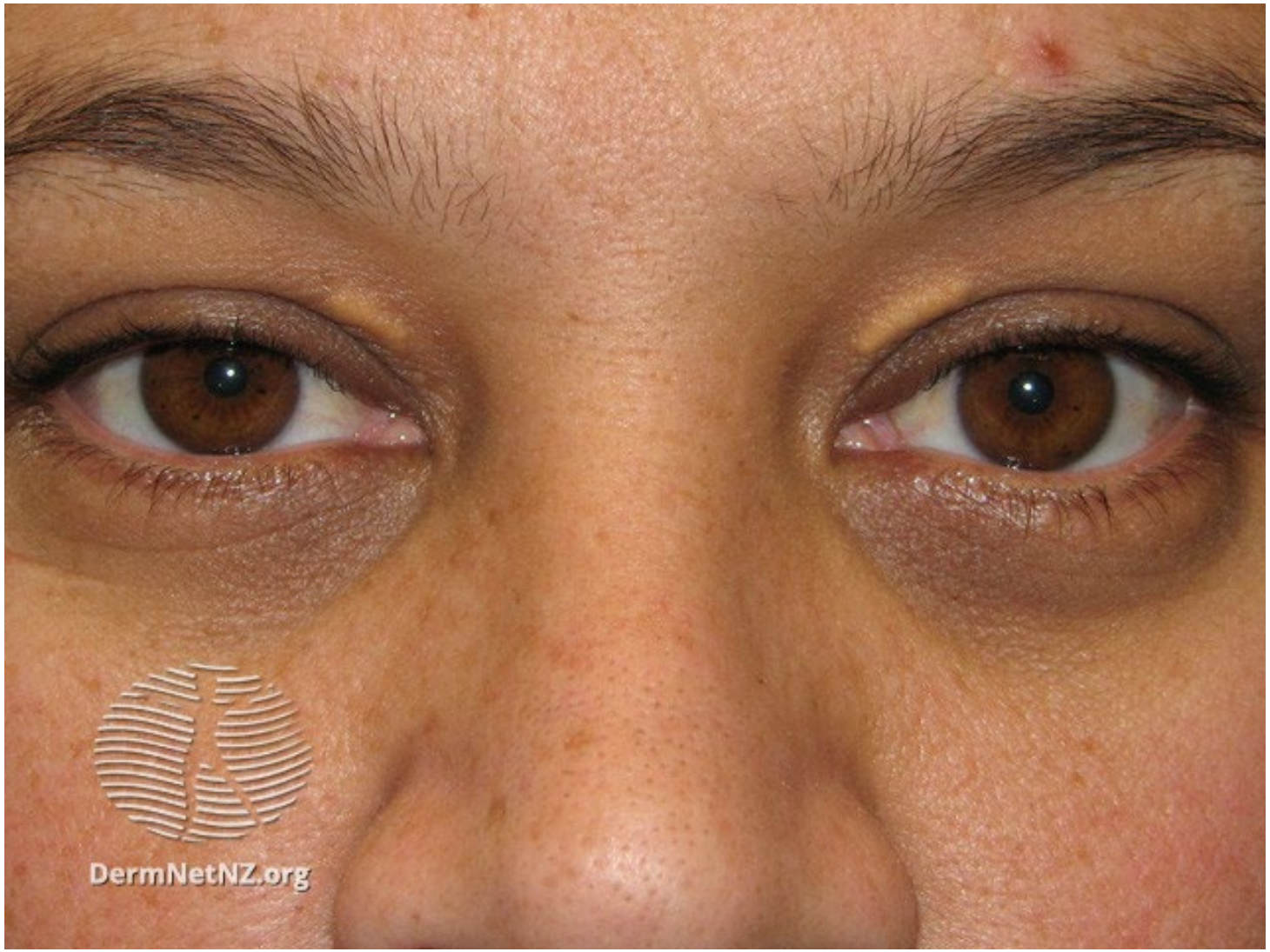
What would you do next?

a) Perform a full skin survey to look for skin cancer

b) Biopsy or refer for biopsy of lesion

c) Carefully review medication list for possible drug triggers

d) Order lipid panel



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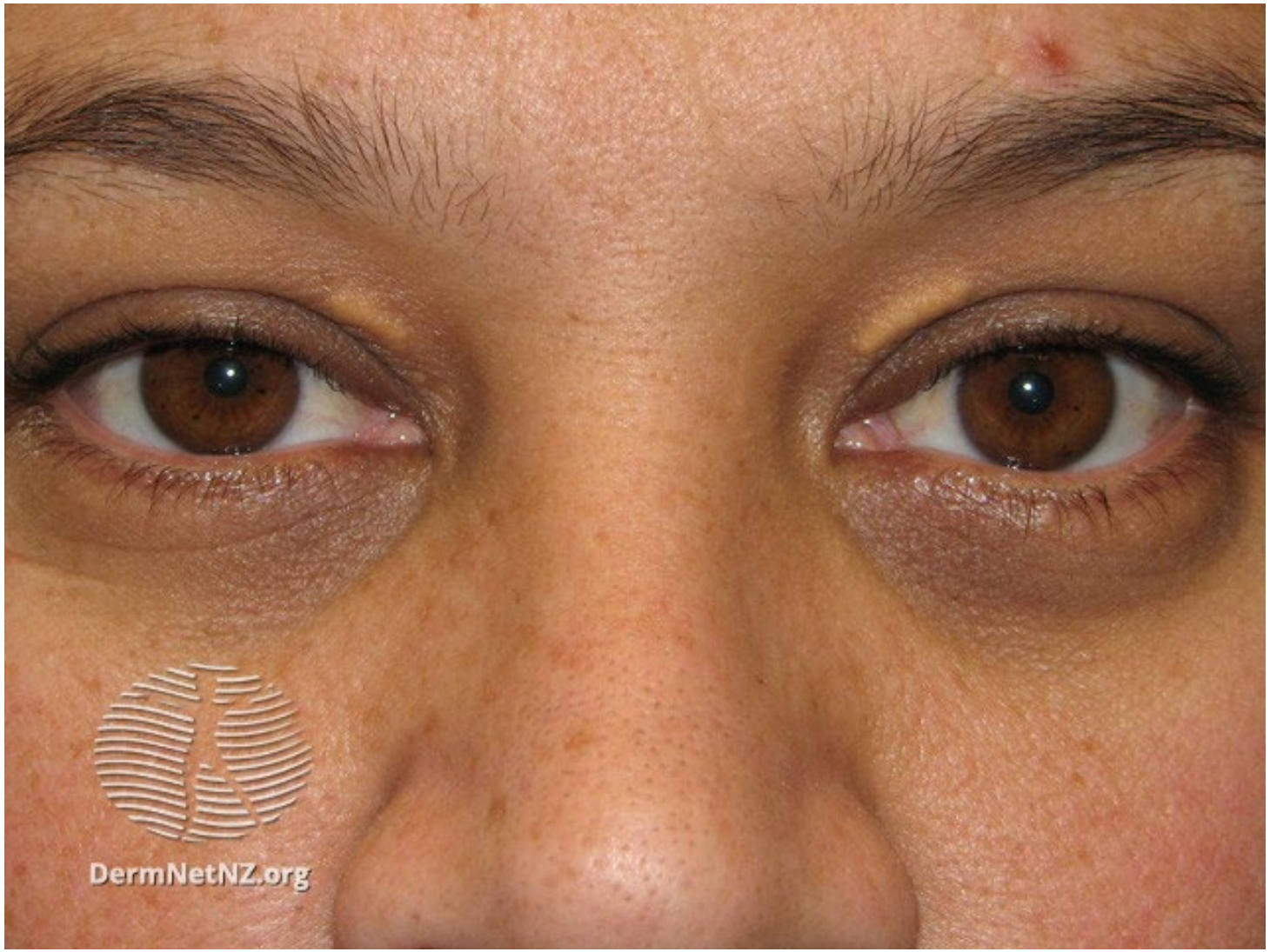


Skin Signs: Xanthelasmas & Xanthomas

- Often Indicate underlying lipid disorder (about 50%)
- Improvement of lipids can clear lesions
- Treatment usually cosmetic (laser)
- Presence does not indicate severity

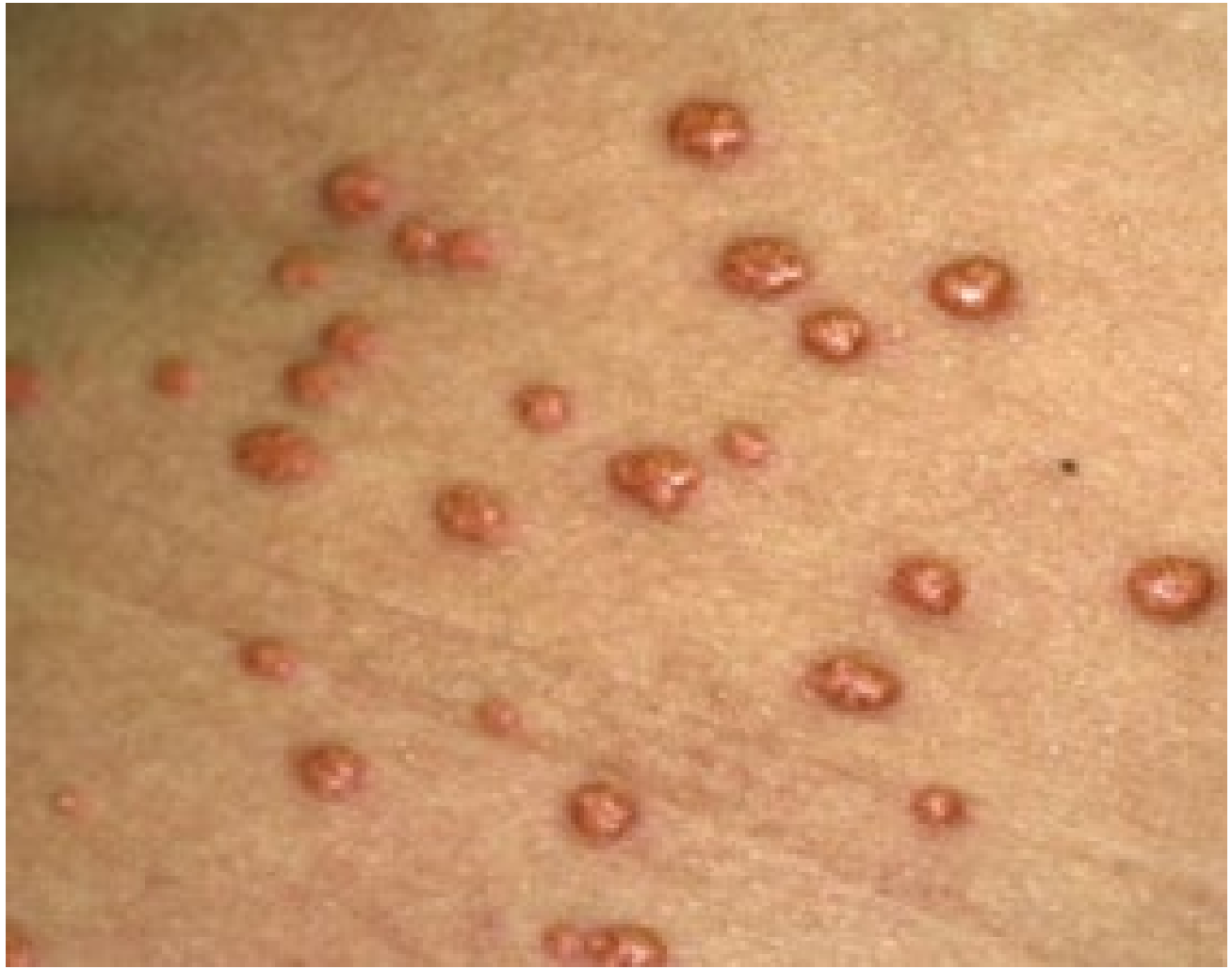
Skin Signs: Eruptive Xanthomas

Red-yellow papules

Acute eruption can be extensive: buttocks, shoulders, extensor surfaces

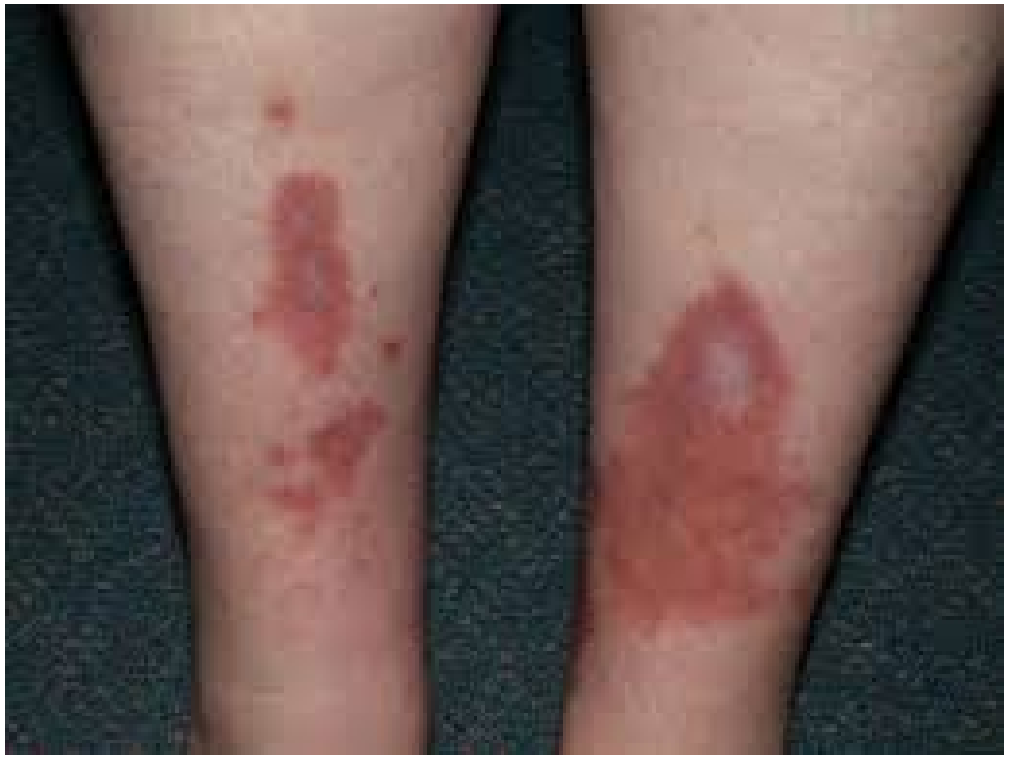
→Check Triglycerides

If >3000, risk for pancreatitis



Case 3: Legs!

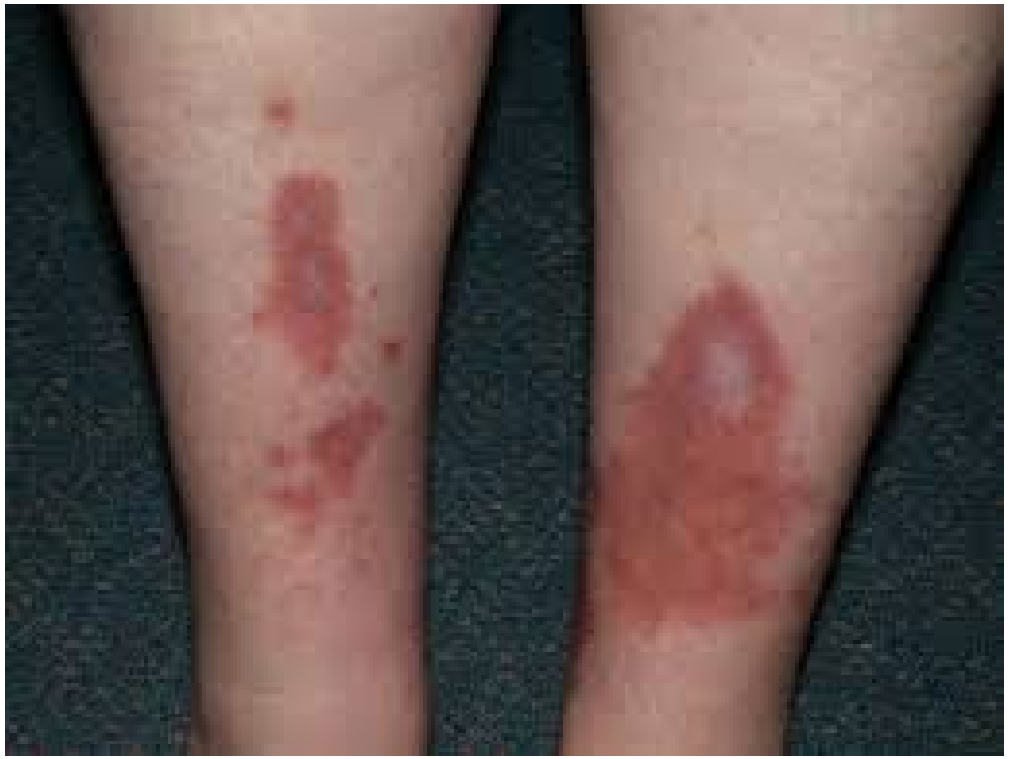
Patient with mildy itchy plaques to bilateral anterior lower legs.



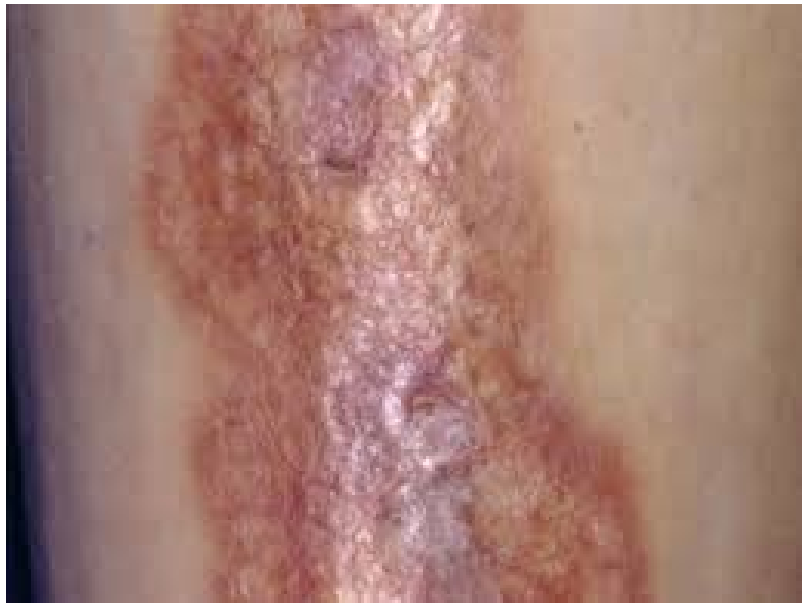
You ask the patient:

a) Do you have diabetes?
b) Do you drink alcohol?
c) Did you bump into something?
d) Do you take a blood thinner?

Skin Signs: Necrobiosis Lipoidica



Erythematous patch, advancing, with yellow-brown center and telangectasias. May ulcerate. Ddx stasis dermatitis, lipodermatosclerosis, erythema nodosum



>75% of patients will develop Diabetes, but <1% of diabetics have this condition
May treat with topical steroids, pentoxyfillene, ASA. No agreed-upon guidelines.

(Habif 2019)

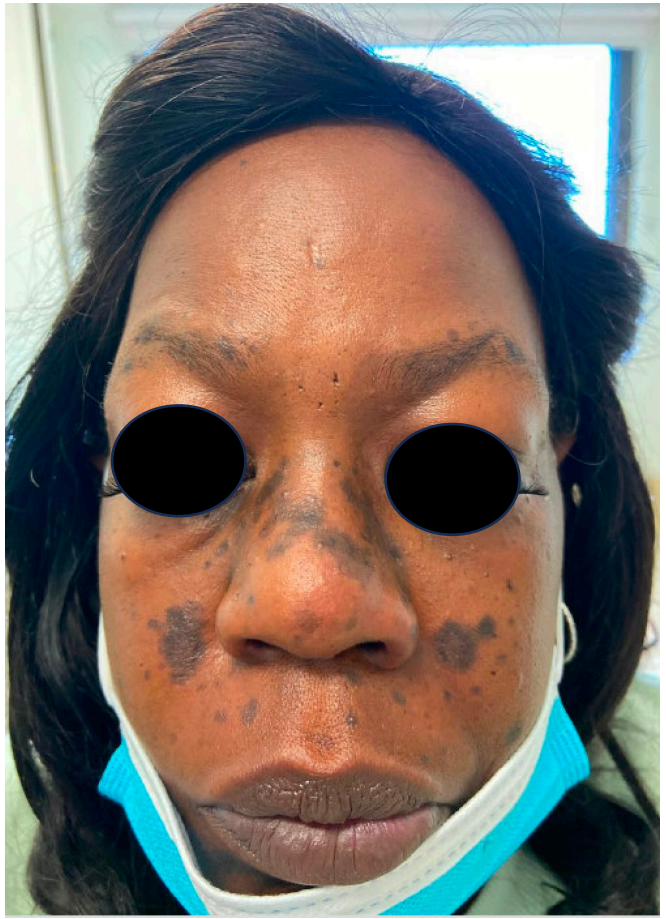
Skin Signs: Case 4, Facial Rash

45 yo female with 3 months of fatigue, joint pains, muscle weakness and burning skin lesions to face and arms.

No prior evaluation. No treatment tried.

Your next step is:

A) Skin biopsy
B) Chest X Ray
C) Labs including CBC/diff, CMP, UA, ANA, CRP
D) A and C



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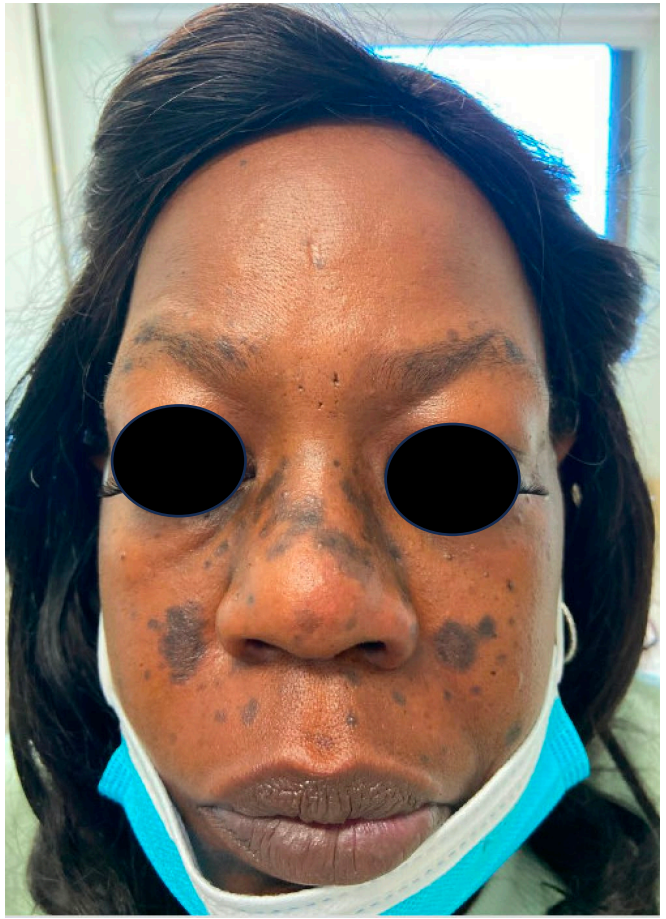
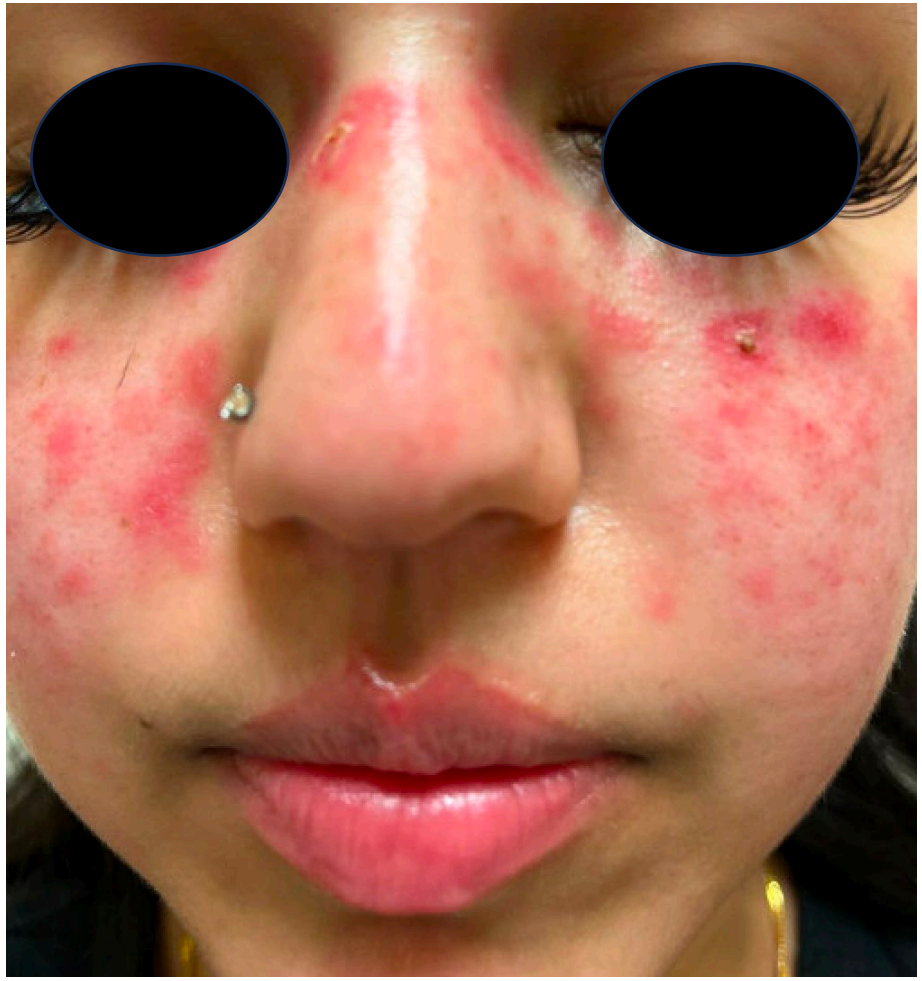


Skin Signs: Lupus Skin Lesions

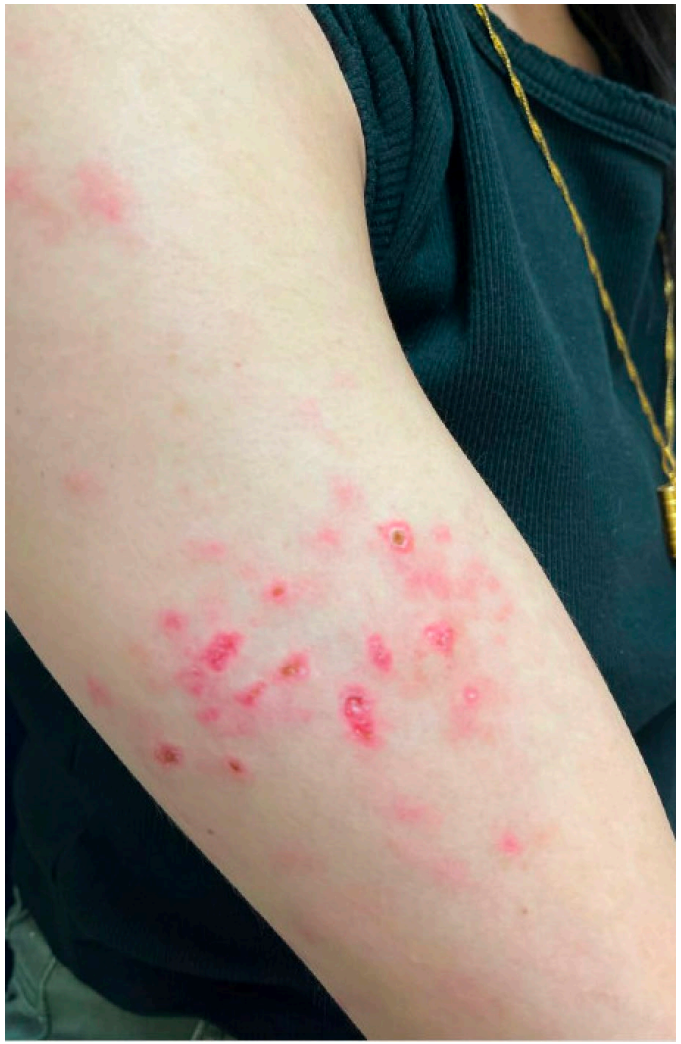
Morphology varies by subtype

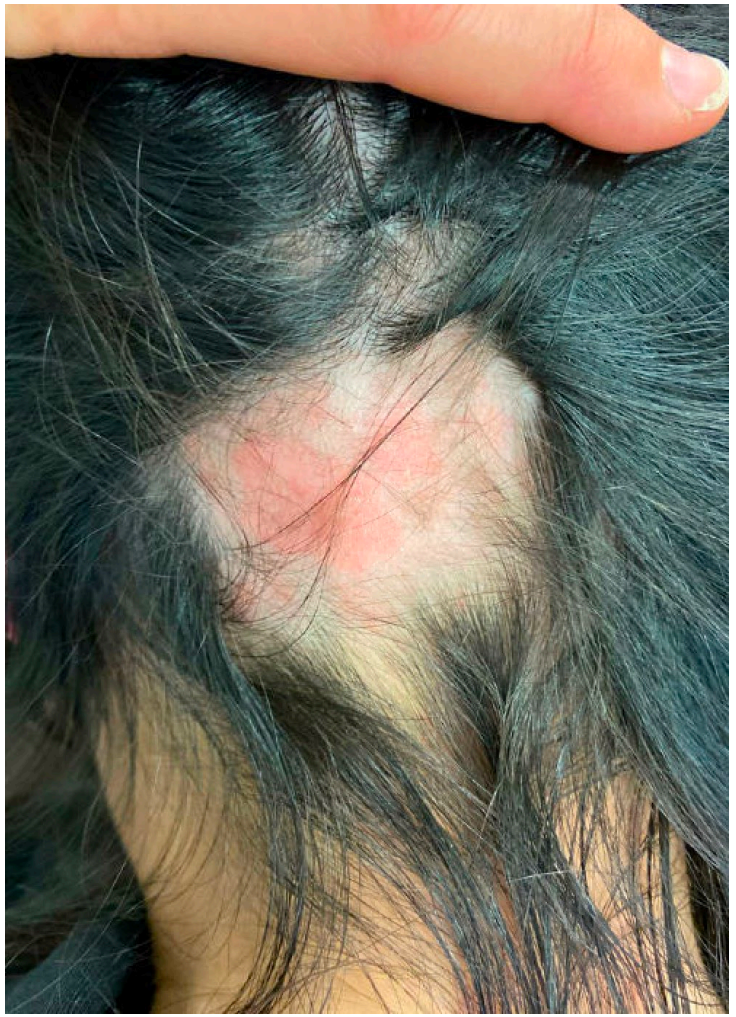
Lupus can appear to head and neck,
Trunk only
Face and arms, sparing trunk

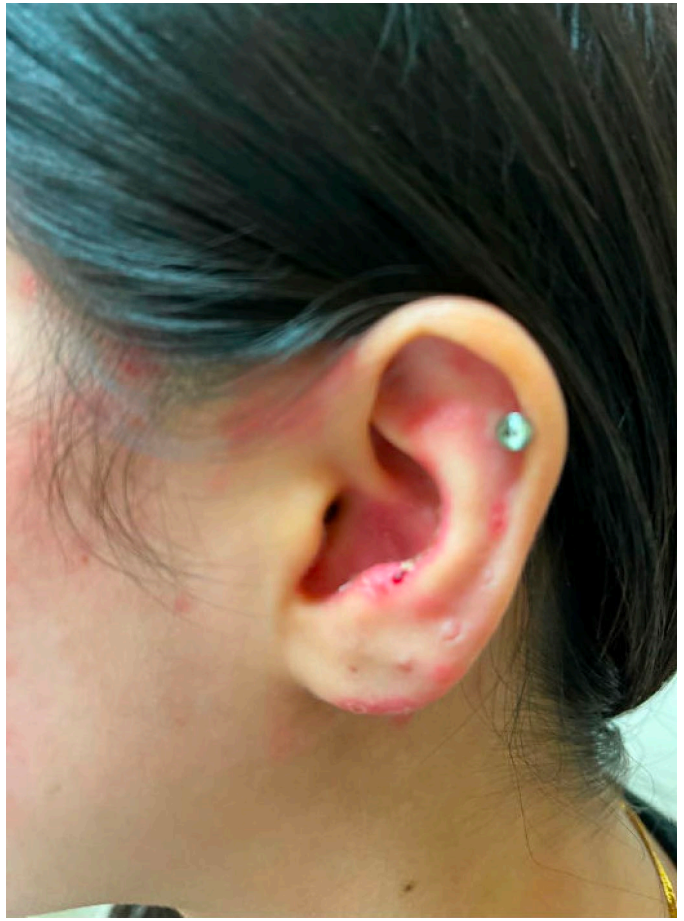
Erythematous, scaling plaques, sometimes
Ulcerate
SLE: Incidence is 0.1%



Skin Signs: Lupus Skin Lesions







Pop Quiz: Positive ANA

What percentage of the general population has a positive ANA?

a) 2.5%
b) 10%
c) 25%
d) 40%

Take home: suspect symptoms + high titer warrants further testing

(Grygiel-Górniak B, Rogacka N, Puszczewicz M, 2018)

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When to consider Lupus in ddx?

Symptoms

Photosensitive rash
Headache
Neuropsych sx
MSK Joint pain>swelling
Fatigue/Malaise
Unintended Weight Loss
Fevers
(SLICC criteria)

Or….just skin sx

Actions to consider

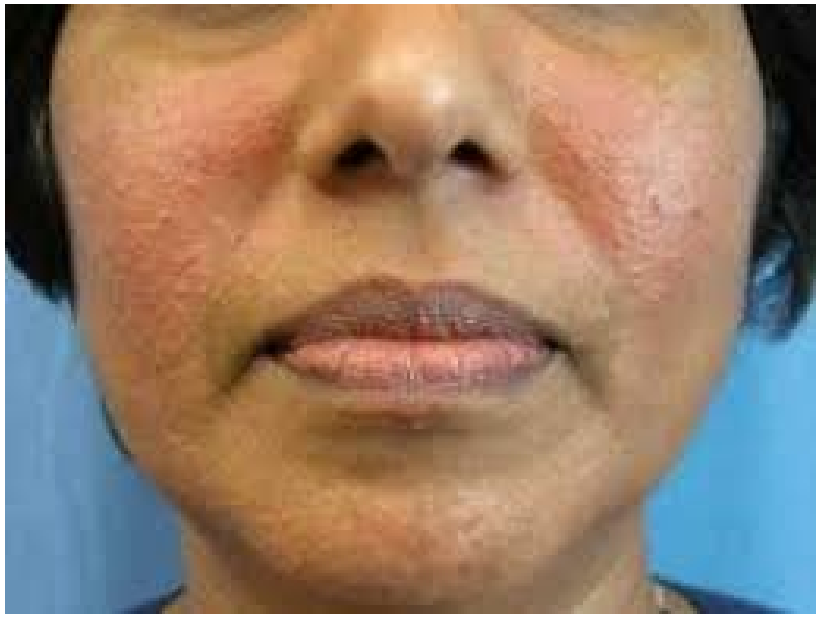
ANA – titer >1:80
Skin biopsy H/E

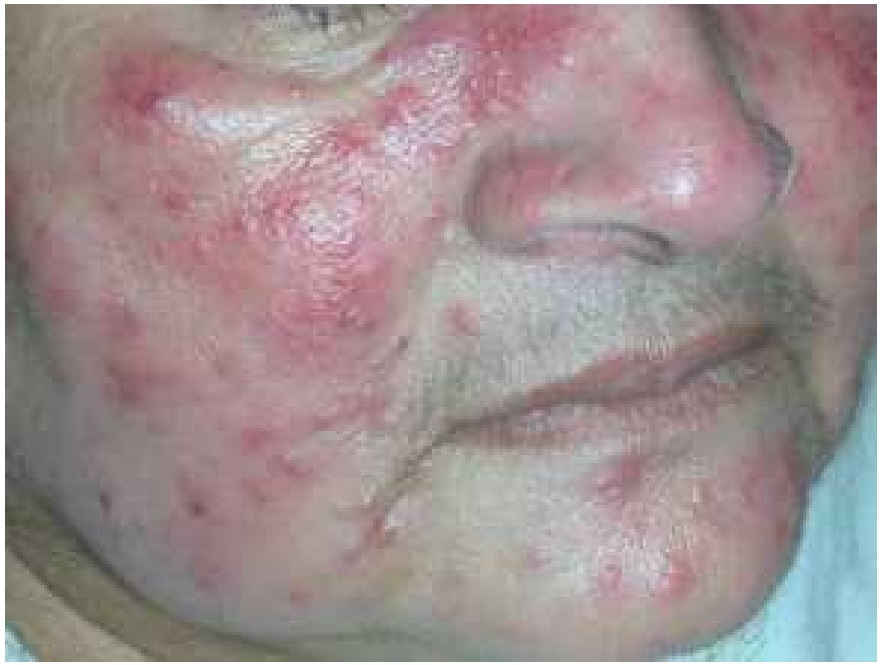
Next steps: possible DIF
Anti DS DNA, C3, C4,
Anti smith/RNP
SSA/SSB
TSH, anti thyroid ab

→ negative serology, + path, think Discoid

Common Rashes of Face that are Not Lupus

Rosacea





Seborrheic Dermatitis

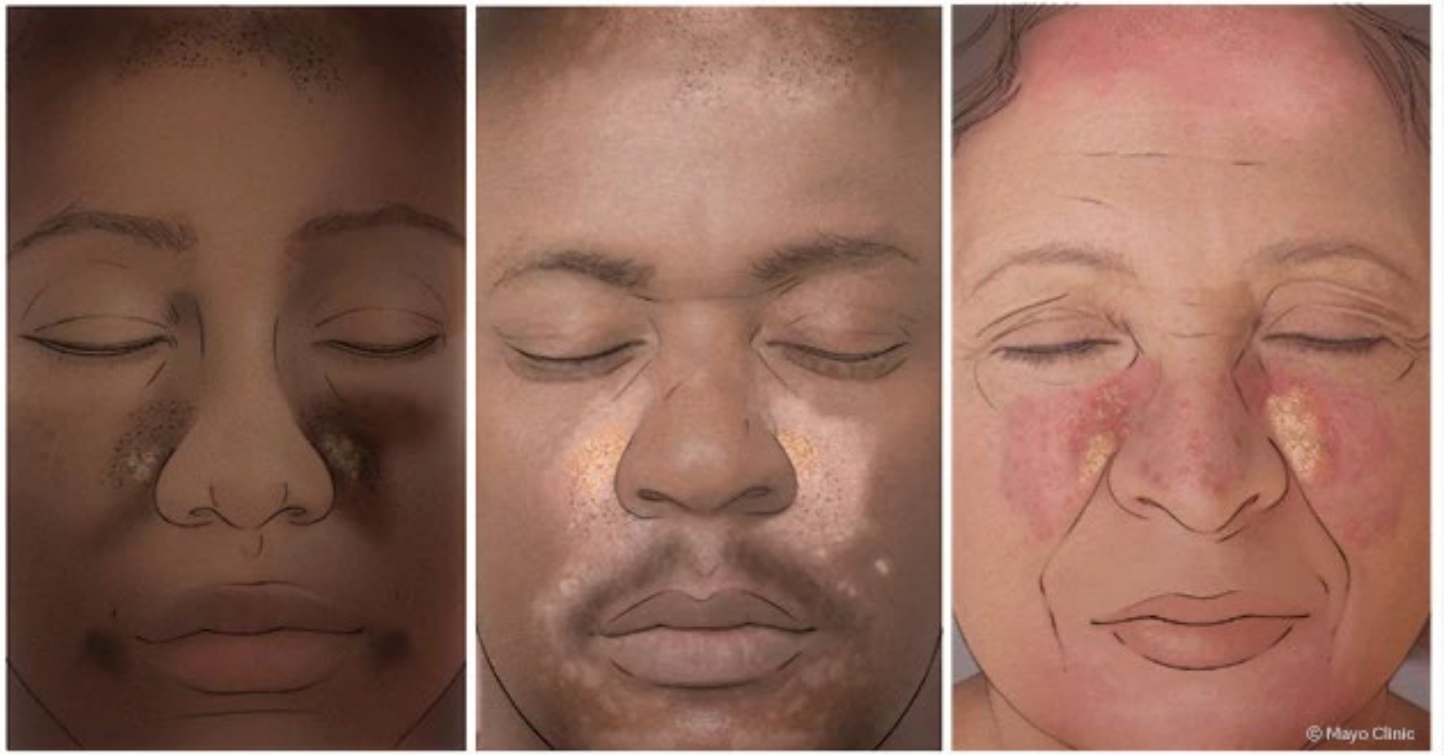


Illustration: Mayo Clinic

Exam:
Erythema and flaking/scale to nasolabial fold, postauricular skin, glabella, eyebrows, frontal hairline

Skin Signs: Vitiligo

Vitiligo is a T-Cell mediated skin disorder.

It is associated with which other autoimmune condition?

a) Systemic Lupus
b) Inflammatory Bowel Disease
c) Autoimmune hepatitis
d) Hashimoto's Thyroiditis

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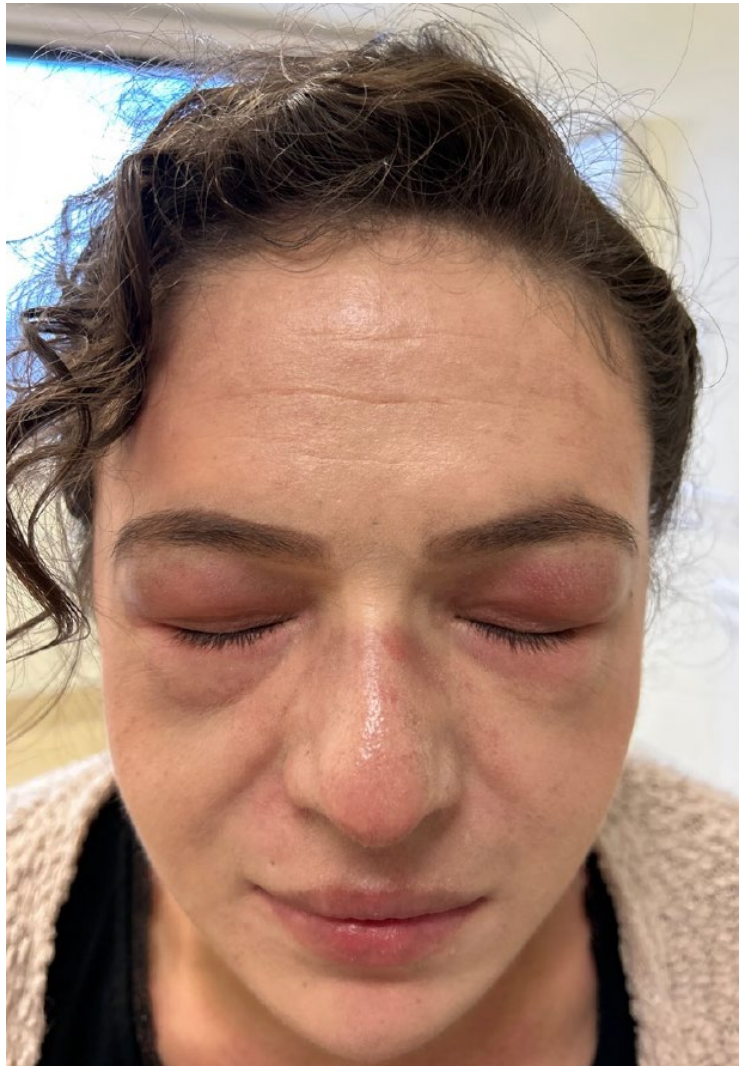
Skin signs: Case 5

29 yo female presents to clinic with painful rash to eyelids and cheeks, seems worse with sun exposure. ROS notable for fatigue, weakness and difficulty reaching items in her kitchen cabinets.

As the treating NP, you arrange for a skin biopsy of her rash, refer to Dermatology and:

a) Order CBC/Diff, ANA and CK
b) Examine the rest of her skin including chest, hips, hands and nails for other findings
c) Take a history for any “B” symptoms including weight loss, night sweats
d) All of the above



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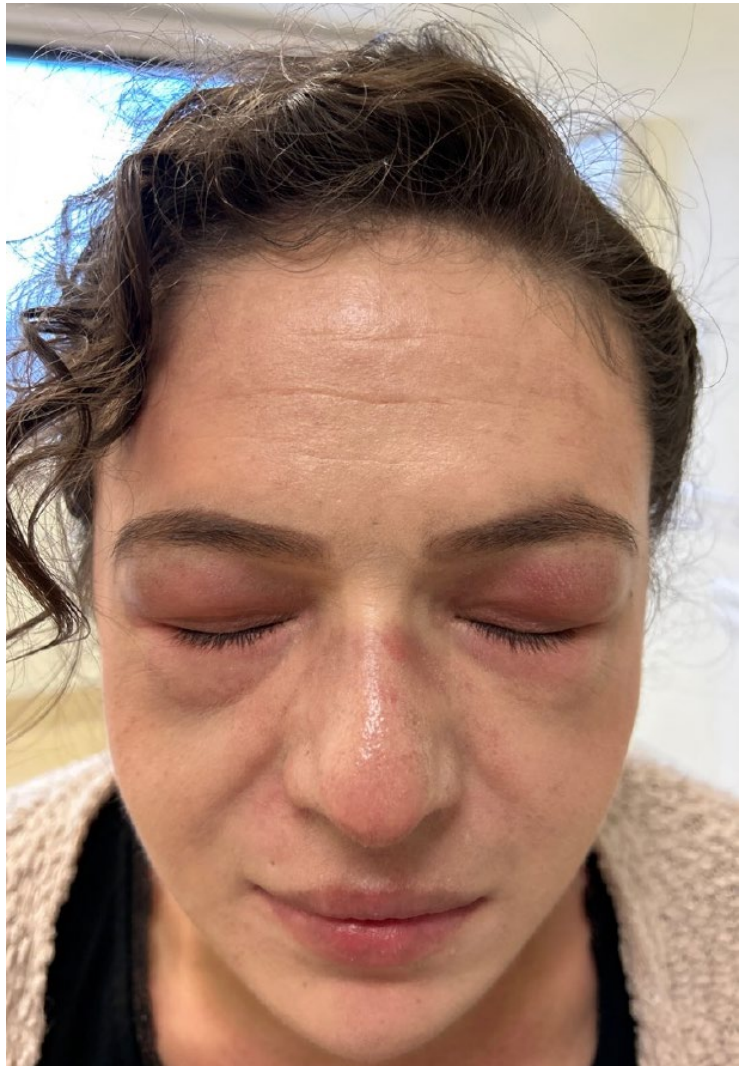
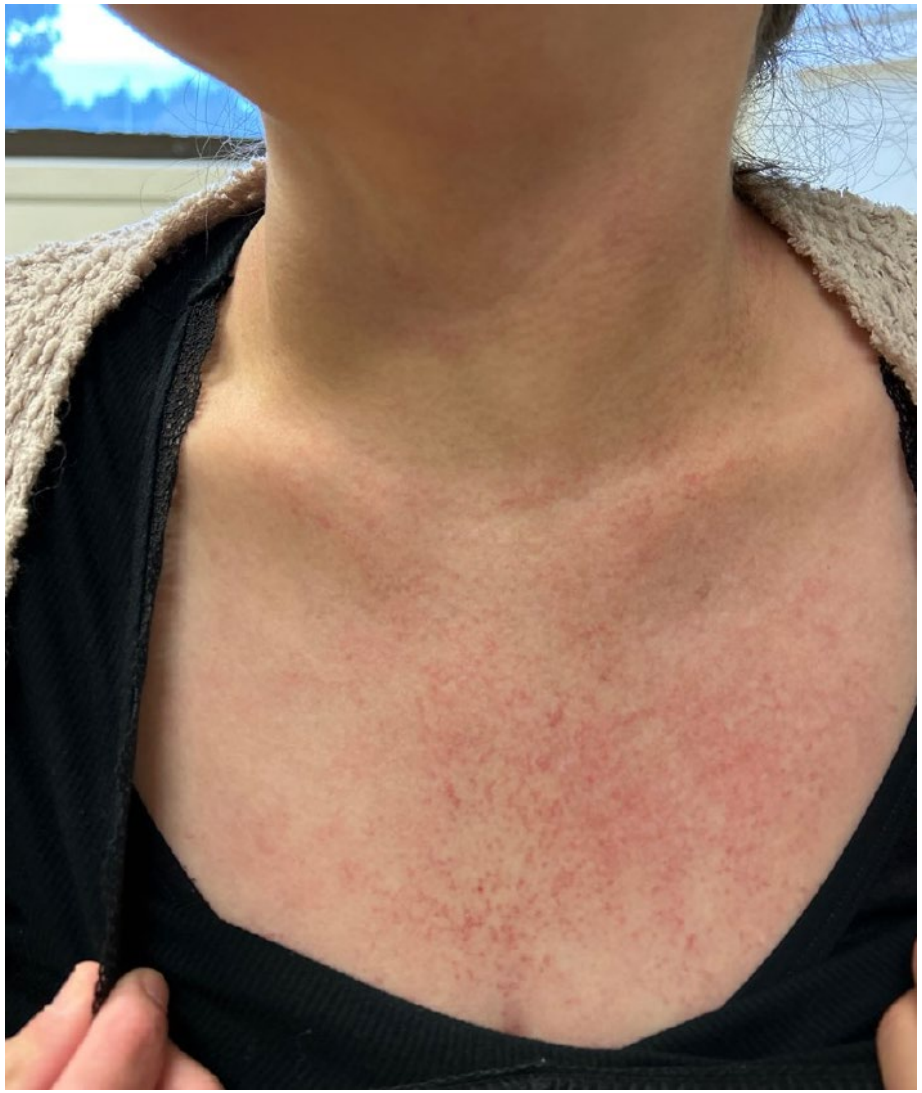
a) Order CBC/Diff, ANA and CK
b) Examine the rest of her skin including chest, hips, hands and nails for other findings
c) Take a history for any “B” symptoms including weight loss, night sweats, change to bowel habits etc.
d) All of the above ←



Skin signs: Dermatomyositis

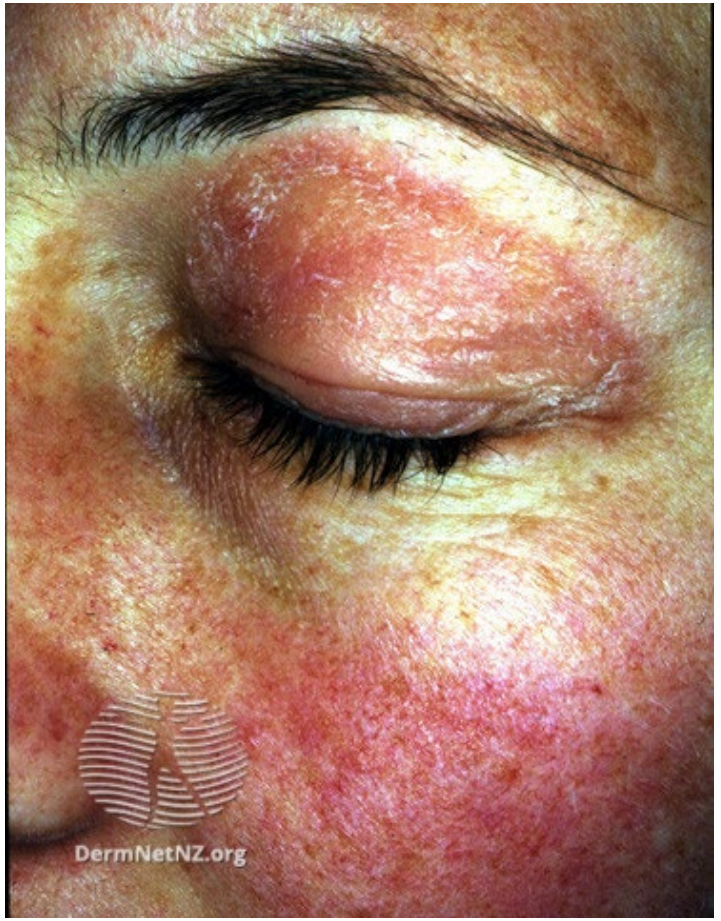
- Autoimmune Inflammatory myopathy
- Skeletal muscle weakness and distinctive skin findings
- Inflammatory myopathy, likely microangiopathy
- Incidence 0.1-1.6: 100K
- 2:1 female to male
- increased in persons with African American heritage
- **Up to 25% of persons have an underlying malignancy at time of diagnosis**



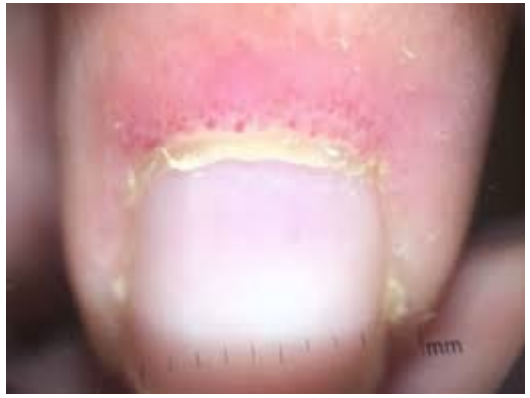
Source: Dermnet NZ

Skin signs: Dermatomyositis Heliotrope Rash

- “Lilac” or erythematous, scaling rash to eyelids, periorbital skin
- Purple hue in skin of color
- Ddx includes lupus, allergic contact dermatitis, rosacea, periorbital eczema, Porphyria Cutanea Tardae

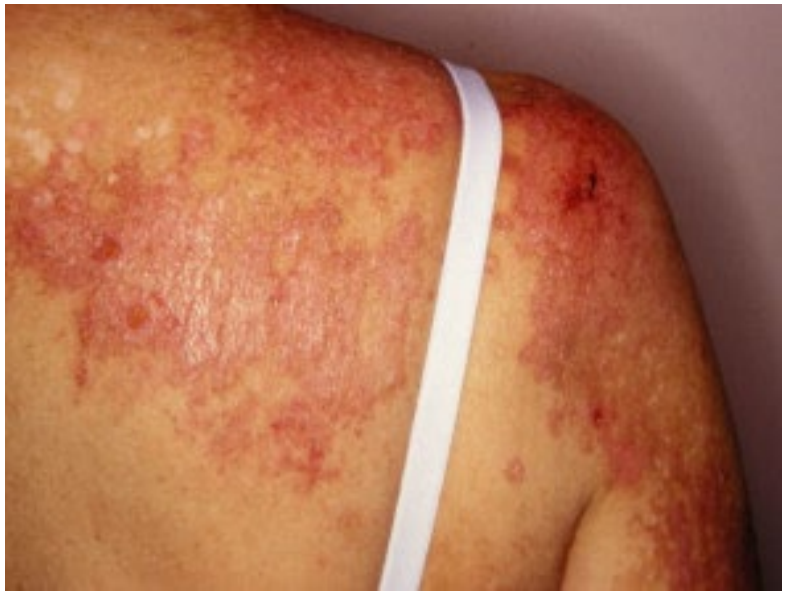


Skin signs: Dermatomyositis



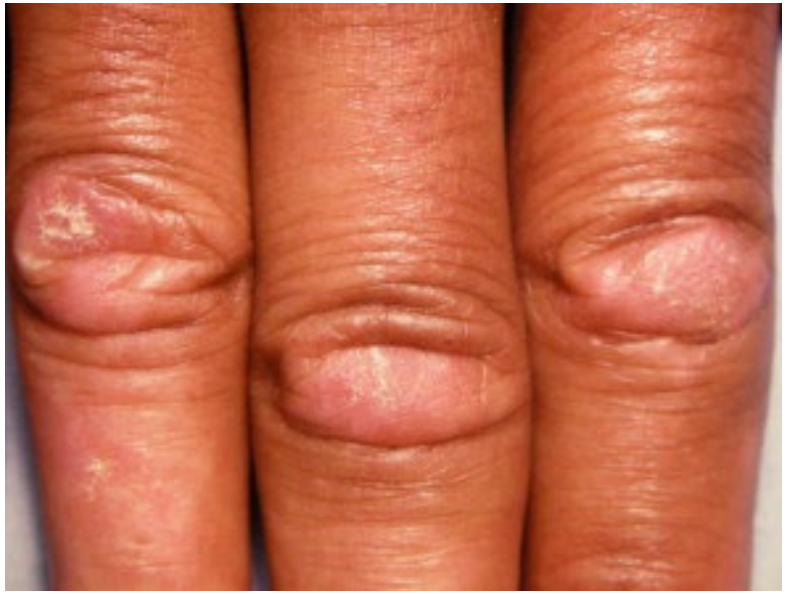
- Heliotrope rash
- Shawl sign
- Photosensitivity
- Holster sign
- Gottron’s papules over DIP, PIPs of hands
- Dilated capillaries to proximal nail fold
- Hair thinning and scaly plaques to scalp

Skin signs: Dermatomyositis Gottron's Papules & Shawl Sign



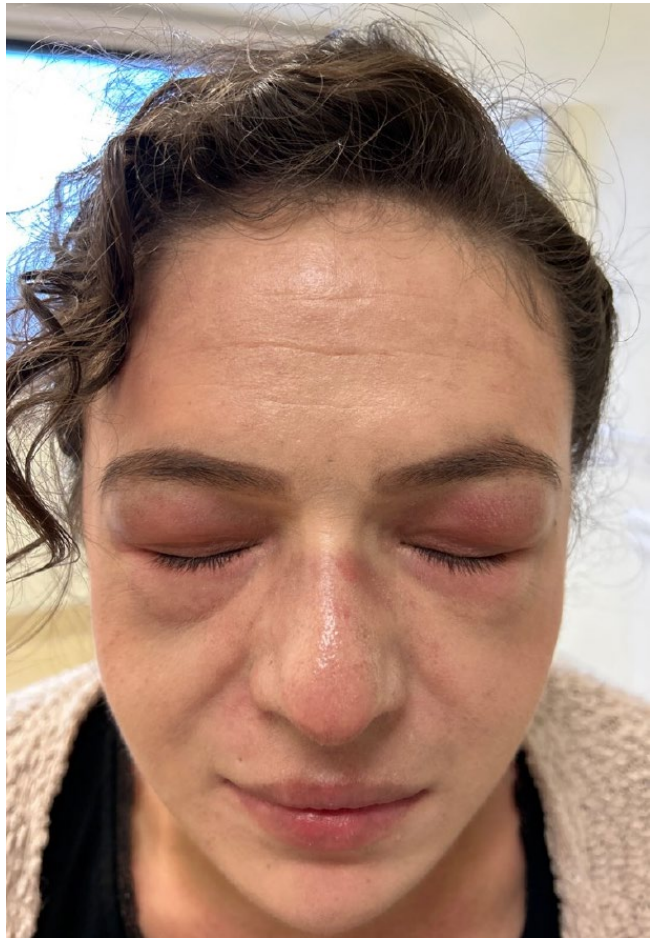
- Photo-distributed
- erythematous scaly plaques to upper chest and back
- May burn
- Ddx: photo-drug reaction, sun allergy, PMLE, Porphyria

- Pink or lilac flat-topped papules over PIPs, DIPs
- Biopsy to confirm (shave)



Dermatomyositis: Treatment

- Derm vs Rheum referral
- Prednisone
- Hydroxychloroquine
- Mycophenalate Mofetil
- Topical corticosteroids
- Topical calcineurin inhibitors (tacrolimus)
- **HCM: enhanced Cancer Screening**

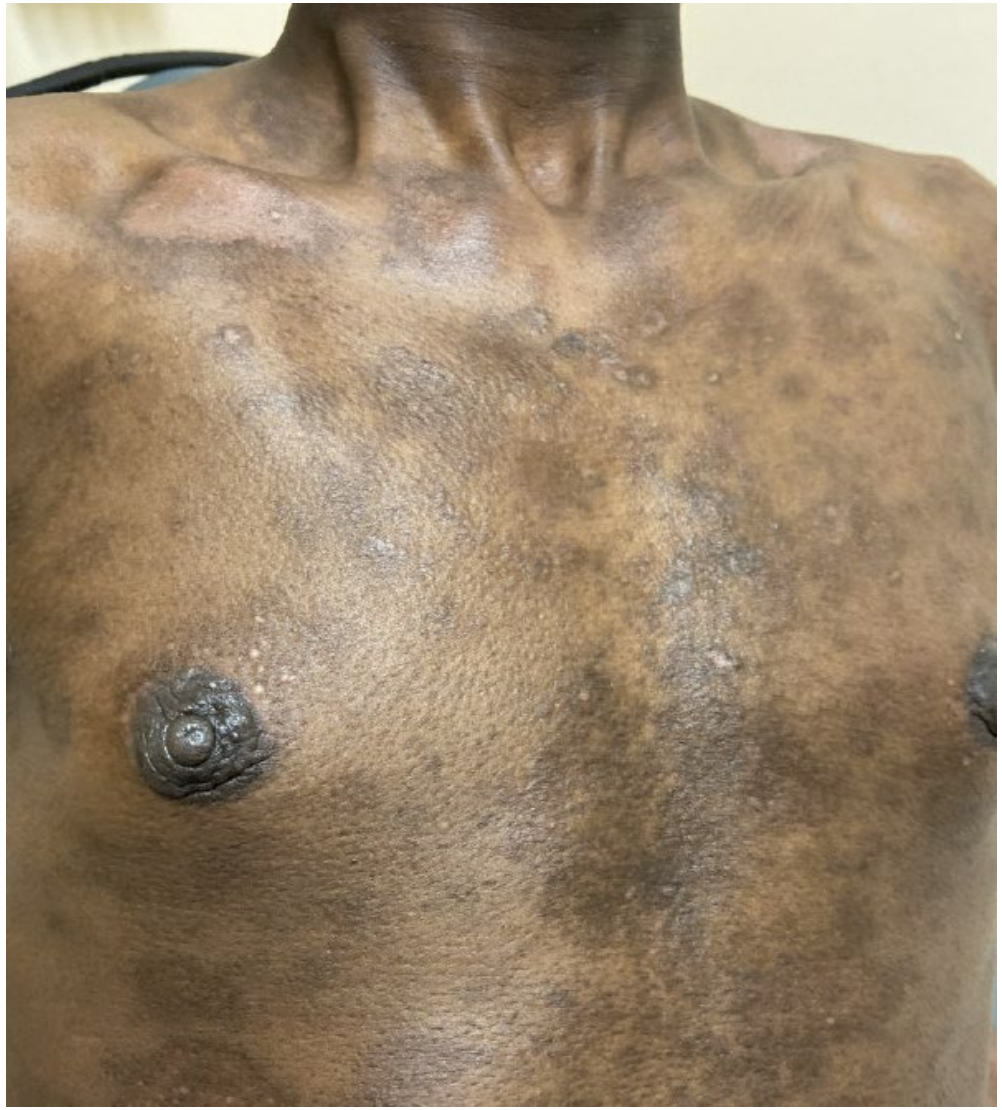


Skin Signs: Case 6

28 yo male with one month of intense itching and rash to entire body.

Endorses weight loss, fatigue and hair loss.

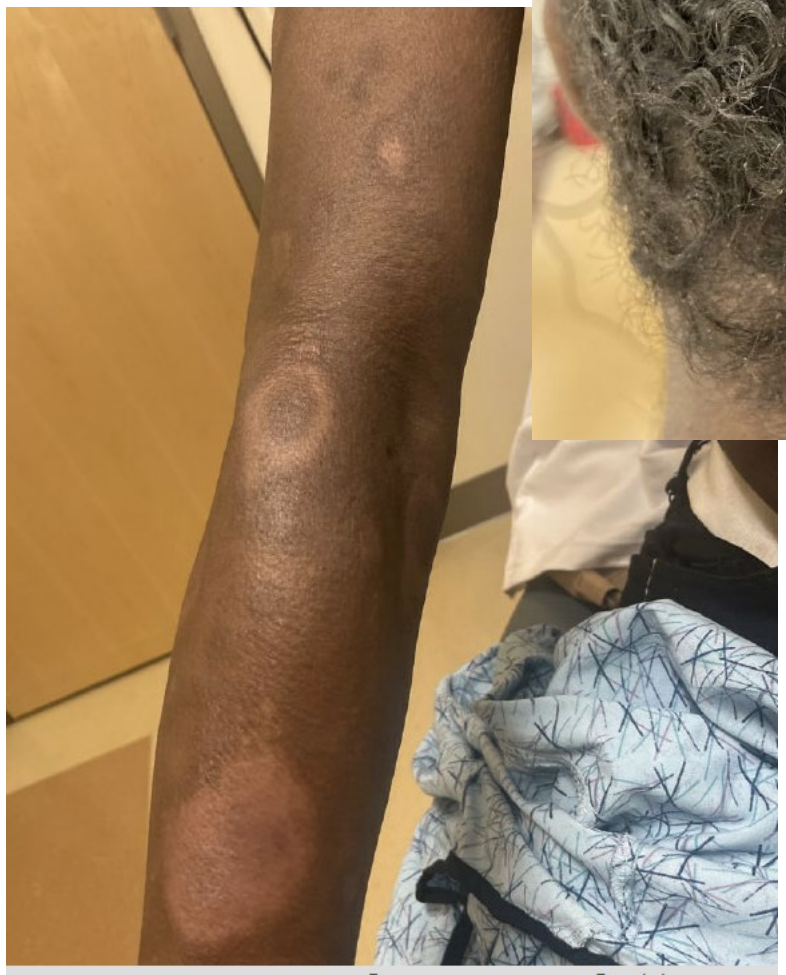
MSM having unprotected sex in the past year.

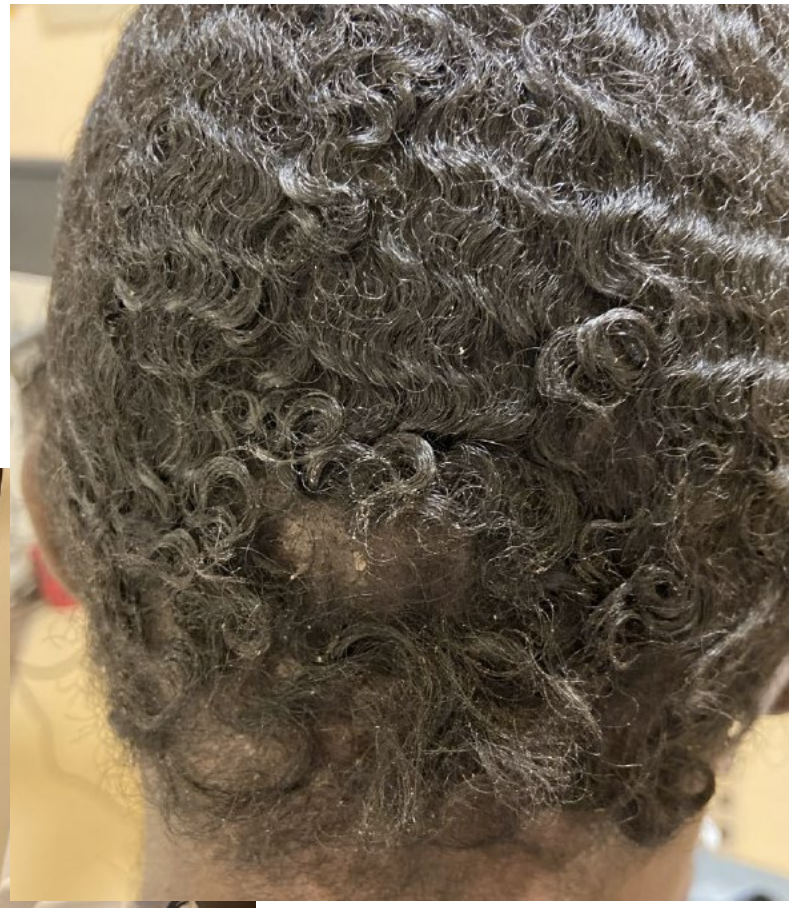


Skin Signs: Case 6

What would you do next for this patient?

a) Skin biopsy
b) KOH a lesion
c) Start a 5 day pulse prednisone
d) Order RPR/VDRL, HIV





Skin Signs: Case 6

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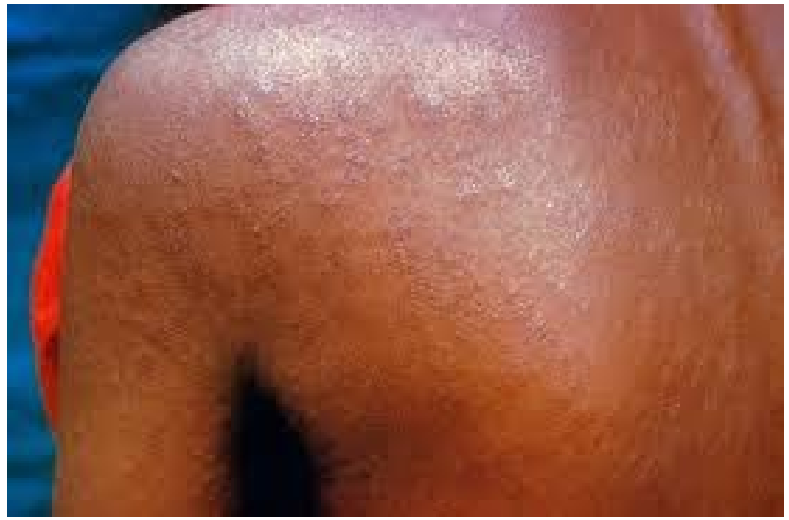
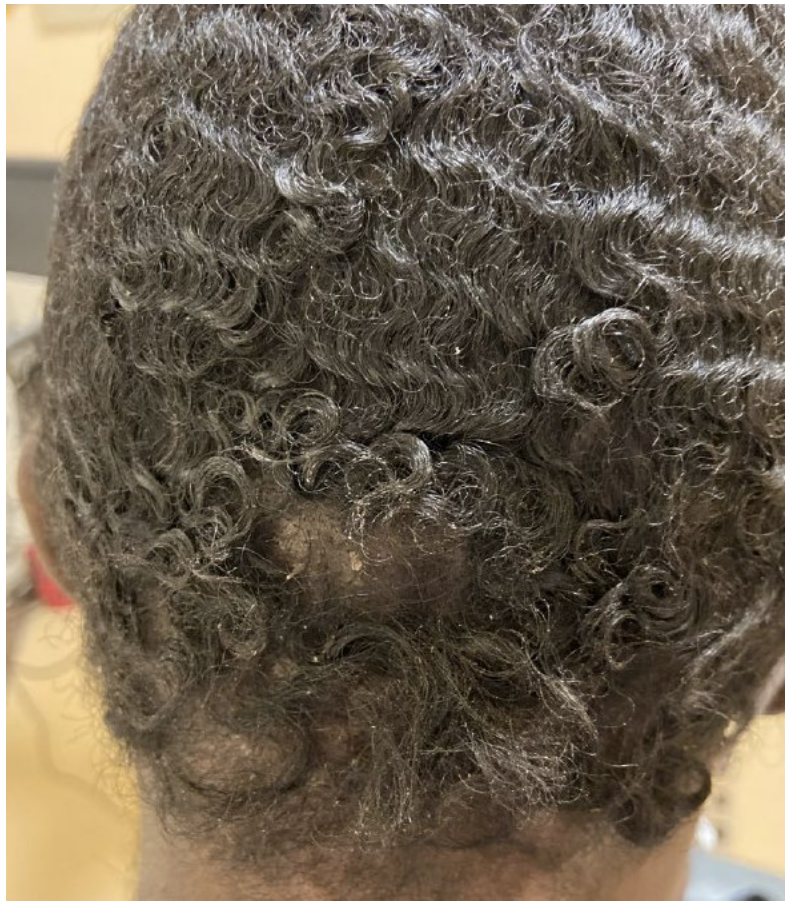
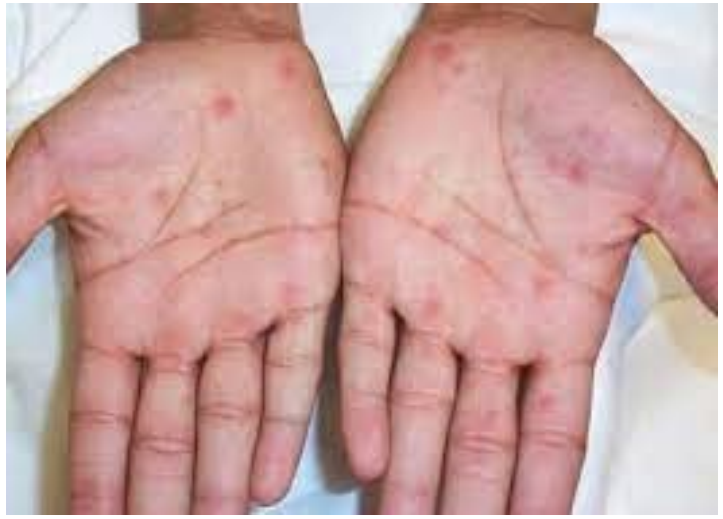
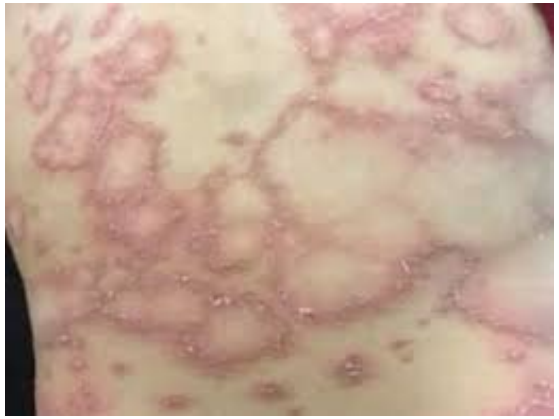
Skin signs: Syphilis



"the great pretender"

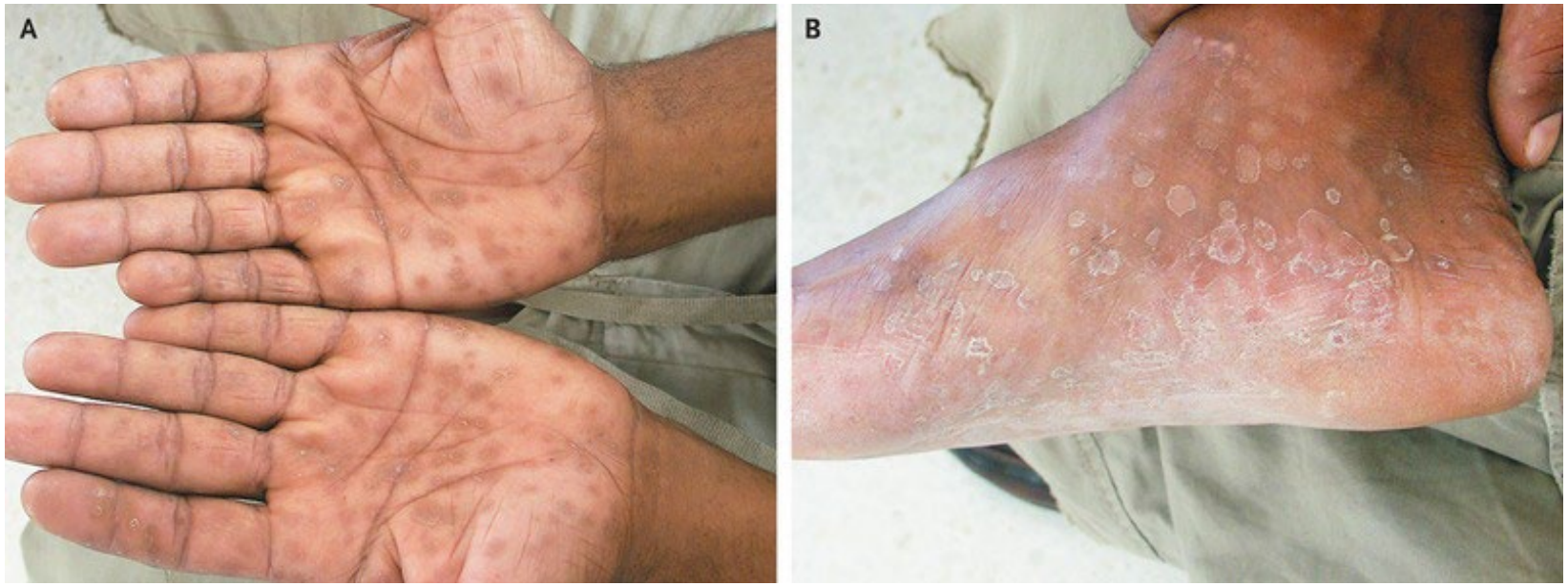






Skin signs: Syphilis

Primary	Secondary	Tertiary
Painless chancre to mucosa	Rash: palms, trunk, generalized	Gummas
	Patchy hair loss “moth eaten”	Oral ulcerations
	Generalized pruritus	Erosion of soft tissues



Skin Signs: Undiagnosed HIV

If you encounter:

Adult patient with facial mollusum lesions

Herpes Zoster in someone under 50

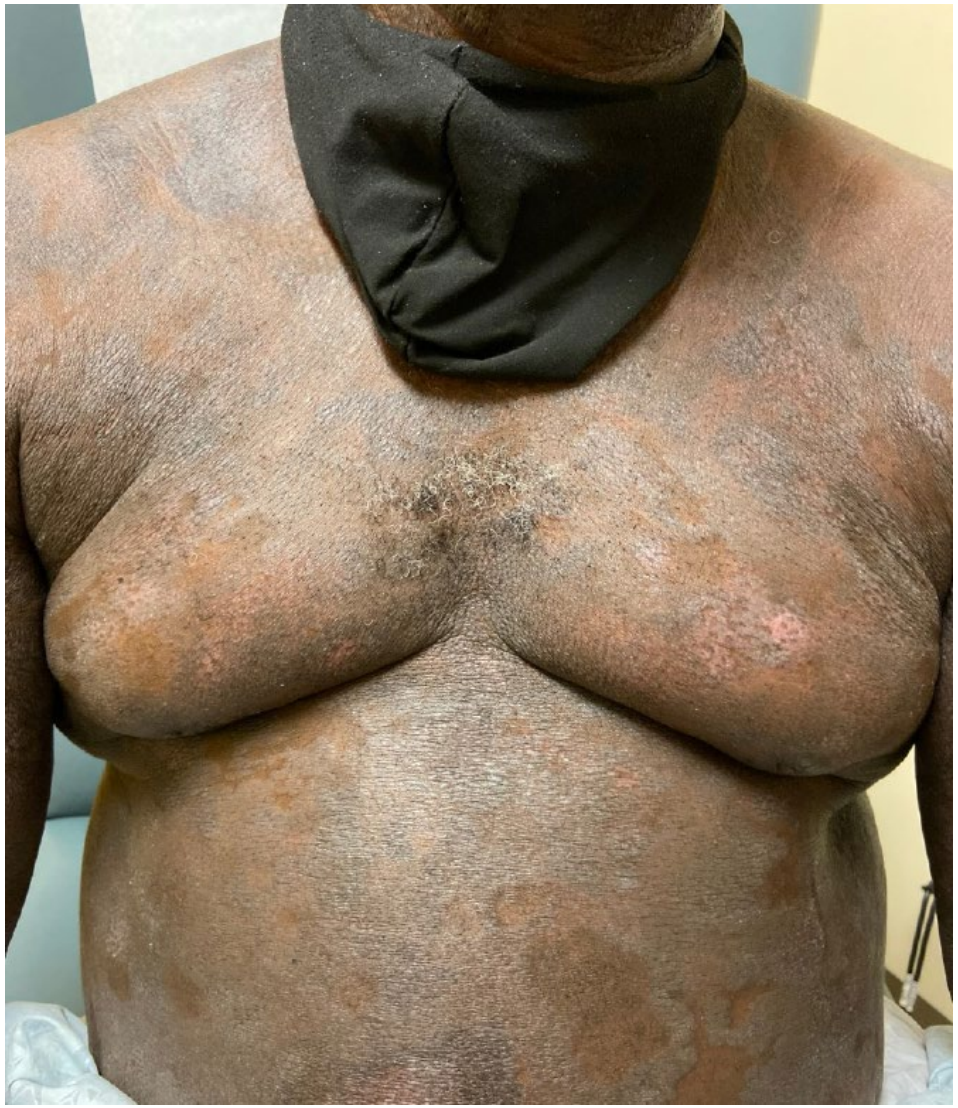
Herpes Simplex unresponsive to antiviral treatment

Refractory or severe Seborrheic Dermatitis

New diagnosis Kaposi’s Sarcoma

Check HIV Status

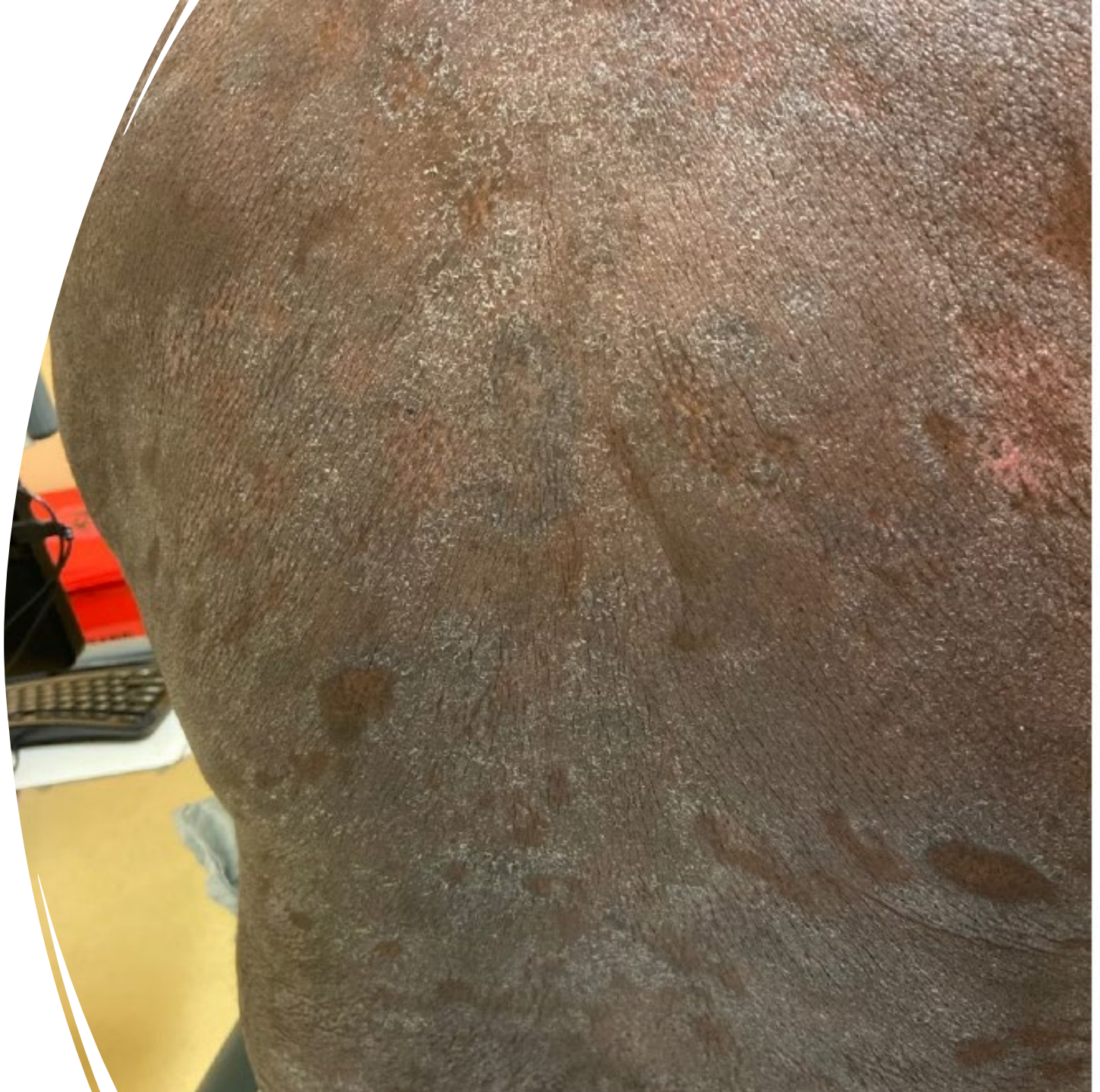
Skin Signs: Case 7



45 yo male with intensely pruritic rash for the past 8 years. Previously diagnosed as tinea versicolor or eczema. Not responsive to topical steroids or topical antifungals. It keeps spreading.

Mycosis Fungoides or Cutaneous T Cell Lymphoma

- Difficult to diagnose
- 0.4 per 100K
- Suspect in bathing-trunk distribution, unresponsive atopic derm or generalized dermatitis
- Progressive
- Refer to Derm when suspect



Pop Quiz:

This itchy vesicular (blistering) rash, usually seen on elbows and knees, is treated with a strictly gluten-free diet:

a) Psoriasis
b) Dermatitis Herpetiformis
c) Lichen planus
d) Atopic Dermatitis

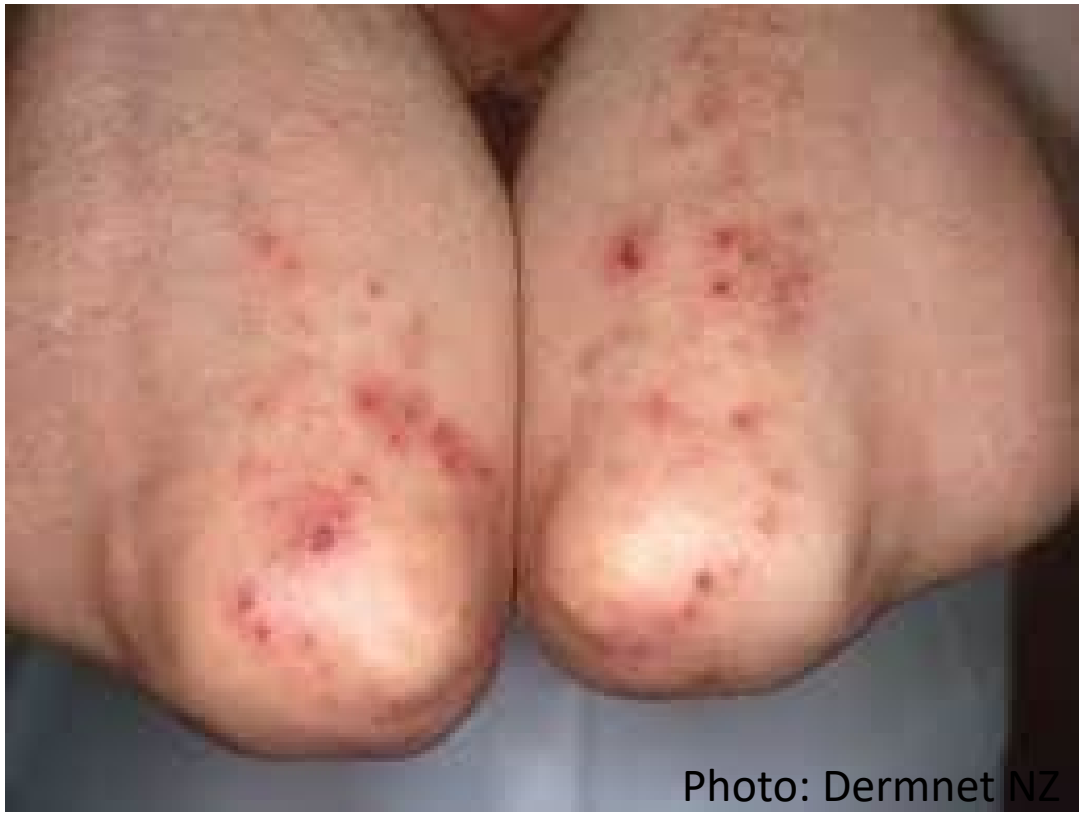


Photo: Dermnet NZ

Skin Signs: Dermatitis Herpetiformis

- Incidence: 1.2-39.2/100K*
- Morphology: pruritic and eroded vesicles
- Distribution: elbows, buttocks, scalp
- Association with: Celiac disease, thyroid autoimmune dz, malignancy (10.9%)
- Ddx: Psoriasis, Linear IgA (refer for w/u and bx)

Photo: Dermnet NZ

*in Northern Europe. This condition more common in persons of N. European descent. (Habif, 2019; Alonso-Llamazares J, Gibson LE, Rogers. 2007)

Skin Signs:
Itchy Patient *without* a primary skin lesion

Chronic Pruritus *without* Primary Rash

CKD, Liver disease with or w/o cholangitis,

Hyperthyroid, Anemia, HIV infection,

Helminthic infection, Iron deficiency,

Polycythemia Vera, Lymphoma,

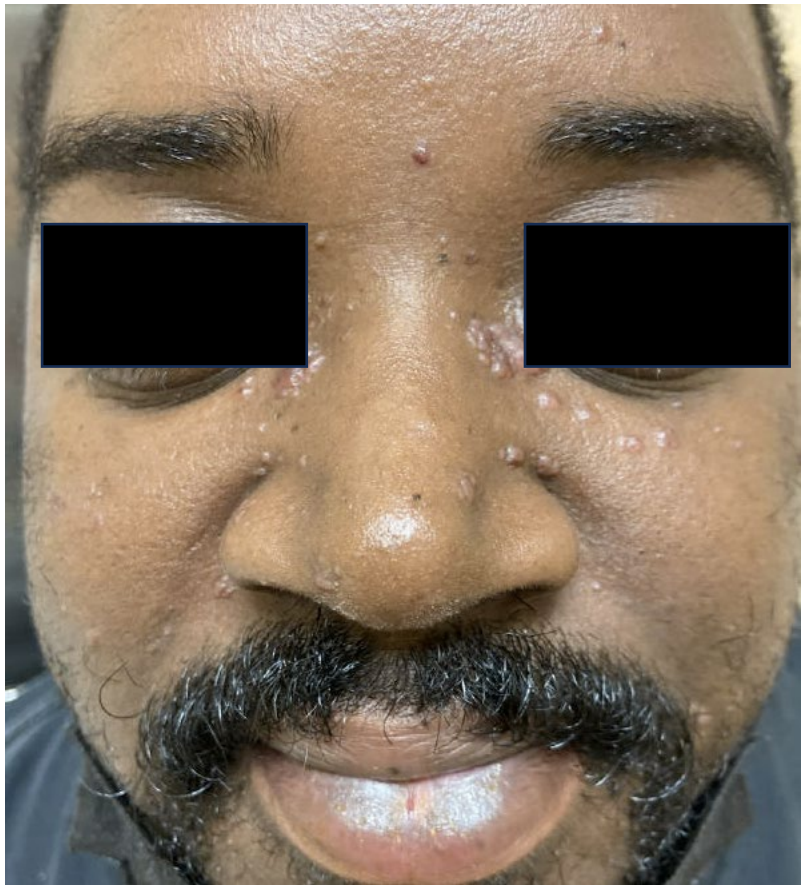
Solid tumors of cervix, prostate, colon, neuropathic itch, neurodermatitis, Carcinoid, Pruritic conditions of pregnancy

Medications: ACE, CCBs, HCTZ, estrogens, statins, allopurinol

Chronic Pruritus *without* Primary Rash

- Don’t panic
- Review HCM, Pmhx, ROS
- Labs: CBC/diff, CMP, CXR, HIV, RPR, TSH, Thy Ab & consider special studies (e.g. stool)
- Medication review: what’s new?
- PE : check for LAD, abdomen for HSM and primary vs secondary lesions
- Update CA surveillance
- Skin biopsy if secondary rash/lesions to rule out primary skin condition

Skin Signs: Case 8



35 yo male with six-month history itchy papules to face

In addition to a skin biopsy, he needs:

a) Chest X Ray

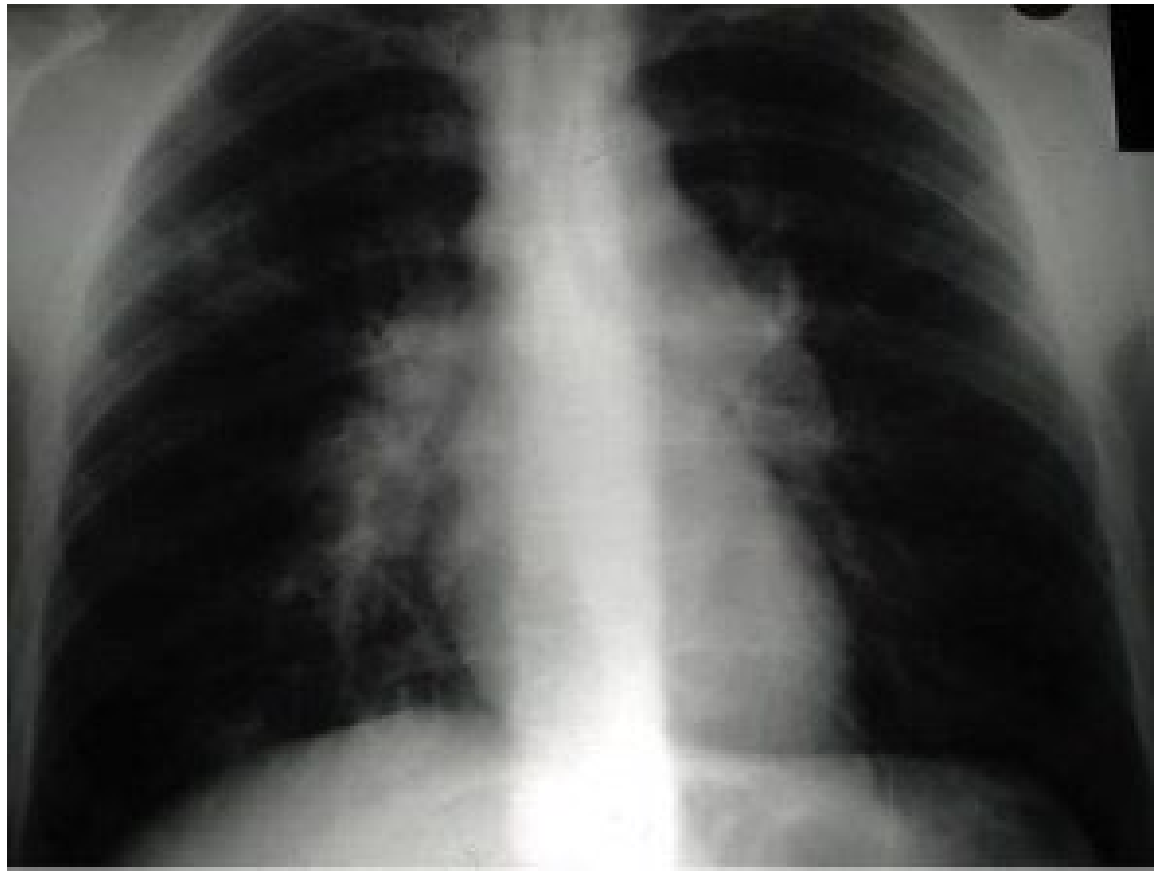
b) Abdominal CT

c) CMP, CBC/diff, HIV, RPR and UA

Skin signs: Sarcoidosis

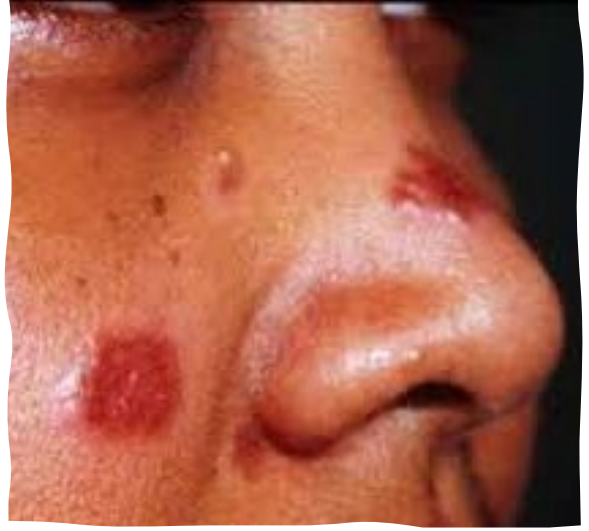
Multisystem granulomatous disease

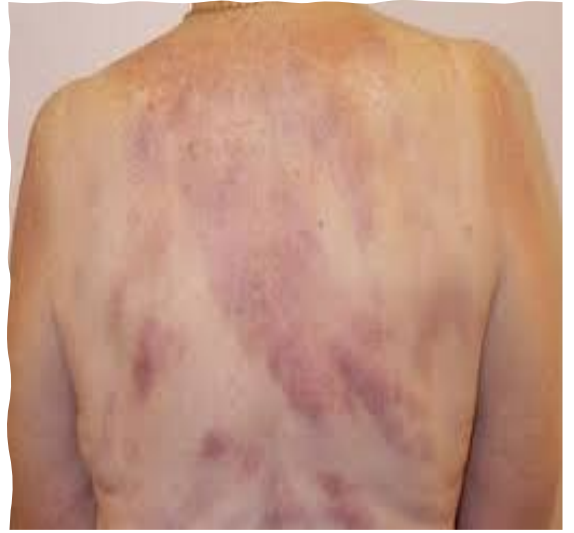
- Incidence is 10.9/100k for Caucasians, 35.5/100k for African Americans
- Skin presentations vary
- 90% with systemic dz involve lungs
- 30% of patients have skin signs
- 30% of patients have ONLY skin disease



Seve et al. (2021)

Skin signs: Sarcoidosis



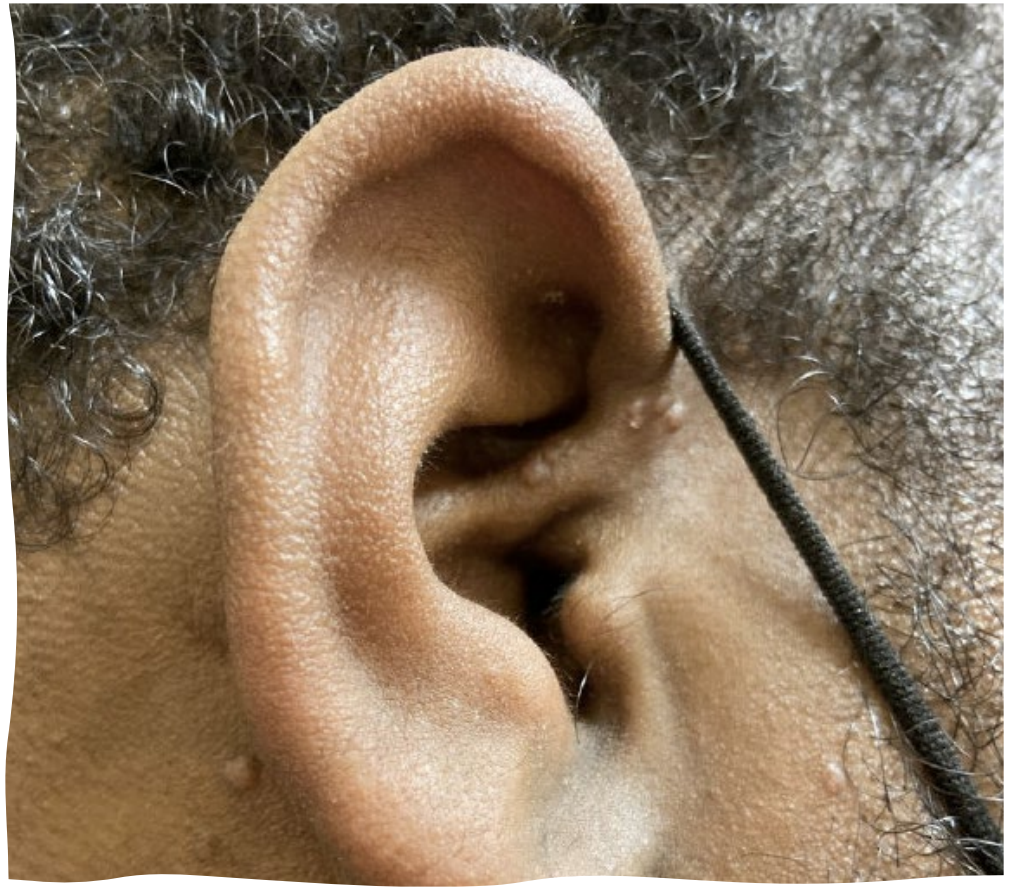


Typical skin lesions can include erythematous plaques and papules

Specific lesion path shows *granulomas*

Non-specific skin findings include erythema multiforme, pernio, calcinosis cutis and itch

Biopsy needed to diagnose skin lesions



Sarcoidosis: Treatment

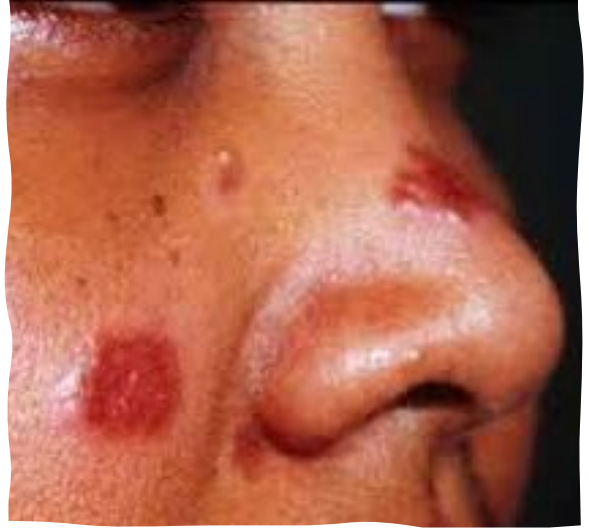
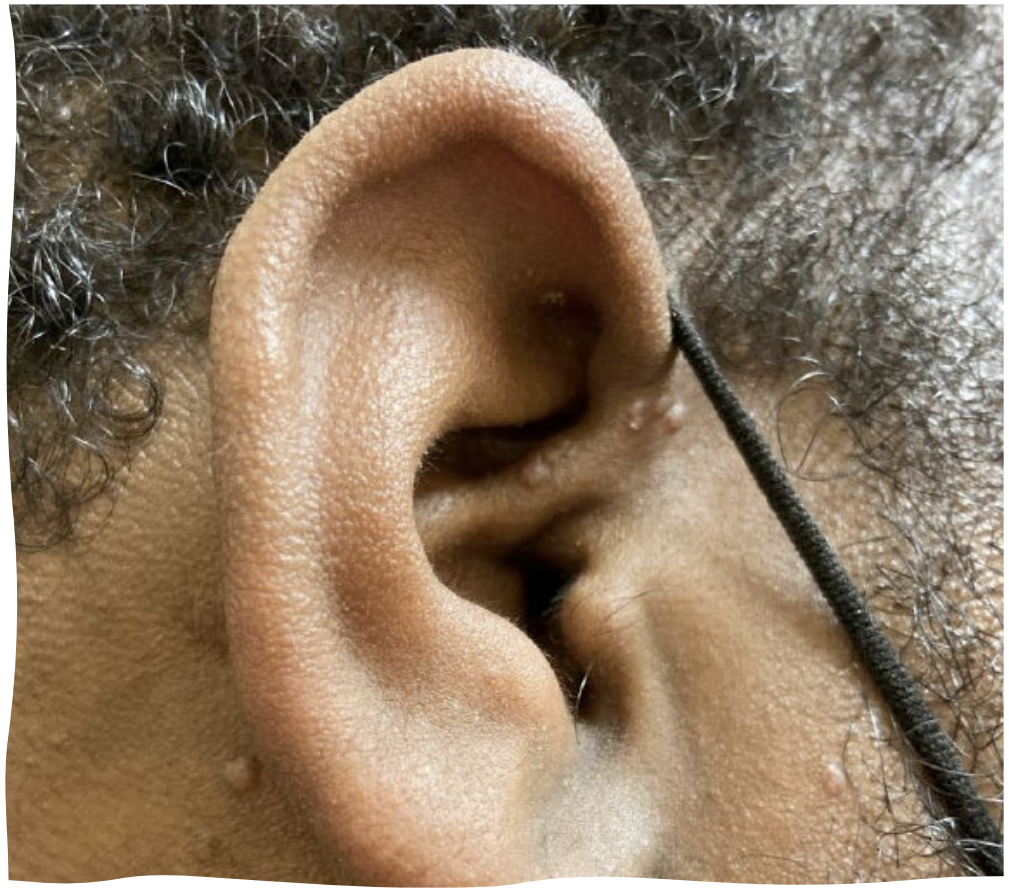


Photo: Dermnet N



Limited to skin: topical and intralesional corticosteroids and steroid alternatives

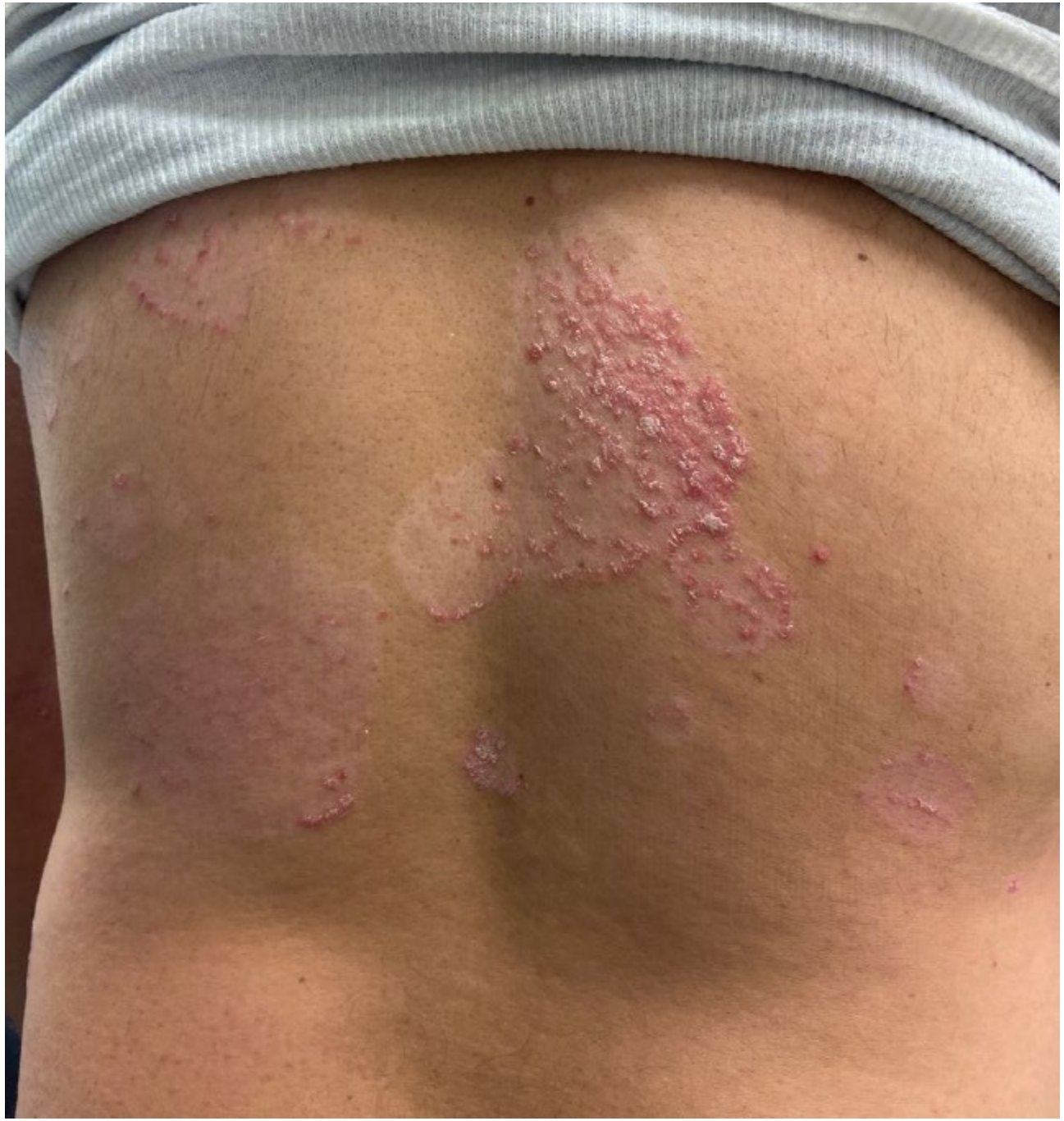
Systemic: Prednisone, Hydroxychloroquine and others

Skin signs: Case 9

50 yo male presents for evaluation of itchy plaques to body for the past two years.

Rash x 5 years but is more severe now than ever. It worsened about 6 months ago.

Here to establish with primary care. Clobetasol has not been helping.



Skin signs: Case 9

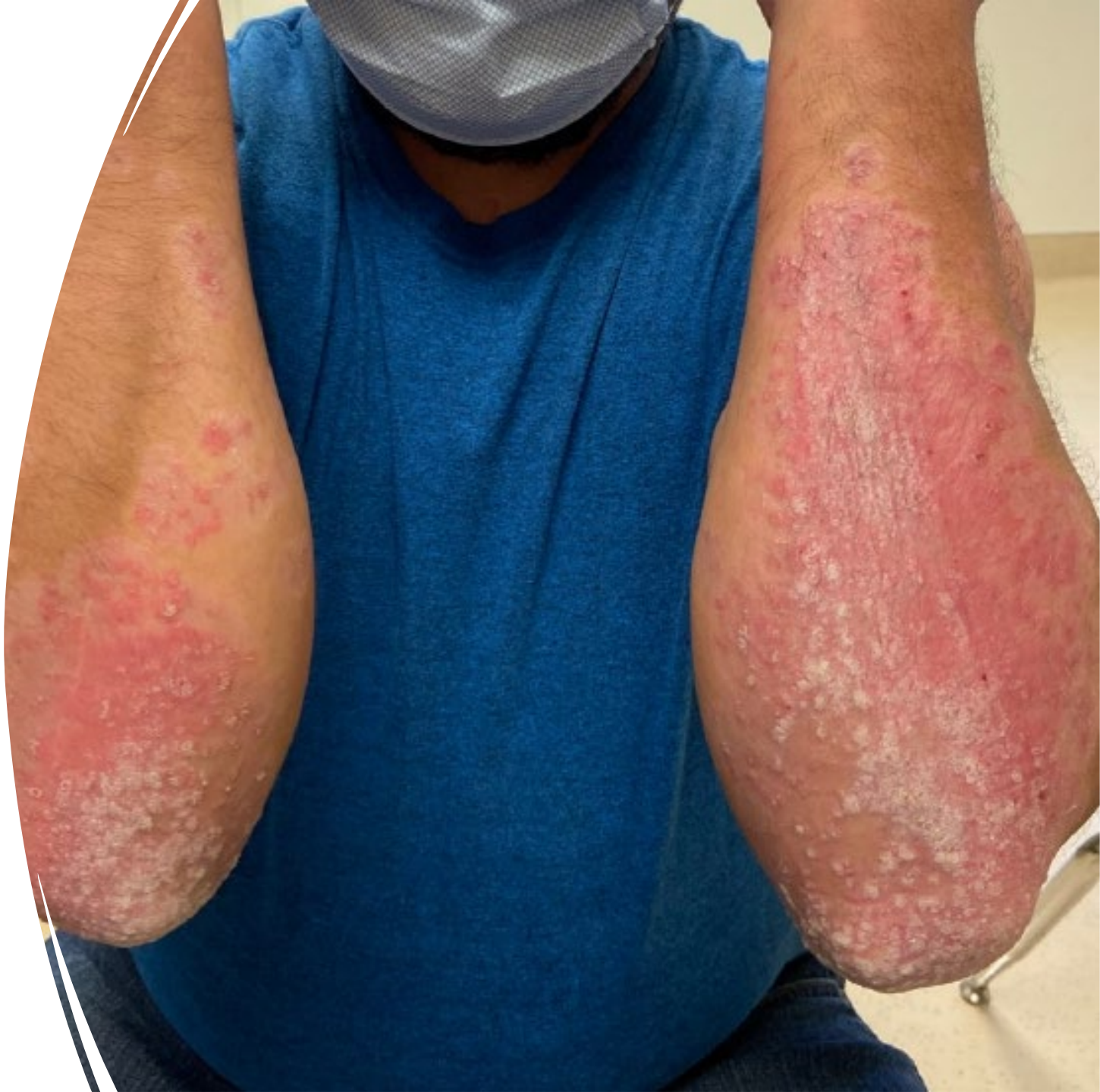
Pmhx: Psoriasis

Labs: Mod transaminitis with AST>ALT, each 2xULN

Social hx: just moved here from the Phillipines to live with family.

His wife died 6 months ago.

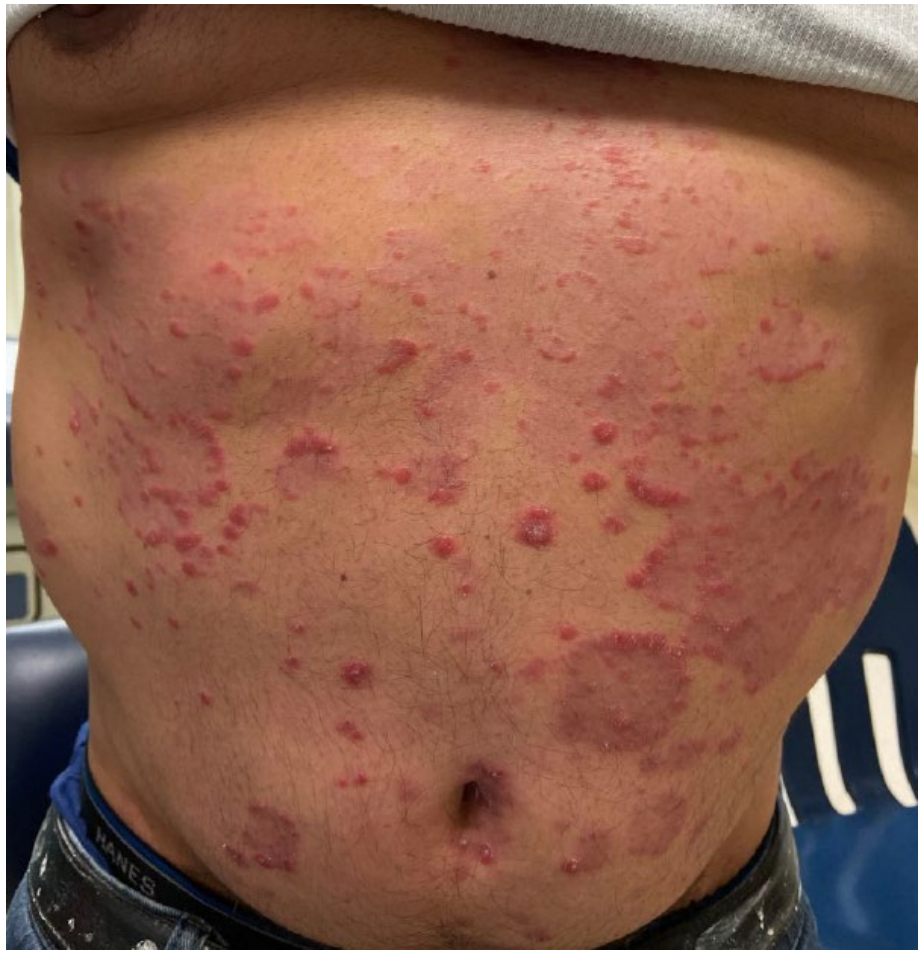
Endorses depression, drinking and smoking “more” prior to moving here.



Skin signs: Psoriasis

As PCP, in addition to psoriasis, you anticipate you will be treating this patient for:

a) ETOH w/possible liver damage
b) Cardiovascular disease
c) Undiagnosed malignancy
d) Both a and b



Skin signs: Psoriasis

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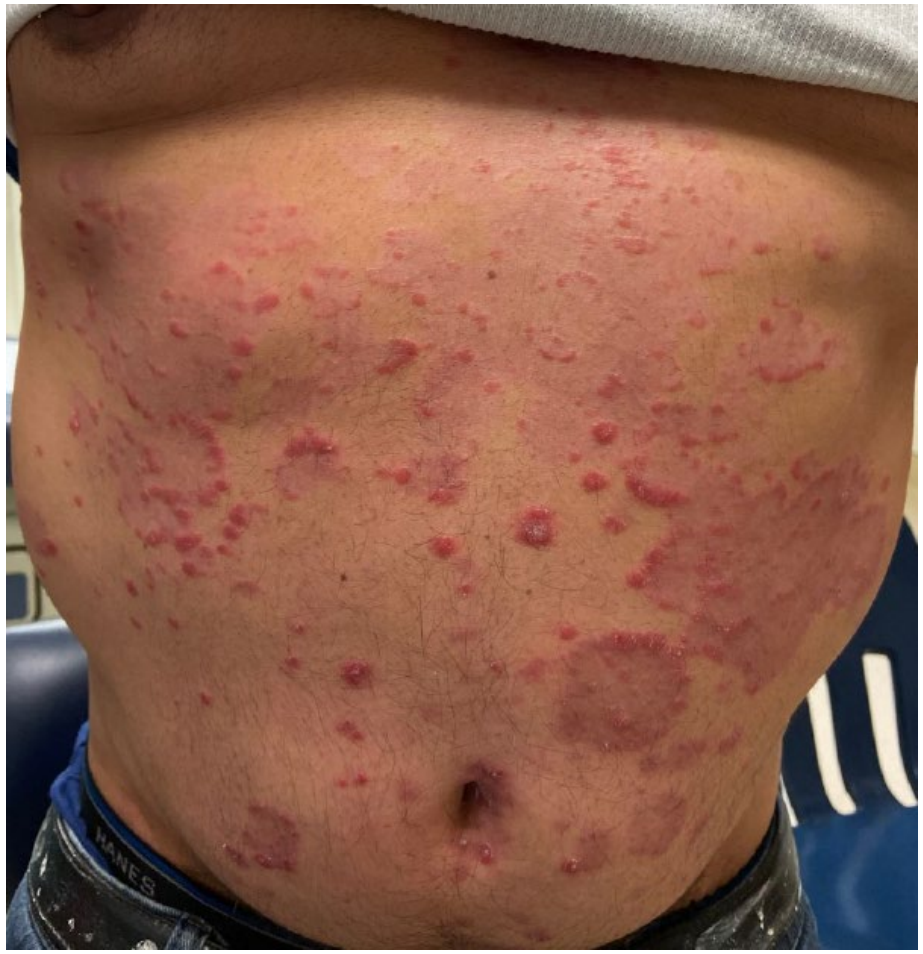
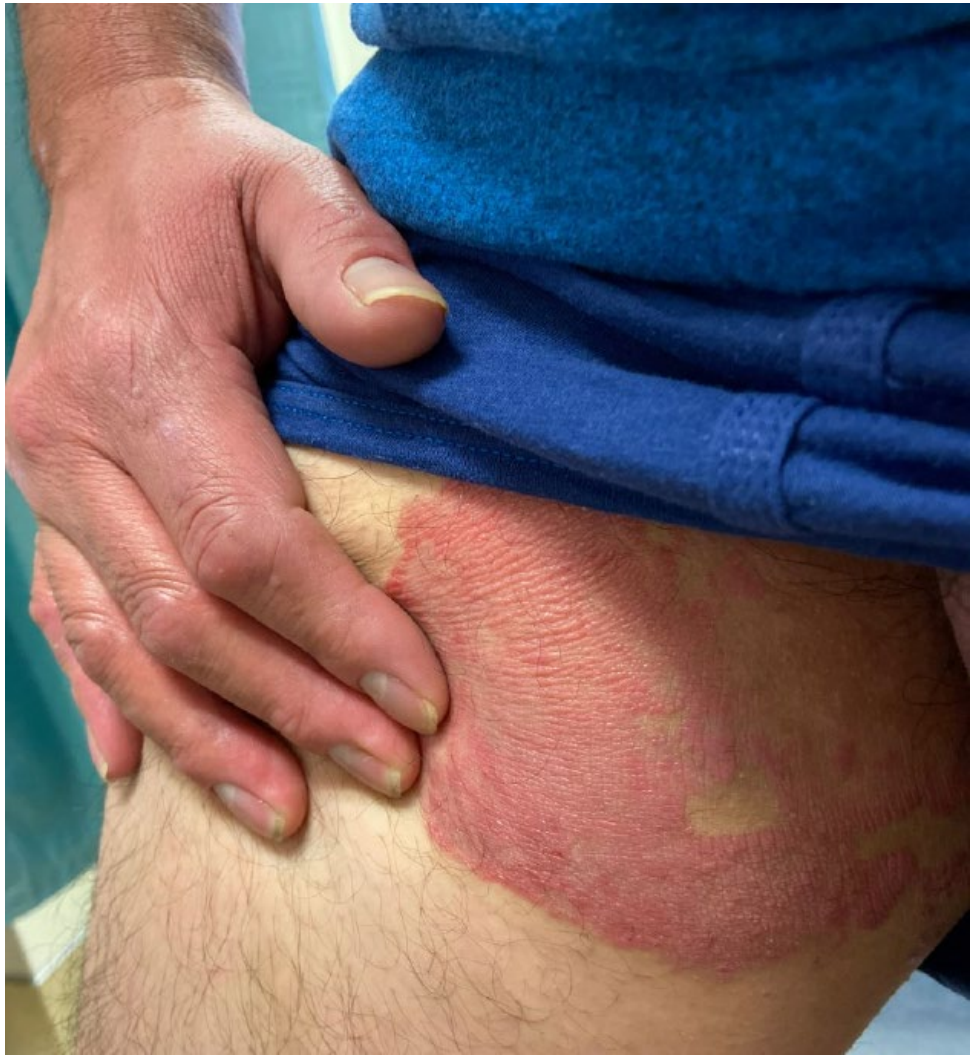


Skin signs: Psoriasis

Immune-mediated inflammatory disorder of the skin

Associated conditions:

- cardiovascular disease
- alcohol abuse
- metabolic disease
- depression



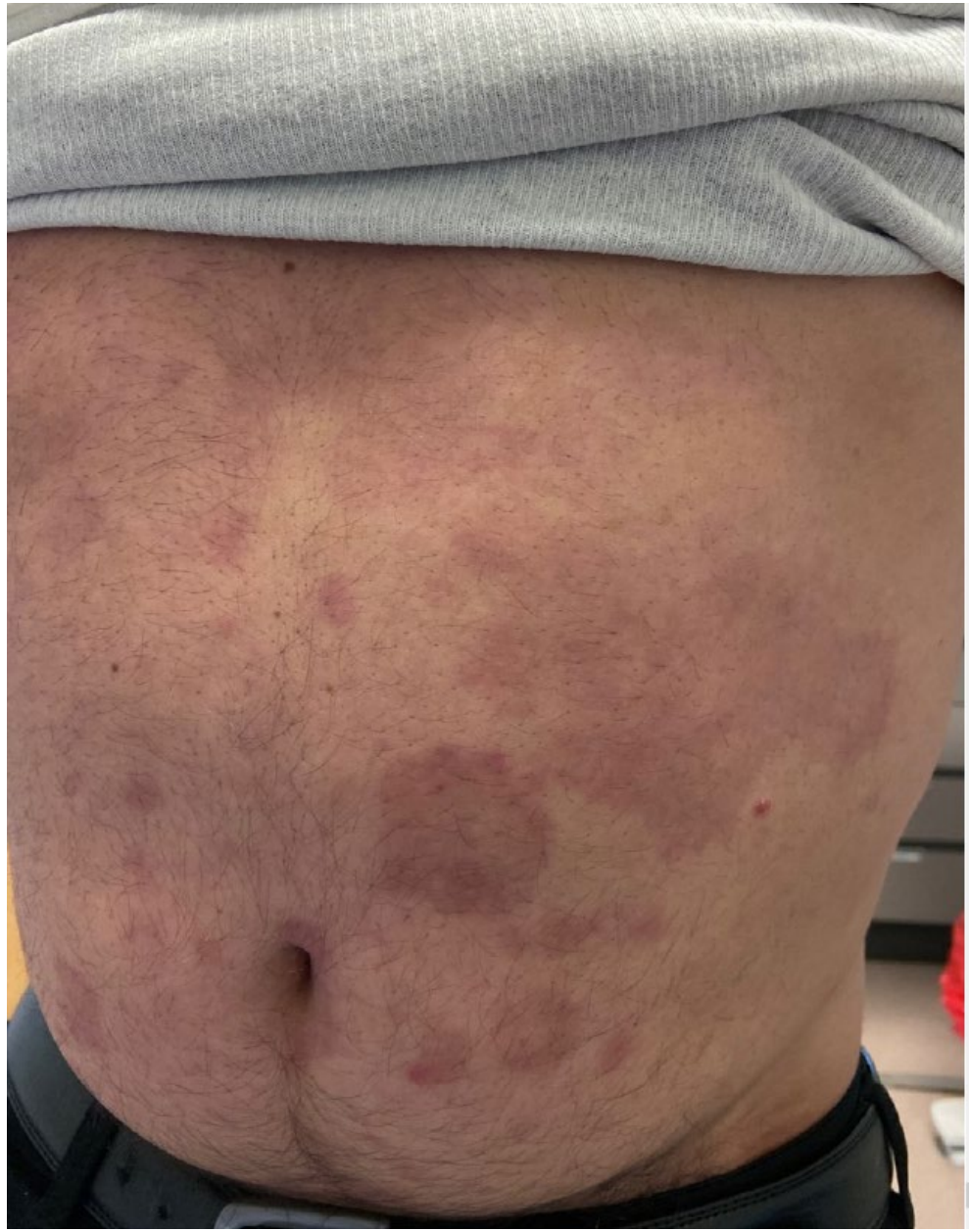
Skin signs: Psoriasis

Pt presents to Dermatology 4 weeks later for possible start of systemic medications……

But he was rapidly clearing on topicals

He stopped drinking on arrival to the US

By 3 months, 100% clear. Now on Prn topicals not requiring routine dermatology visits.

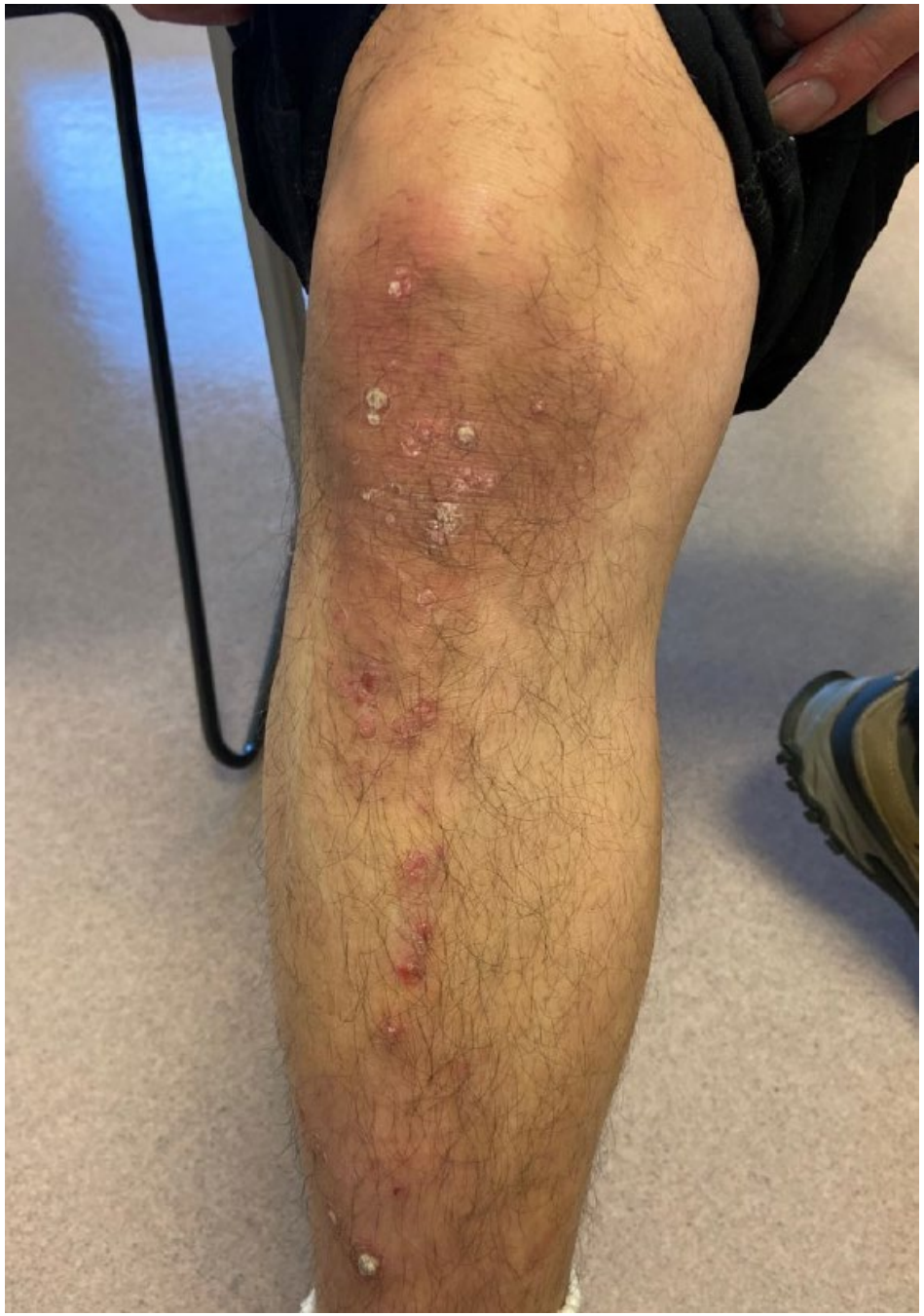


Skin signs: Psoriasis

Screen for Joint Pain/Swelling (PsA)

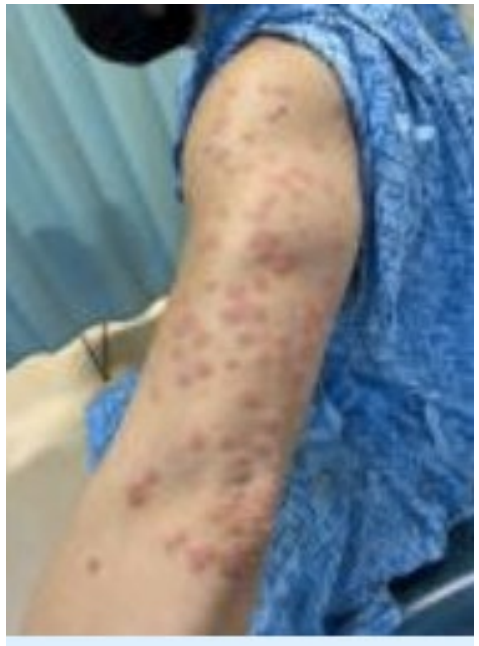
- Cardiovascular disease
- ETOH
- metabolic disease
- encourage smoking cessation

Consider: Lipids, BP, A1C, eye exams, AUDIT



Psoriasis and Group A Strep

- This is guttate psoriasis (“raindrop”)
- Strep infection is common trigger
- More commonly seen in younger patients
- May precede chronic psoriasis but can go dormant for years or never recur
- Consider throat PCR vs definitive culture and tx if positive



Case 10: Tender plaques to BLE

45 yo female with rapid onset painful plaques on lower legs

Associated with swelling
No significant pmhx
Takes NSAIDs prn pain
No hx of this prior

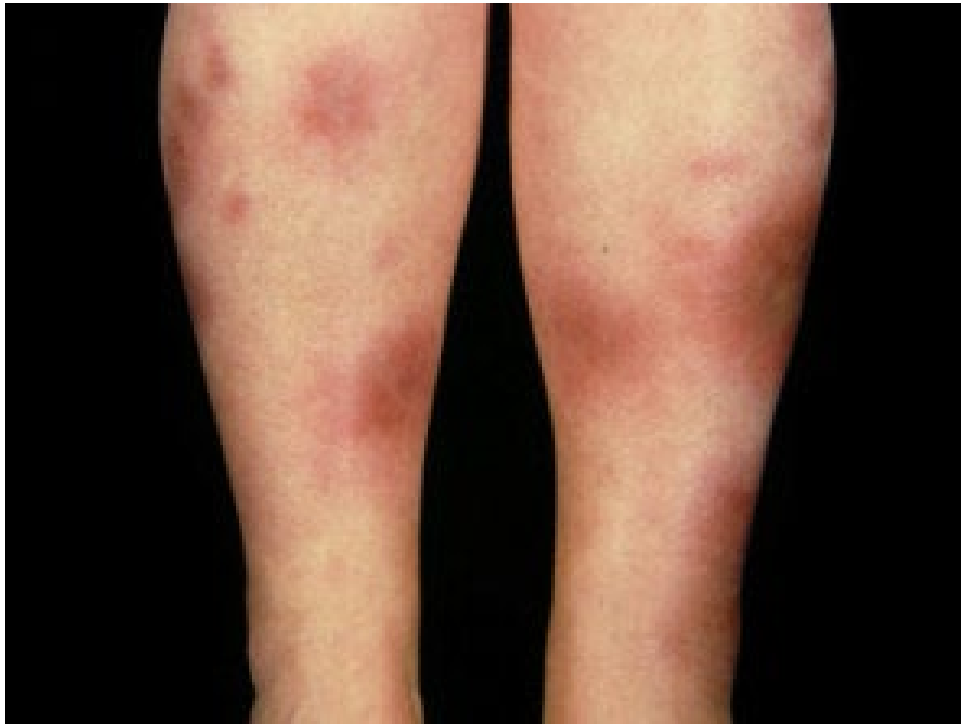


Photo: Dermnet NZ

Case 10: Erythema Nodosum

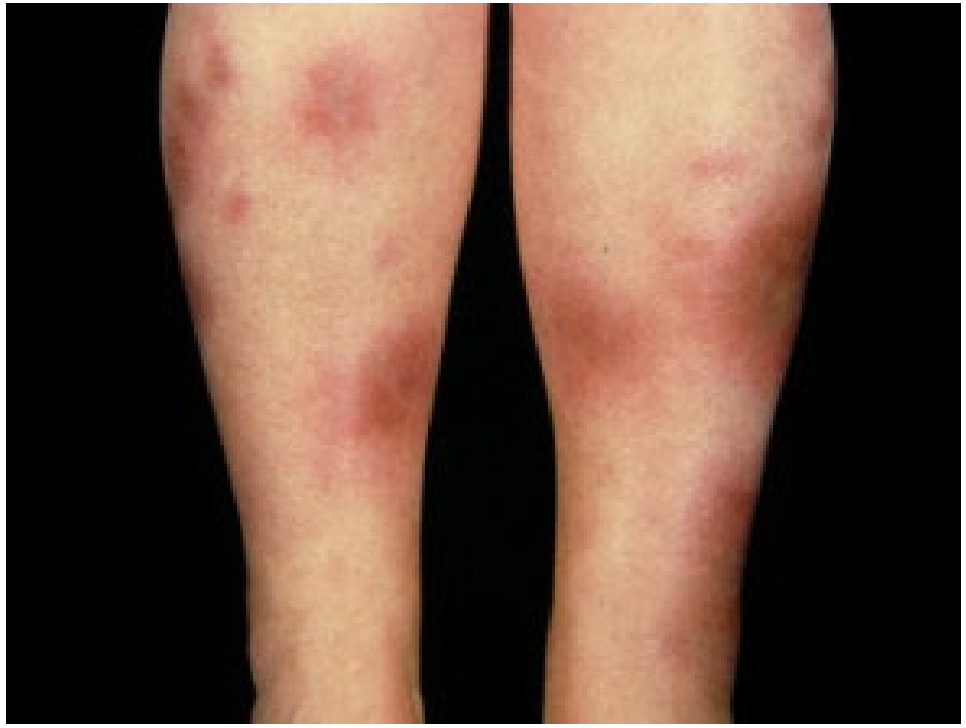


Photo: Dermnet NZ

- Incidence 52:1 million
- 5:1 female to male
- Most common panniculitis
- Inflammation of the subcutaneous fat
- Etiology usu idiopathic BUT r/o infection/underlying disease
- Often self-limited, 2-6 wks

Case 10: Erythema Nodosum

Rule out Potential causes:

- Infection: Strep, TB, other (coccidio, Covid)
- Autoimmune: Sarcoidosis, inflammatory bowel dz, Beçhet's
- medication: oral cx, sulfonamides, bromines
- Vaccination trigger
- Malignancy

Follow algorithm for efficient workup: get a history!

Erythema Nodosum: Treatment

Compression

NSAIDS, Colchicine

SSKI: supersaturated potassium iodide

300-900mg daily (caution thyroid dz)

Dapsone if refractory, chronic

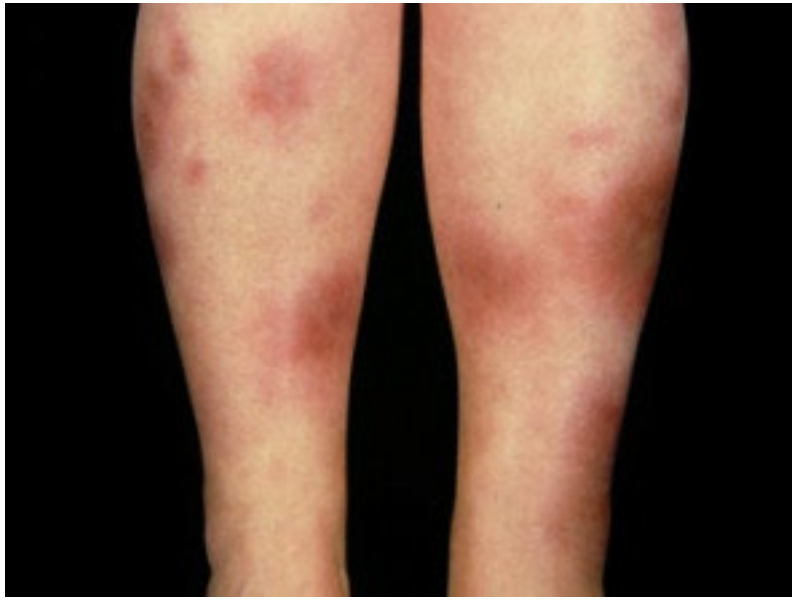
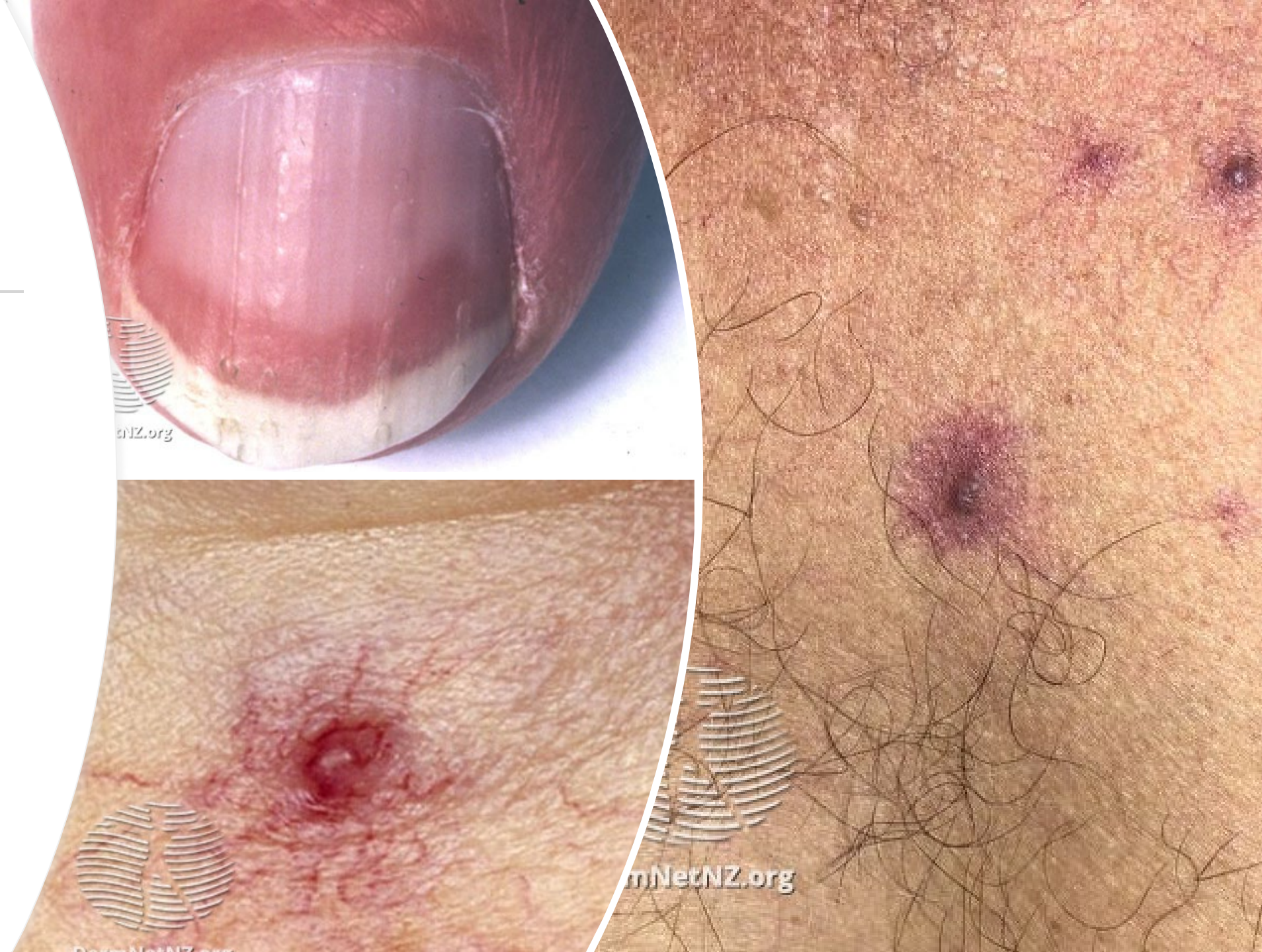


Photo: Dermnet NZ

Skin Signs: Case 11

56 yo male presents to clinic to establish care.

You note *many* telangectasias to his face and upper chest, with central papules, as well as white discoloration of 10/10 nails



Skin Signs: Case 11

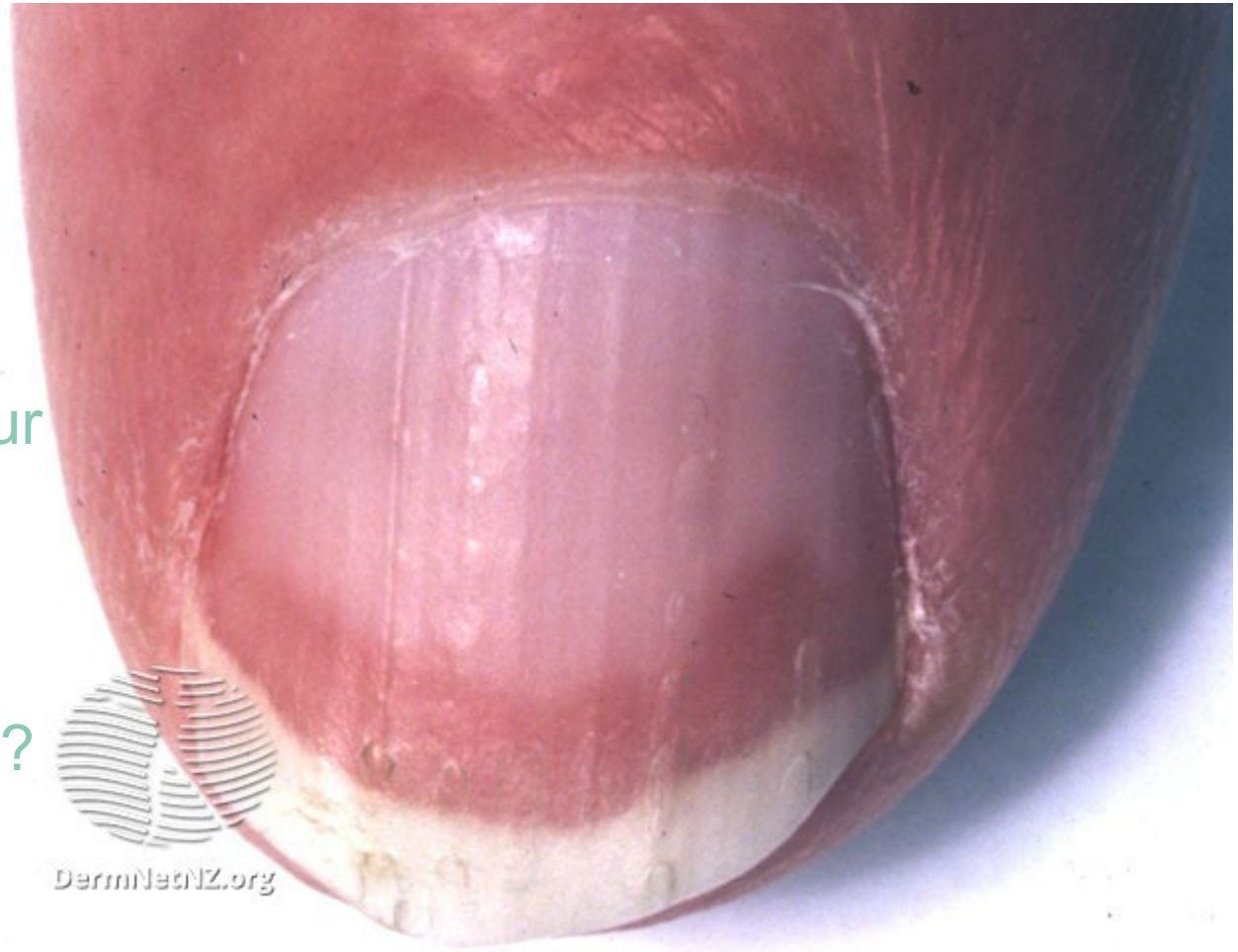
As part of your history you inquire:

a) Do you have any liver problems?

b) Do you take medication to thin your blood?

c) Do you have any breathing problems?

d) Do you have a history of psoriasis?



Skin Signs: Case 11

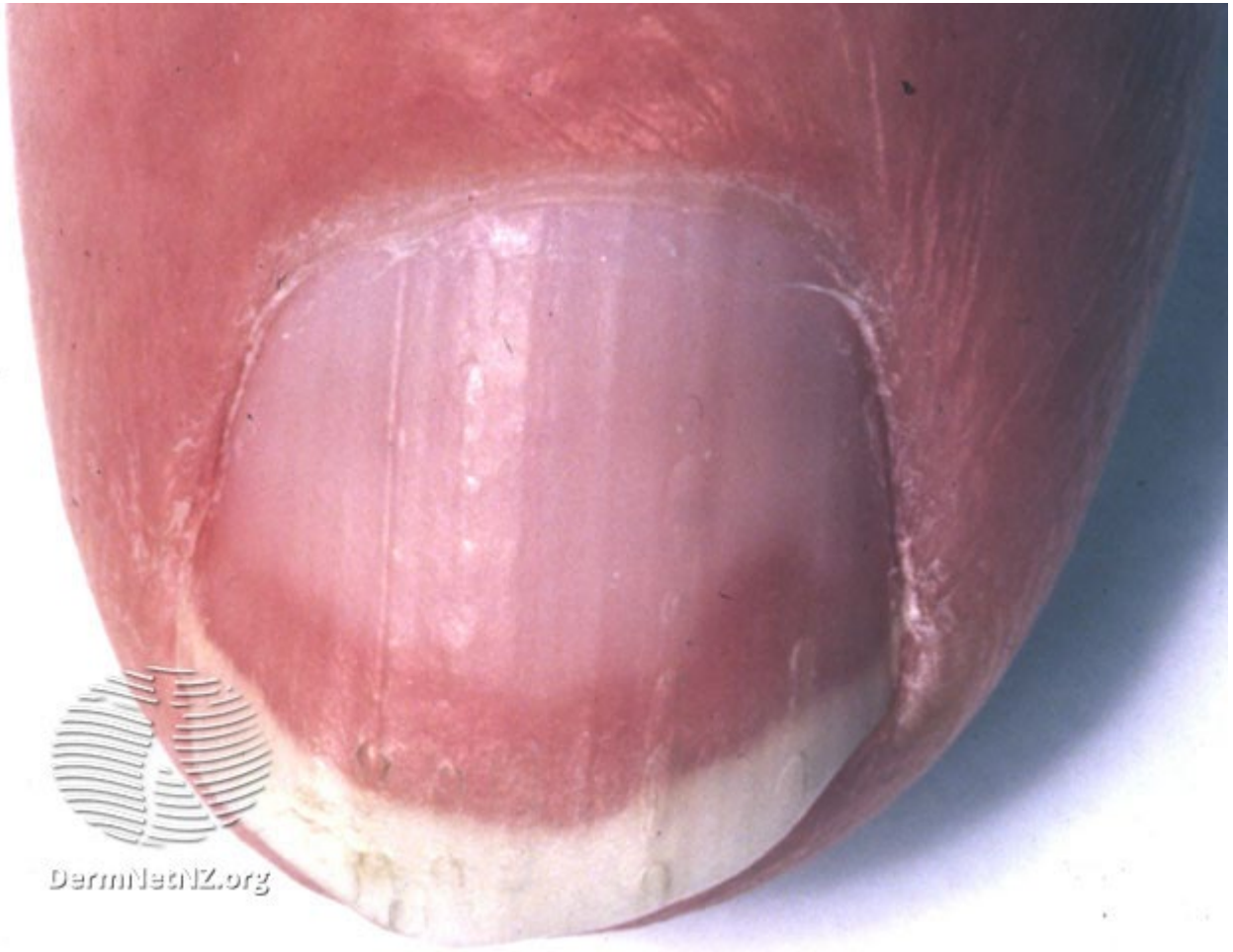
As part of your history you inquire:

a) **Do you have any liver problems?**

b) Do you take medication to thin your blood?

c) Do you have any breathing problems?

d) Do you have a history of psoriasis?



Skin Signs: Cirrhosis of the Liver

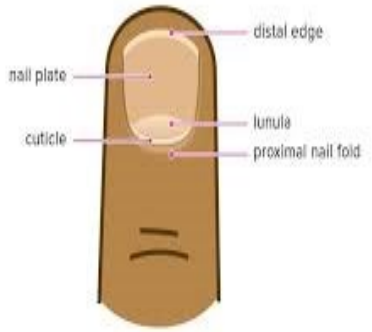
Skin signs of cirrhosis:

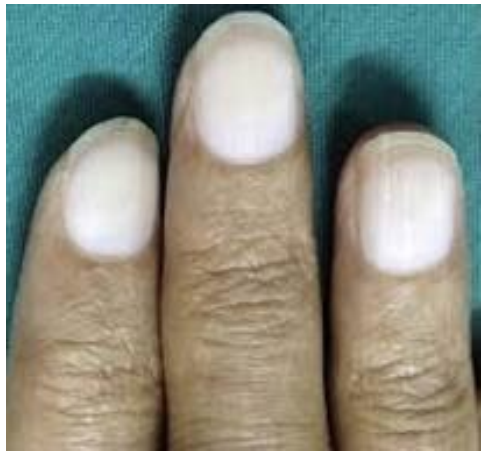
Multiple Spider Telangectasias

Terry's Nails

Rosacea or Rhinophyma

Consider: LFTs, CBC, RUQ U/S, AUDIT





Terry's nails – note elongation of lunula with minimal nail plate visible

Nail diagram courtesy healthline.com

Skin Signs: Case 12

You're working in the ED when an ill-appearing woman presents with fever of 103F and SOB.

During your initial exam you note splinter hemorrhages to *several* fingernails.

Skin Signs: Case 12

Photo: DermnetNZ

And…..

A tender nodule over the PIP of right index finger

Skin Signs: Case 12

You're concerned about:

a) Rocky mountain spotted fever

b) Infective endocarditis

c) Her nail-biting habit

d) Pulmonary embolism

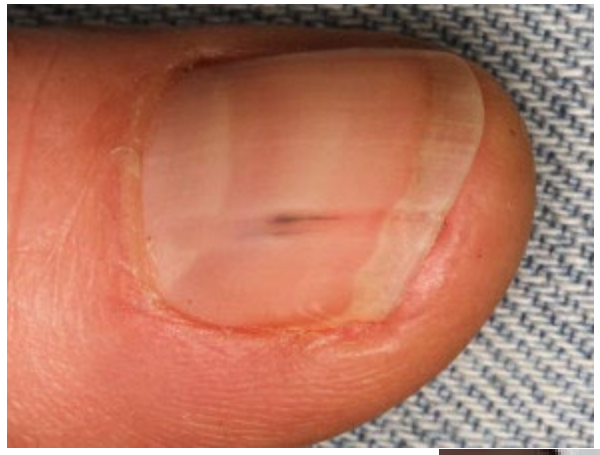
Skin Signs: Infective Endocarditis

Present in 5-15% cases IE – may be underreported

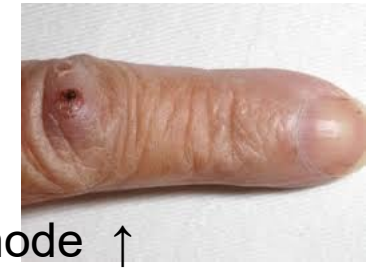
Osler Nodes: pain precedes tender nodules over fingers/toes. Last hours to days then recede

Janeway lesions: later in disease, hemorrhagic or erythematous macules or nodules to digits and palmoplantar surfaces, nontender. Do not compress/blanch

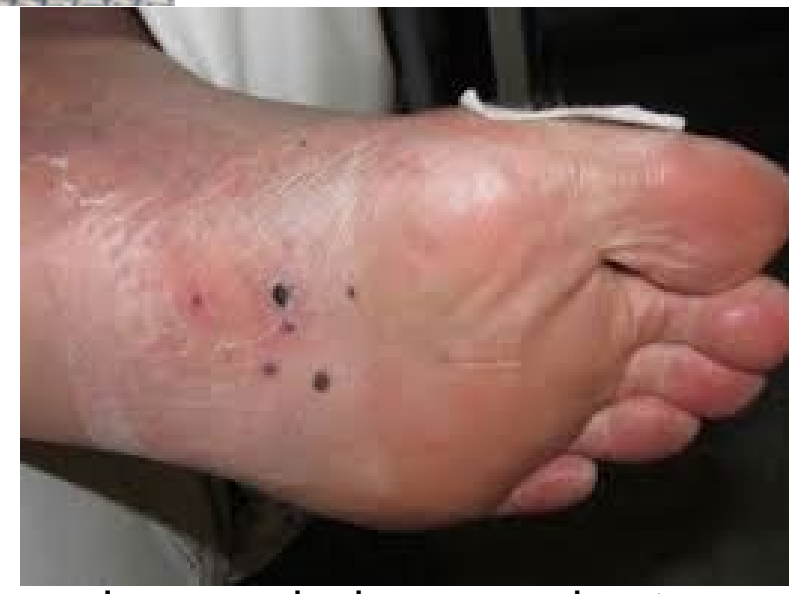
(Gomes et al 2016)



←splinter hemorrhages



Osler node ↑



Janeway lesions on soles ↑

Photos: DermnetNZ

Photo Quiz

This nail deformity indicates compromise to what system?

a) Cardiovascular
b) Hepatic
c) Endocrine
d) Pulmonary

Skin Signs: Pop Photo Quiz

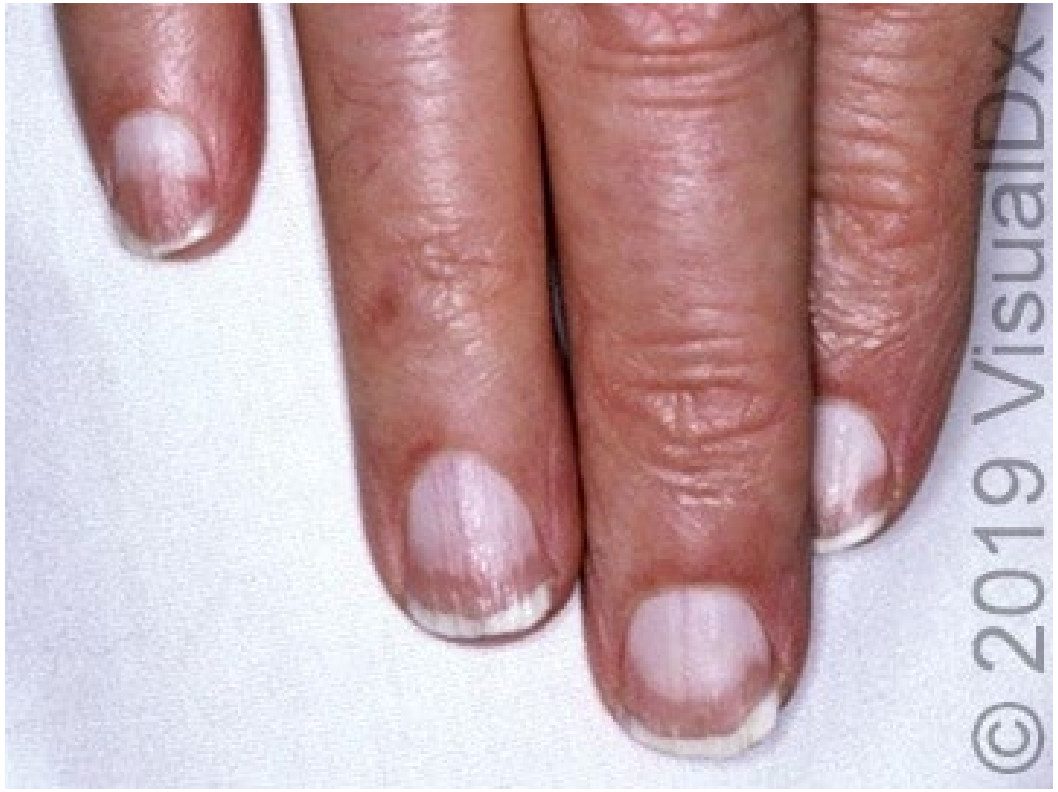
This nail deformity indicates
Compromise to what system?

a) Cardiovascular
b) Hepatic
c) Endocrine
d) Pulmonary ←

”Clubbing” due to respiratory compromise

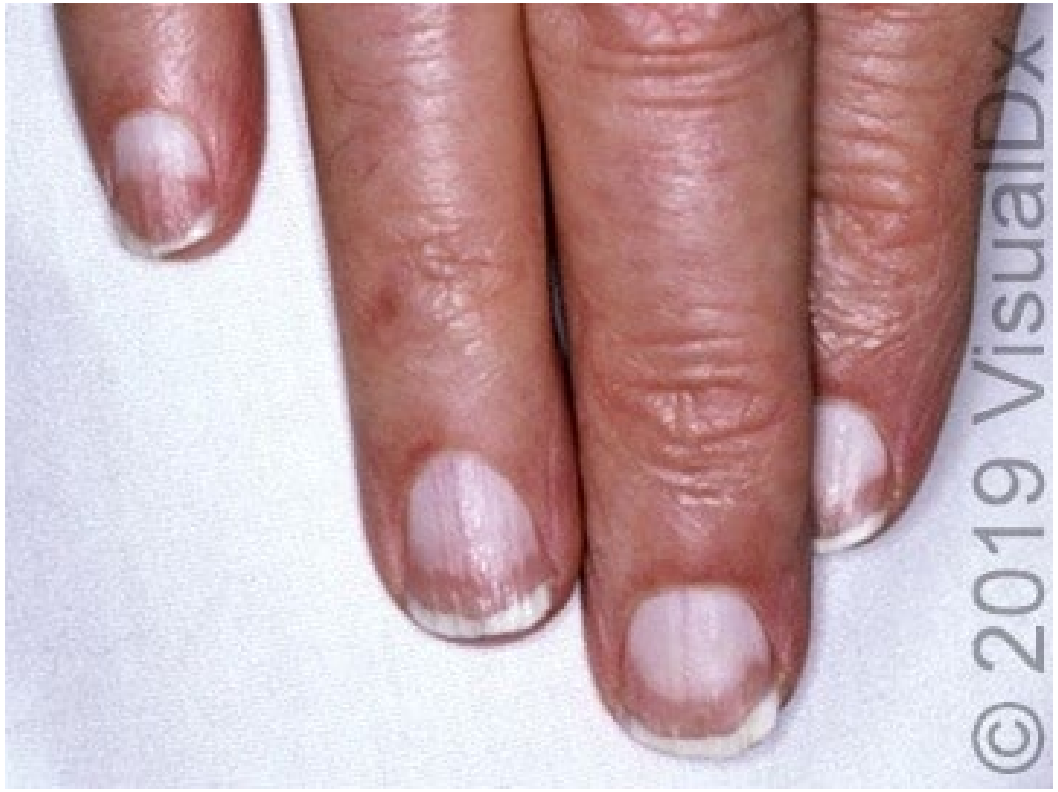
Photo Quiz

These nails are associated with what underlying condition?



a) Advanced Renal Disease
b) Hepatocellular Carcinoma
c) Anemia
d) Vitamin D Deficiency

Photo Quiz: Half and Half or ”Lindsay Nails”



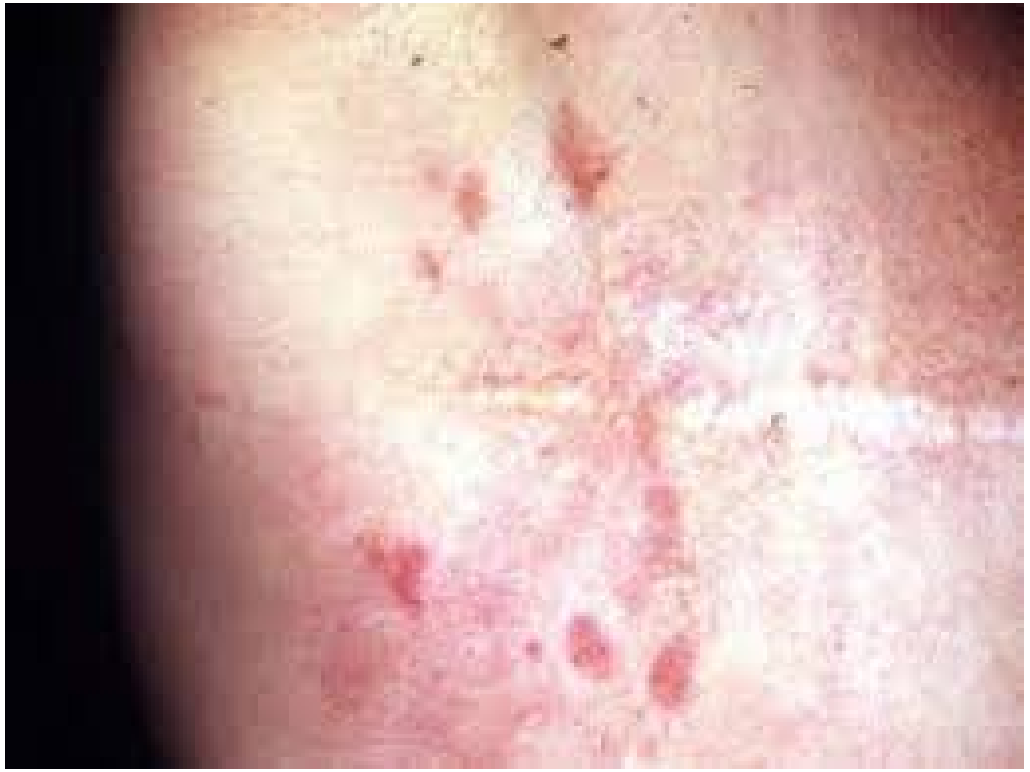
a) Advanced Renal Disease
b) Hepatocellular Carcinoma
c) Anemia
d) Vitamin D Deficiency

Pink or erythematous distal band and opaque or white proximal nail

Don’t resolve w/dialysis, may resolve with transplant

Skin signs: Case 13

75 yo male with history of NSC Lung cancer presents for oncology followup. He noted six reddish papules to his chest that are firm and tender.



Skin signs: Cutaneous Metastases

Occur in approximately 3-10% of malignancies

Most often seen with:

Melanoma – adjacent to prior site or distant

Lung Cancer – erythematous firm nodules to chest

Breast Cancer – axilla, chest wall or abdomen

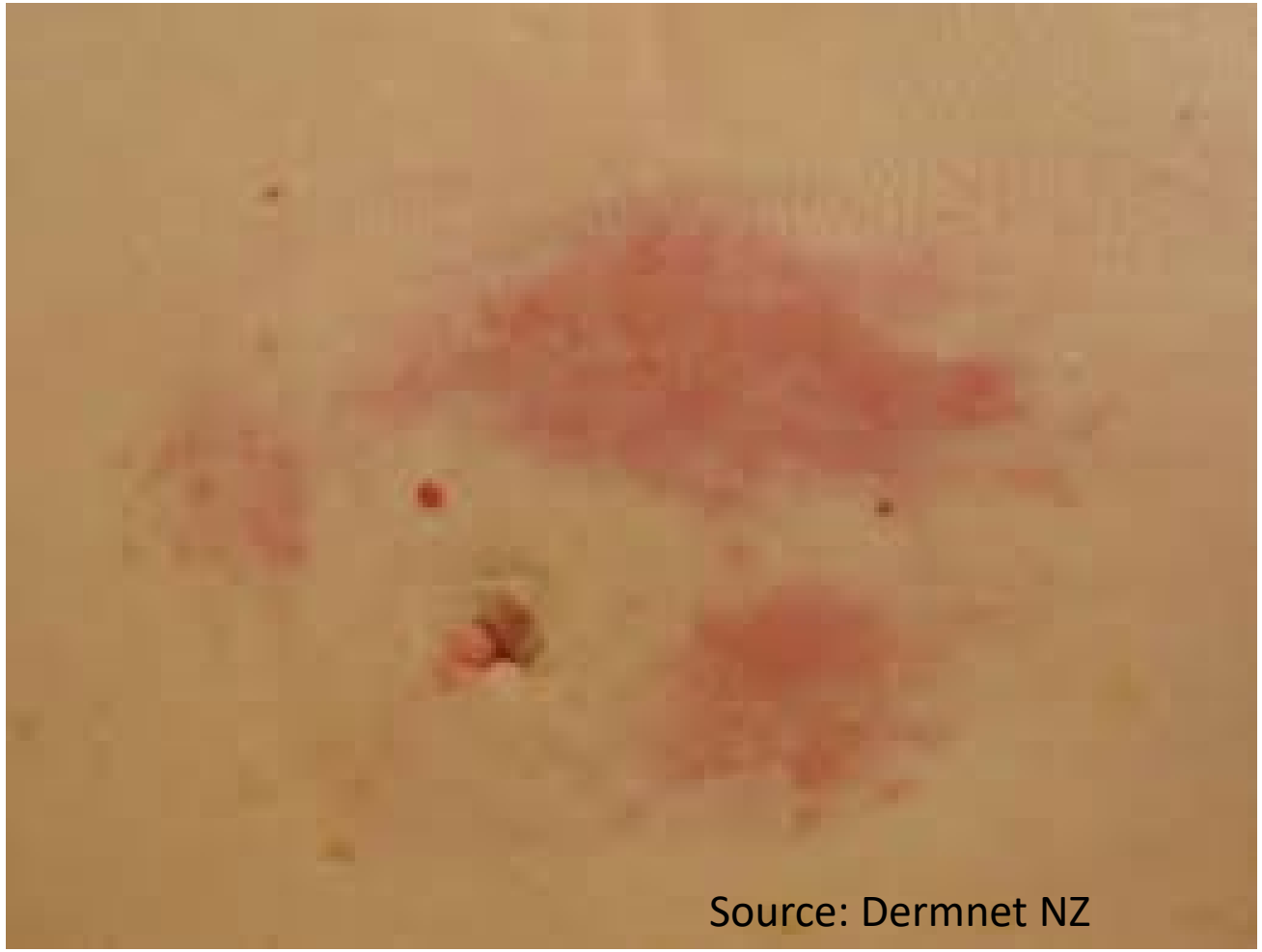
Colorectal – periumbilical

→ Suspect lesions NEED PUNCH BIOPSY

Sister Mary Joseph Nodule

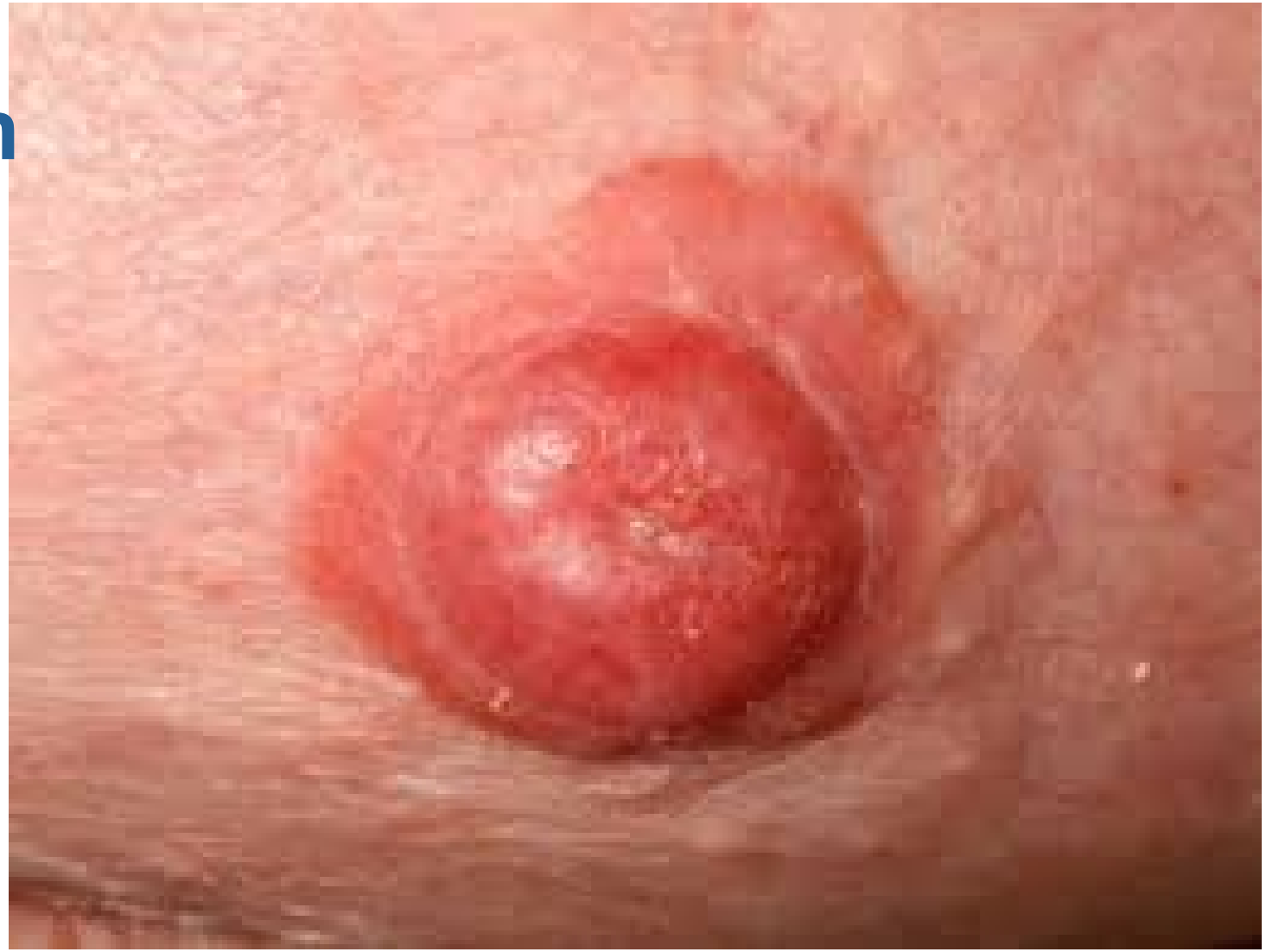
- Periumbilical papules
- First sx in 25%
- Gastric, Colon, Ovarian, Pancreatic malignancy
- 15% too advanced for primary
- Poor prognosis

Action: biopsy and tumor marker (e.g. CEA)



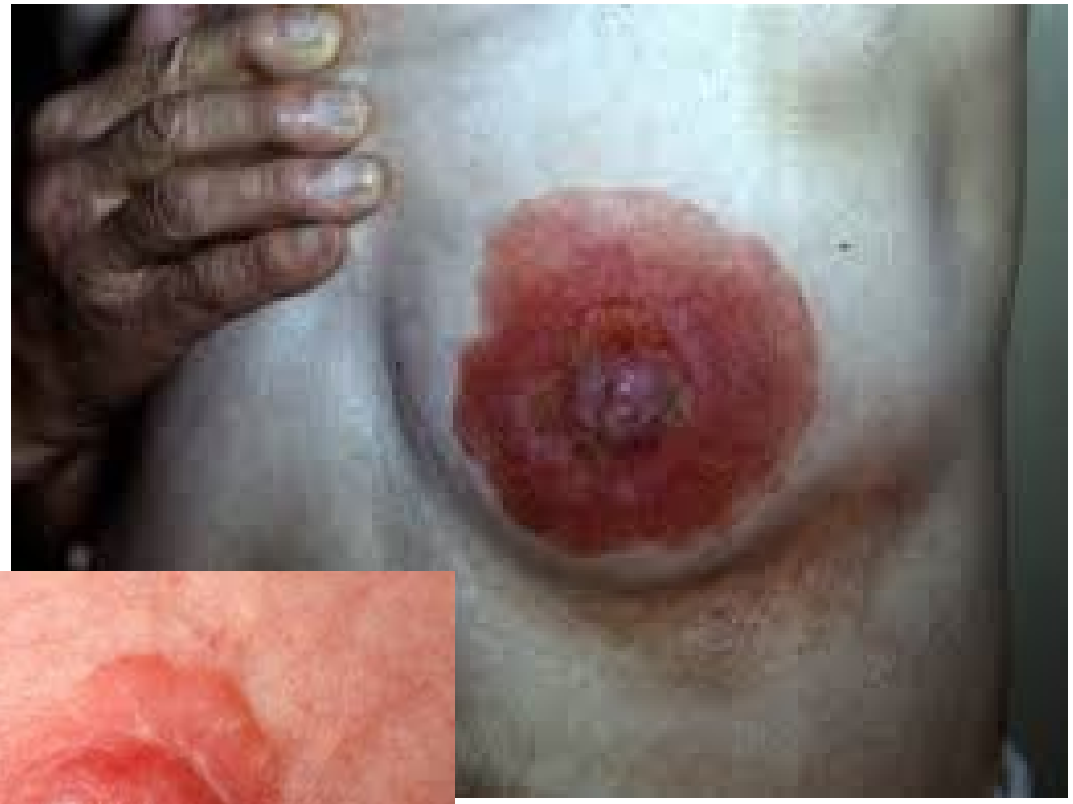
Case 14:
65 yo female with nipple rash

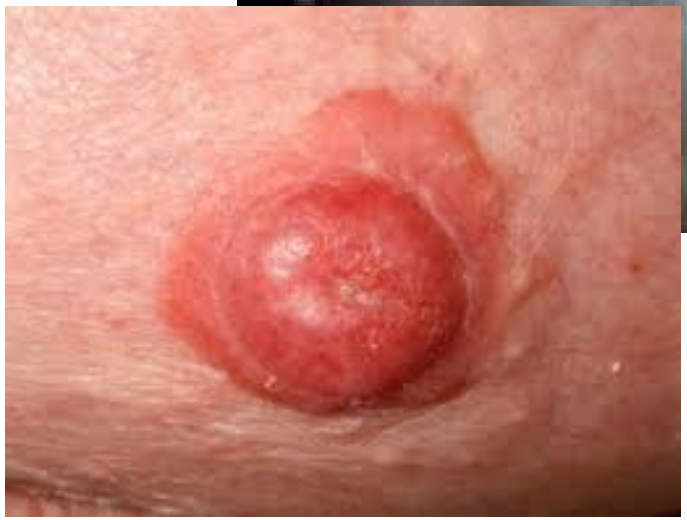
- Itchy rash to left nipple x 6 months
- No personal hx eczema
- Unresponsive to 1 mo trial hydrocortisone 2.5% crm



Skin Signs: Paget's Disease of the Breast

- Erythematous
- Scaling
- Well-demarcated
- May ooze and crust
- Unilateral
- Pruritic
- Needs biopsy (punch)

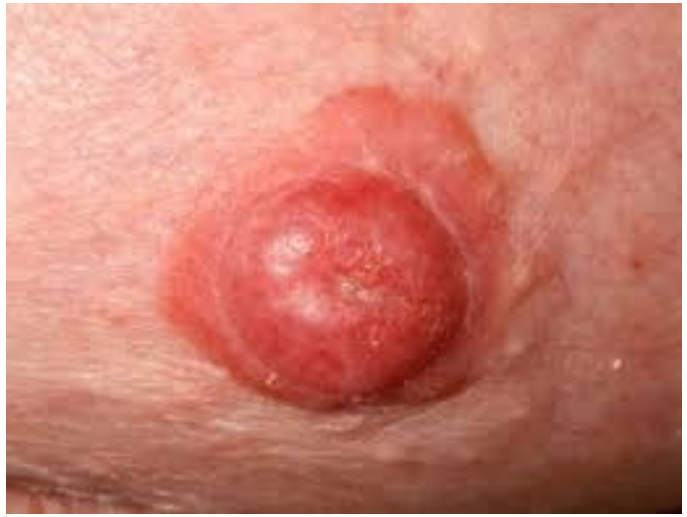




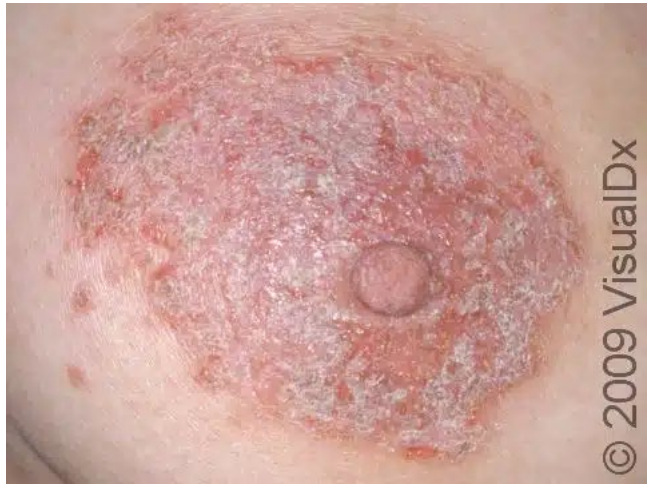
Photos: DermnetNZ

Paget's Disease

- Rare malignancy, assoc w/DCIS*
- Breast or extra mammary disease
- Incidence: 1-4% of breast cancer presentations
- Postmenopausal females, v rare in males
- Caucasian heritage more common
- Next steps – oncology and imaging



- Ddx: eczema of the nipple (common)→
  - Bilateral
  - Pruritic



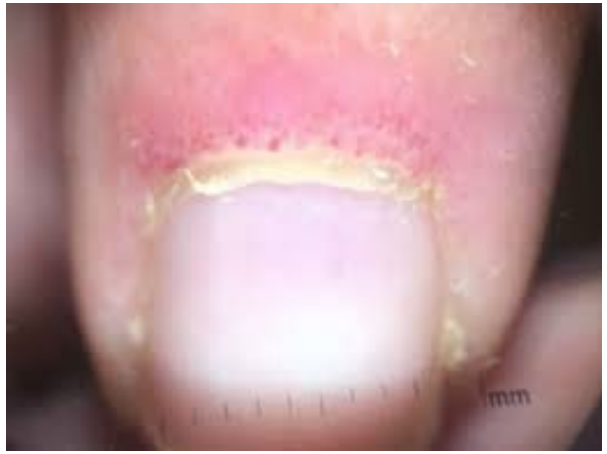
*Ductal Carcinoma in Situ

Skin signs: Summary

The skin is a window into your patient's overall health.
Use it in conjunction with your history, overall exam and labs

Be on the lookout for signs that clue you in to
vascular, endocrine, infectious, auto immune conditions or malignancy

Your recognition and action on these signs can have a
Profound impact on the health of your patients.



THANK YOU

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