

Dermatology 101 Review

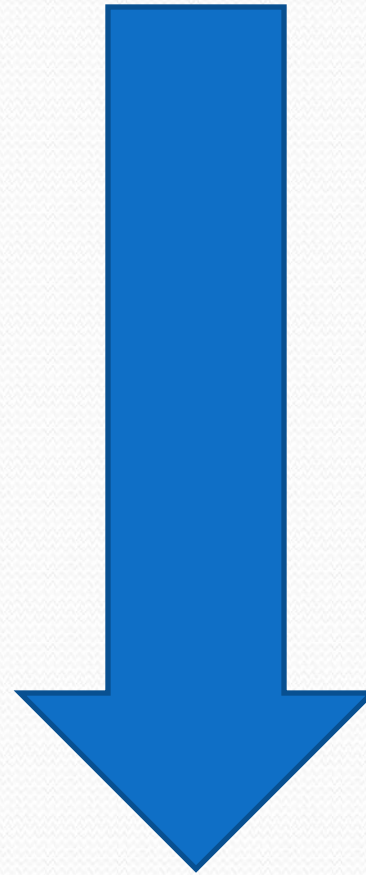
Brenda Shinar, MD, FACP

Your description

- Location/Distribution
- Size/Configuration
- Border (Well-marginated/Poorly marginated)
- Color
- Morphological term
- Secondary Characteristics
- Example
 - On her right flank, there is a 1.5 cm well-marginated erythematous plaque with thick adherent silvery scale.

Steroid potencies

- **MILD**
 - **Hydrocortisone 0.5-2.5%**
- **MODERATE**
- (2-25 times as potent as hydrocortisone)
 - **Triamcinolone acetonide (Kenalog-inj and generic-top)**
- **POTENT**
- (over 100 times more potent than hydrocortisone)
 - **Fluocinonide (Lidex)**
- **VERY POTENT**
- (up to 600 times as potent as hydrocortisone)
 - **Clobetasol propionate (Temovate)**



Low
To
High

Vehicles

- The vehicle is also an important factor in the strength of your topical steroid
- OINTMENT > CREAM > LOTION
- *Any of the above under occlusion (ex. wet dressing) will make them stronger as well.

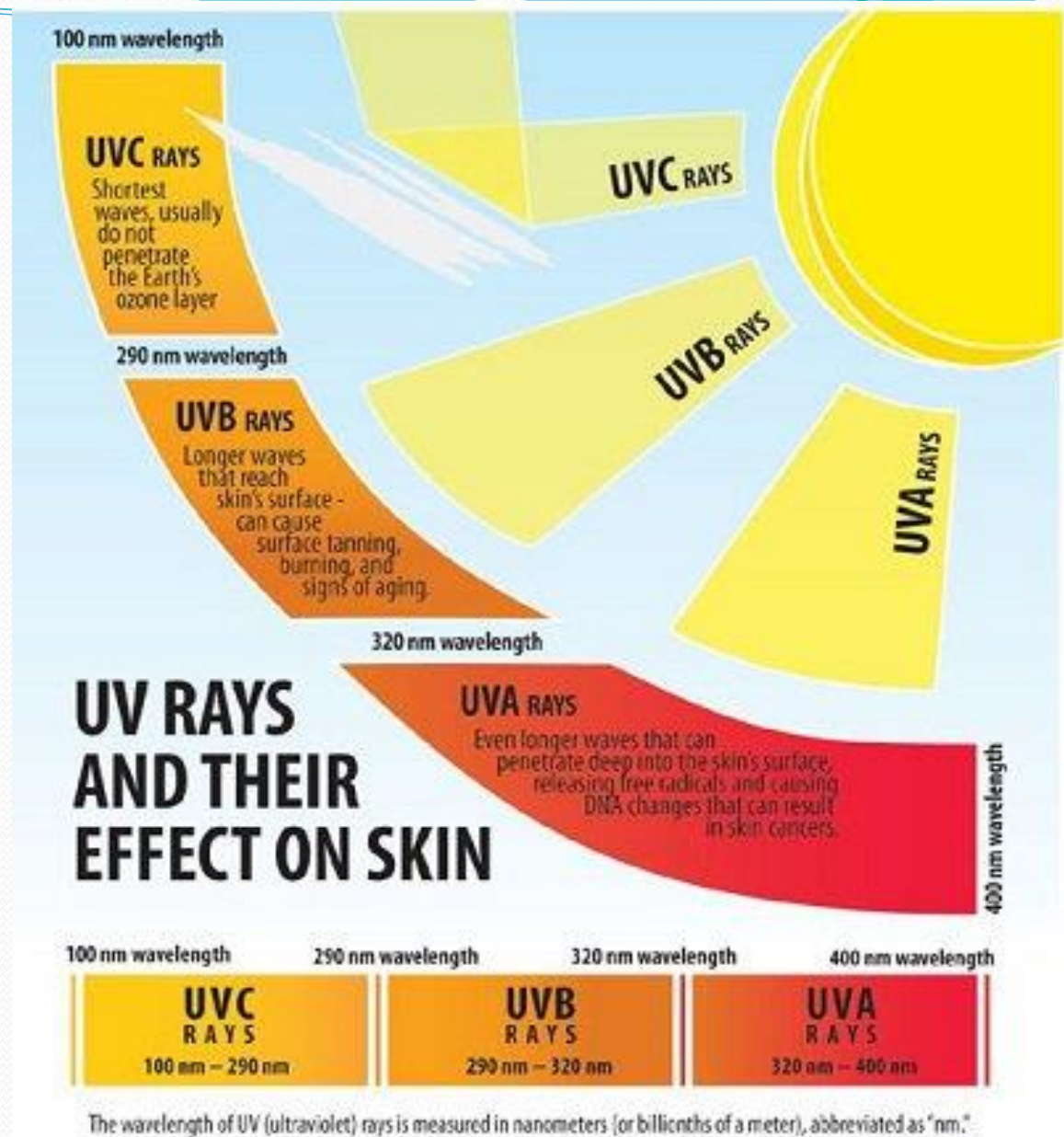


SAFE SUN?

- Only **10%** of the total UV rays that reach the earth surface are UVB- (vitamin D producing)


**DO NOT
PRESCRIBE
SUNLIGHT FOR
VITAMIN D!!**

- Avobenzene + Octocrylene
- Zinc Oxide 6%
- Titanium Dioxide 6%
- Sun Protection Clothing!



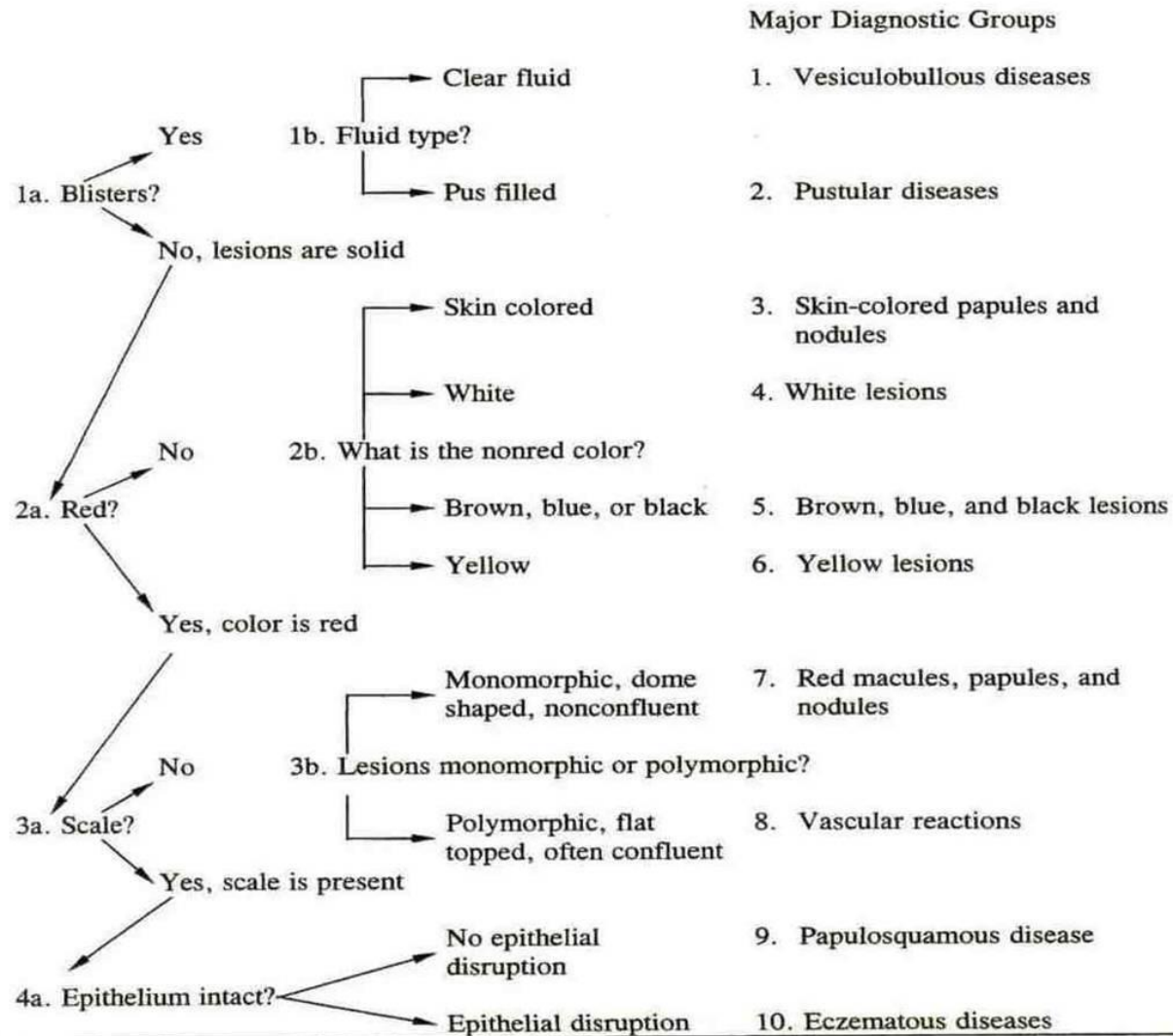
Dermatology 102

Using the Lynch Algorithm



To categorize a skin lesion you
need to ask FOUR questions...

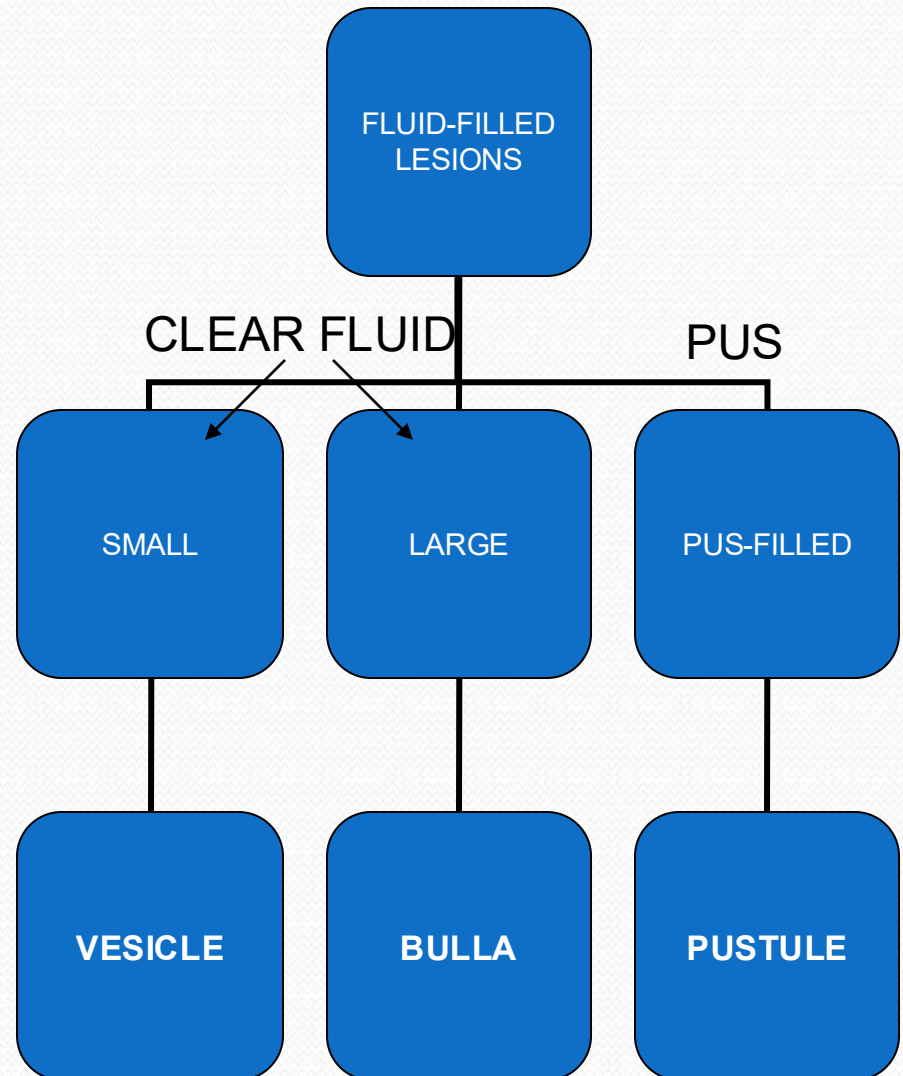
LYNCH ALGORITHM



Question #1:

• ARE THERE BLISTERS?

- If YES...
- What type of fluid is within the blister?
 - Clear fluid?
 - Pus?



I. VESICULOBULLOUS DISEASES

Blisters with clear fluid

Small = Vesicle

Large = Bulla

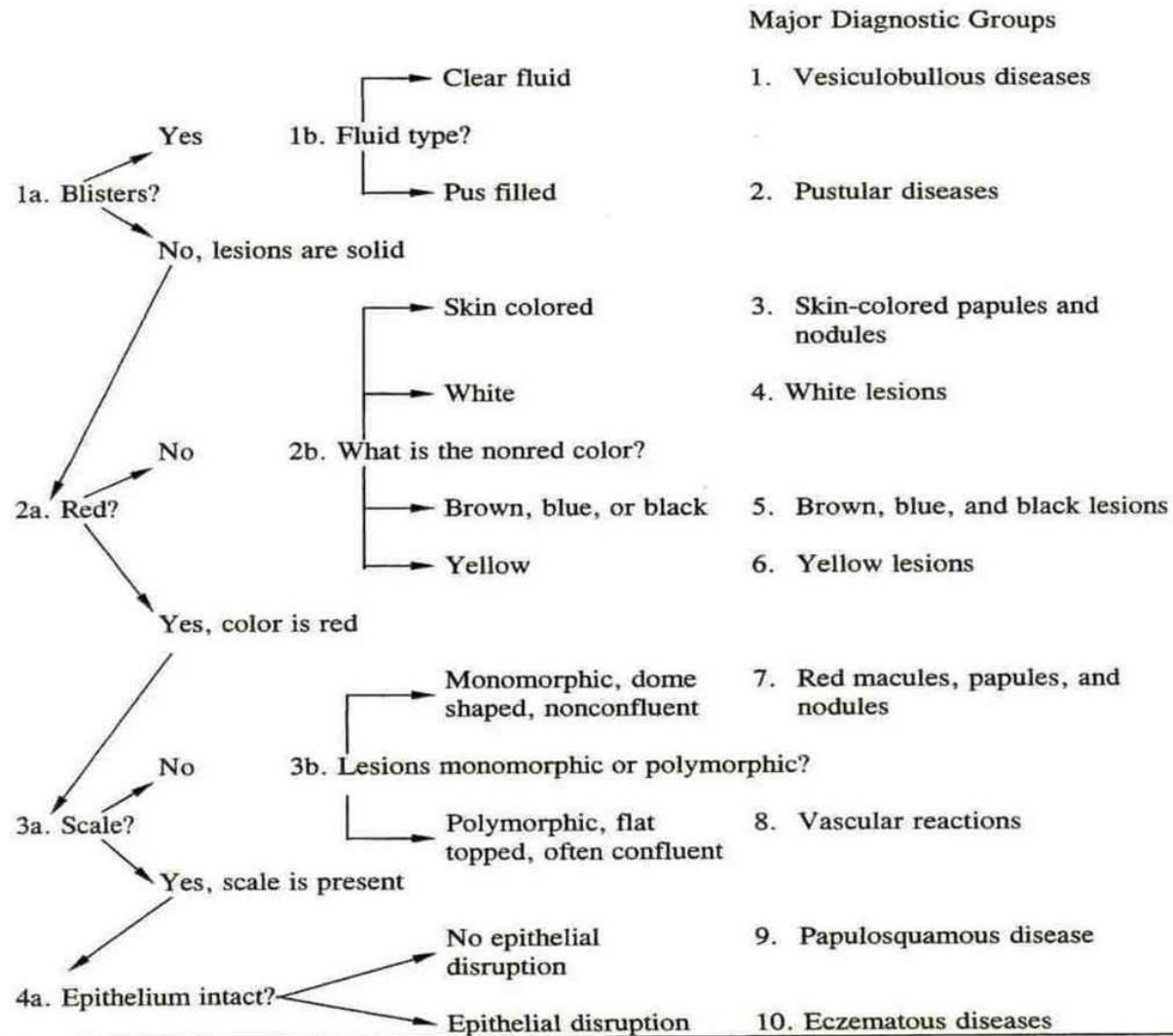


II. PUSTULAR DISEASES

II. Blisters with PUS



LYNCH ALGORITHM



NO, the lesions are solid.

- Question #2a:

ARE THE LESIONS RED?

- If YES, continue with the algorithm
- If NO...
- Question #2b:
- WHAT IS THE COLOR OF THE LESIONS?



THE LESIONS ARE...

SKIN COLORED

III. SKIN COLORED PAPULES AND NODULES



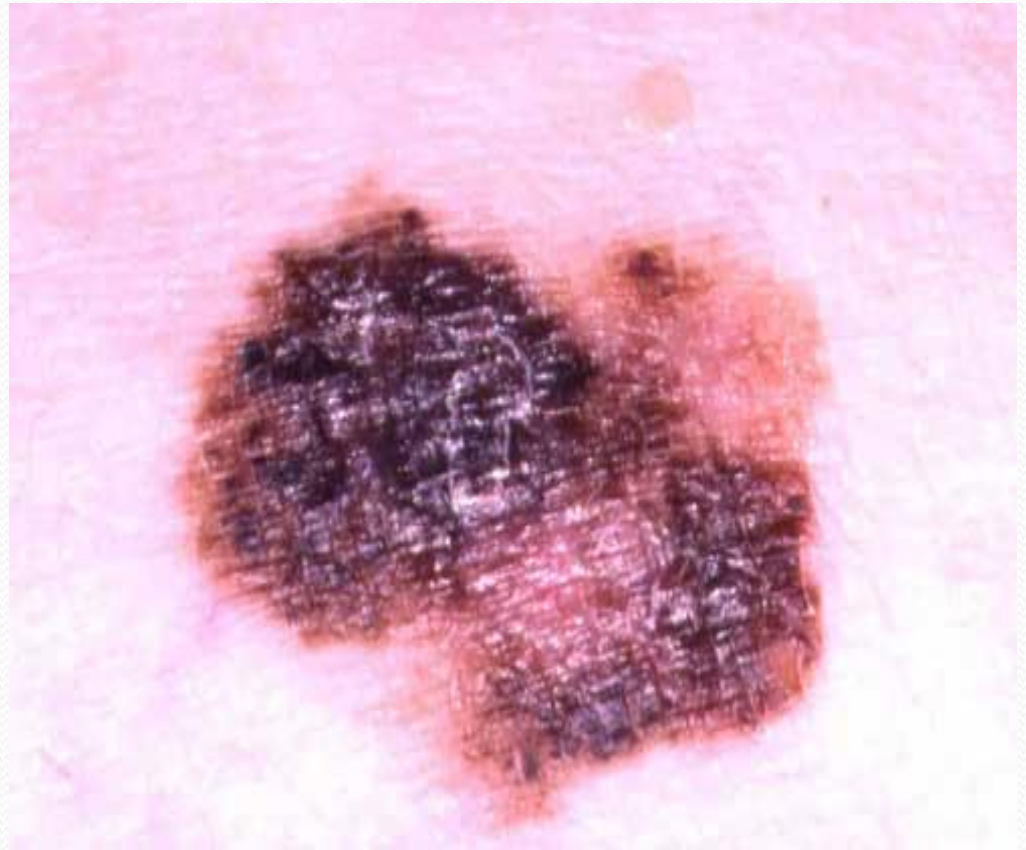
WHITE

IV. WHITE LESIONS



BROWN, BLUE, or BLACK

**V. BROWN,
BLUE OR
BLACK
LESIONS**

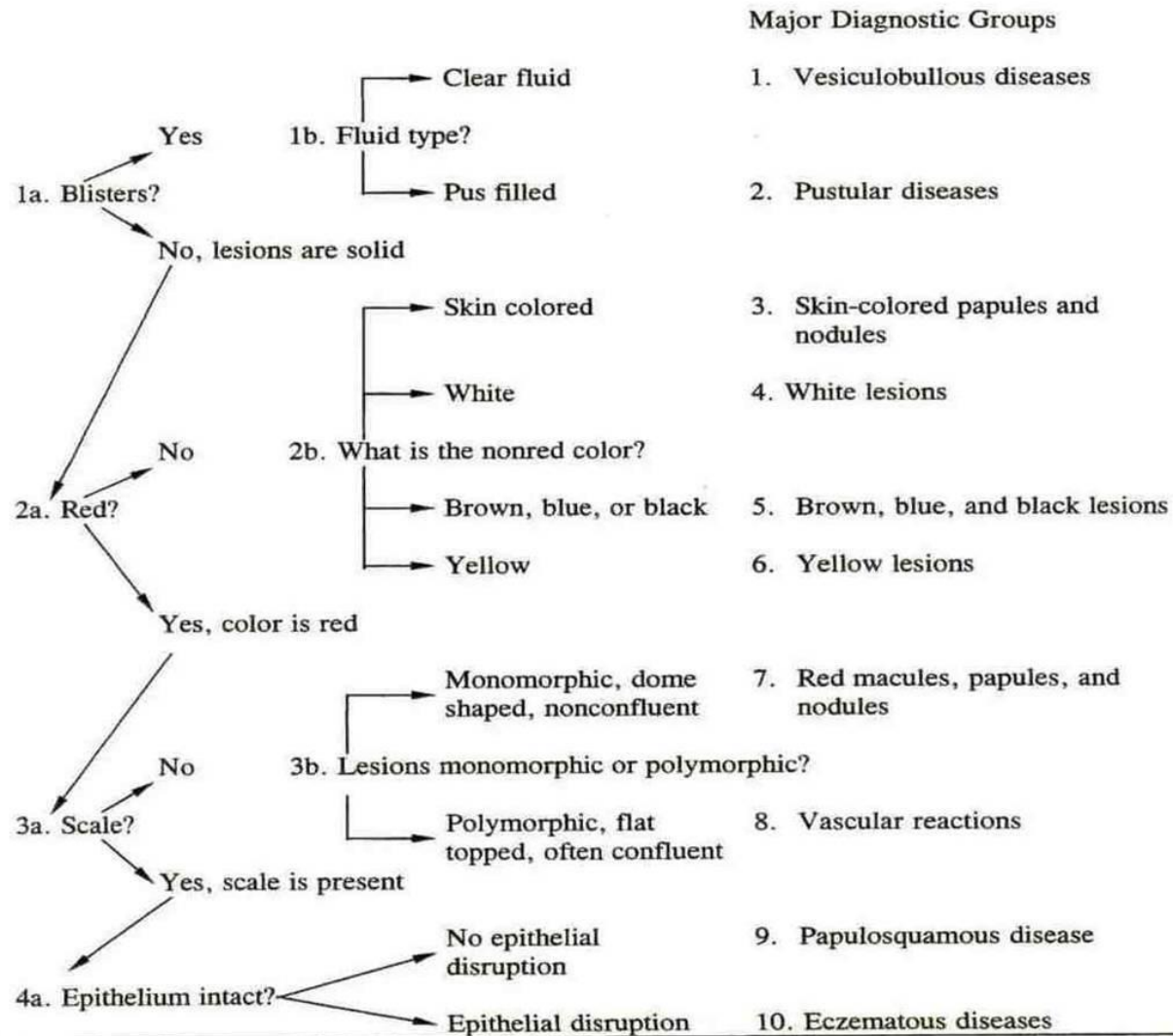


YELLOW

VI. YELLOW LESIONS



LYNCH ALGORITHM



YES, the lesions are SOLID and RED.

- Question #3a

IS THERE SCALE?

- If YES, continue with the algorithm
- If NO...

Question #3b

ARE THE LESIONS DOME-SHAPED OR FLAT-TOPPED?

The lesions are:

- SOLID
 - RED
 - DOME-SHAPED
- (No scale)

VII. RED PAPULES AND NODULES

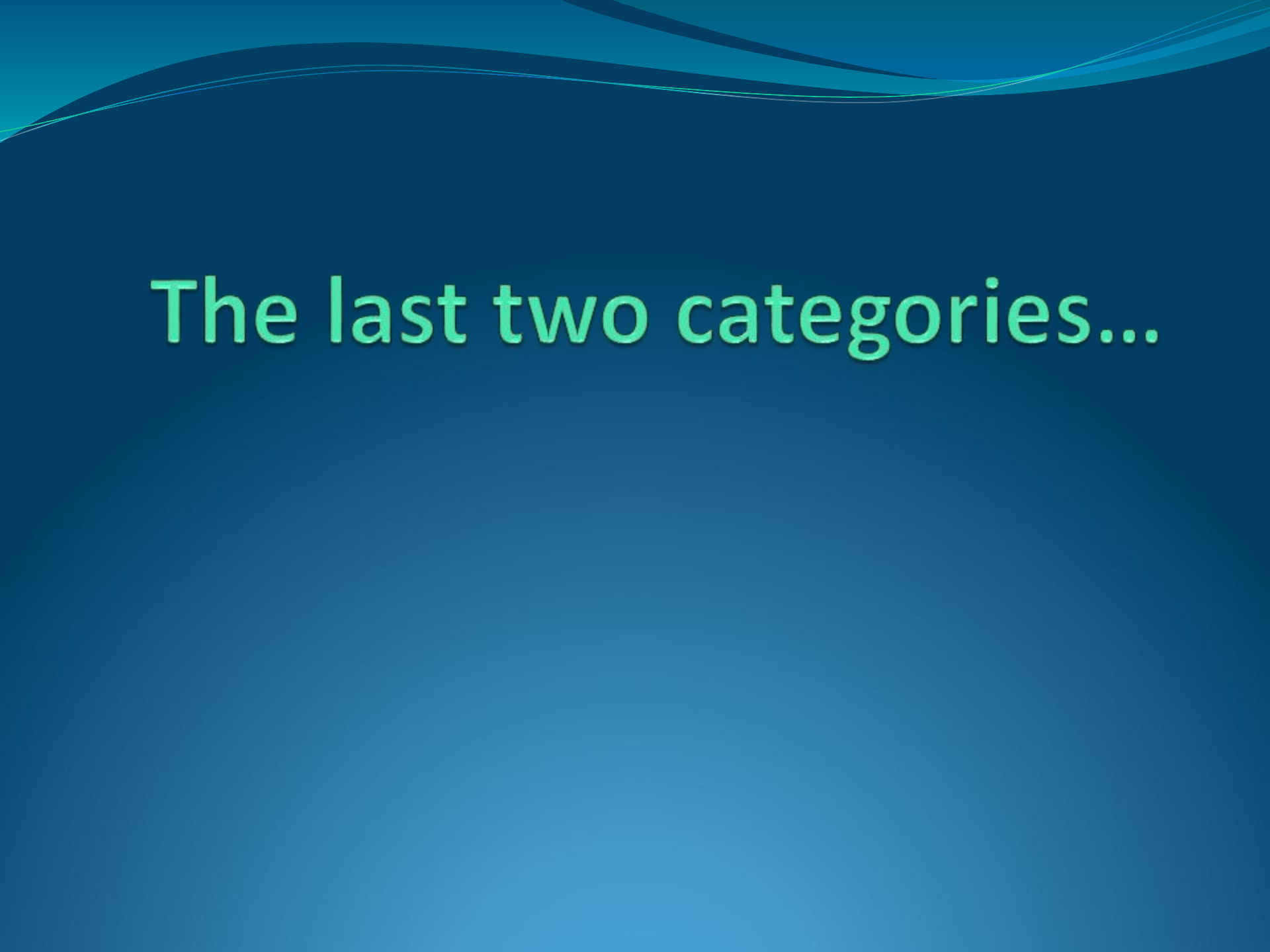


The lesions are:

- SOLID
 - RED
 - FLAT-TOPPED
- (No scale)

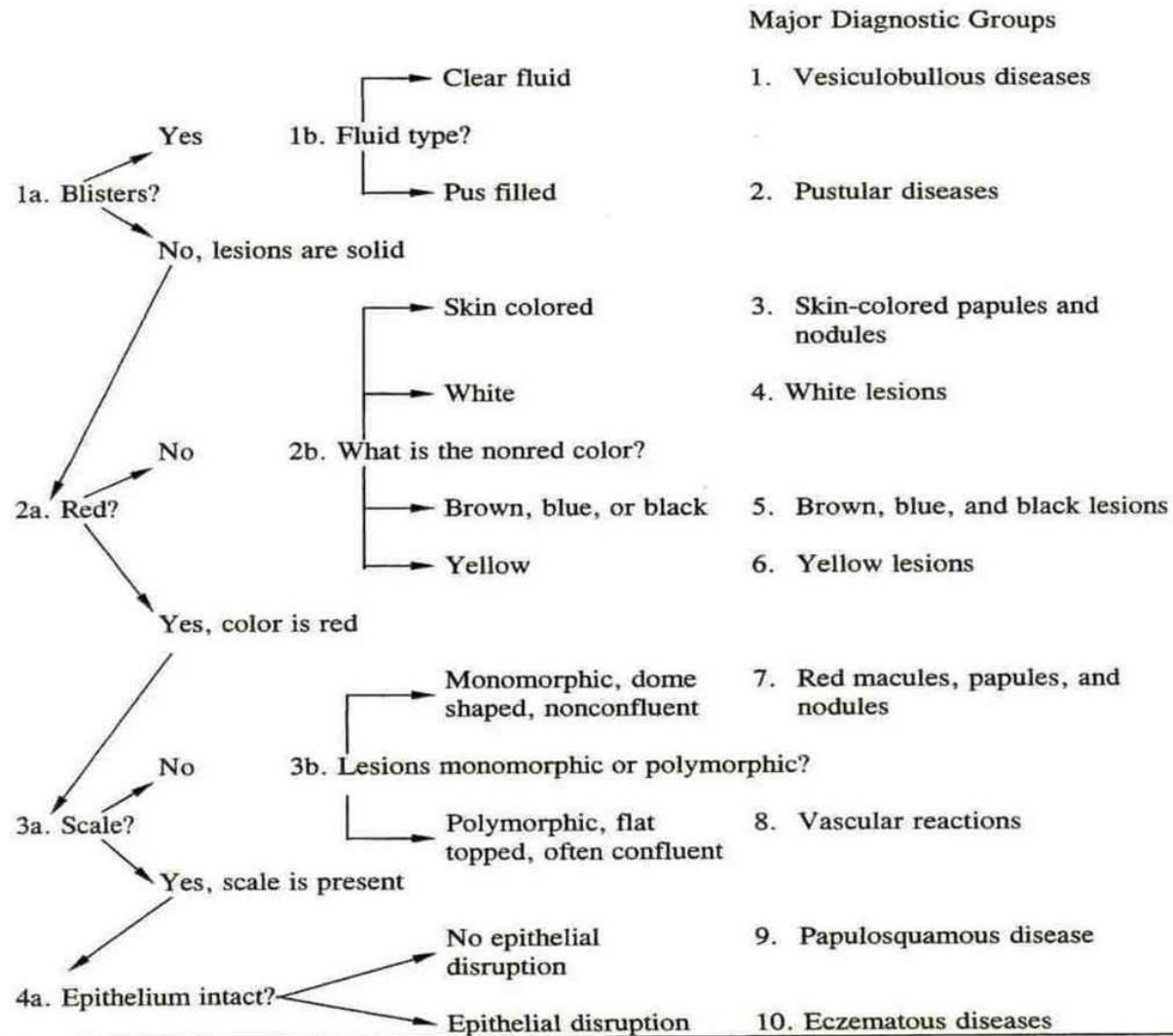
- **VIII.**
VASCULAR
REACTIONS





The last two categories...

LYNCH ALGORITHM



YES, there is scale.

- The lesions are...

- SOLID
- RED and
- SCALY

- Question 4:

IS THERE EPITHELIAL
DISRUPTION?

or

ARE THEY WELL-MARGINATED
or POORLY-MARGINATED?

Well-marginated!

- Red
- Solid
- Scaly
- Well-marginated



IX. PAPULOSQUAMOUS DISEASES

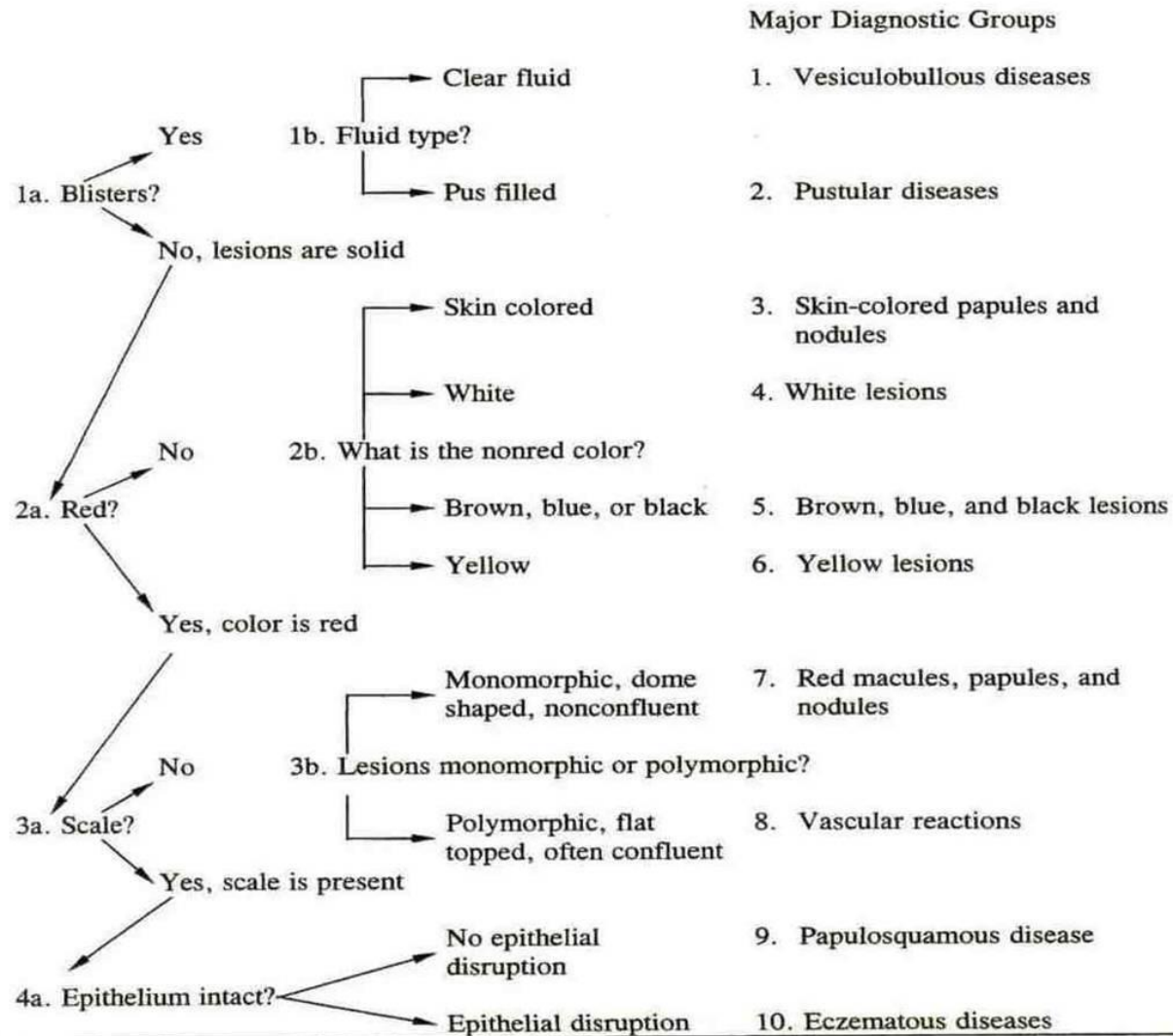
Poorly-marginated...

- Red
- Solid
- Scaly
- Poorly-marginated



X. ECZEMATOUS DISEASES

LYNCH ALGORITHM



The background is a solid dark blue color. At the top, there are several thin, wavy lines in lighter shades of blue and teal, creating a sense of movement or a horizon line.

You're done...

Now its time to cover some of the diseases...

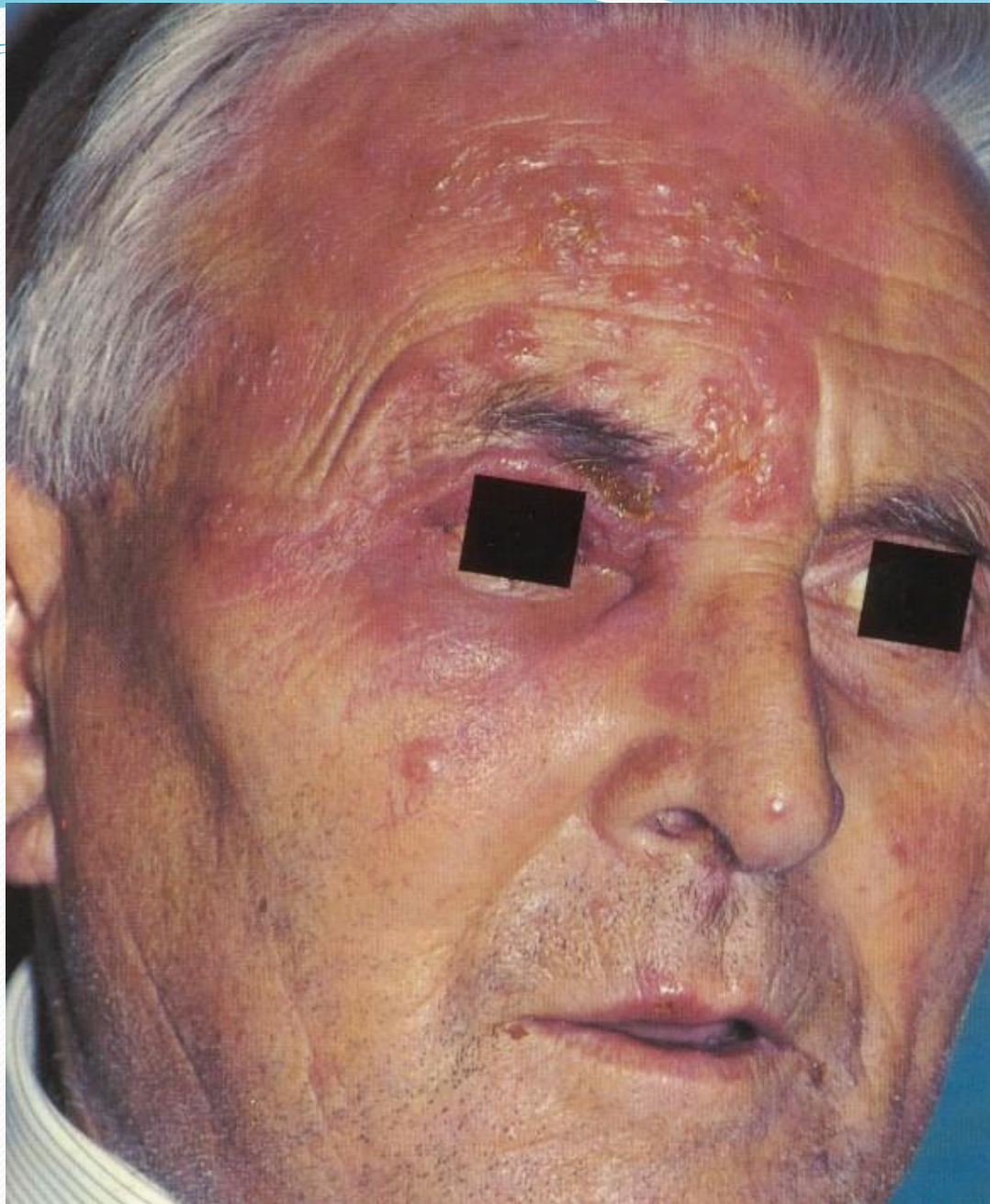
Dermatology 201

The diseases

Vesiculobullous Diseases

Case 1: Vesiculobullous Dz

- 65-year-old man
- Severe pain and **allodynia** for 2 days and then subsequently developed a rash



Herpes Zoster

Description:

- On the dermatome of the right V₁ branch of the trigeminal nerve there are grouped vesicles on an erythematous plaque.
- What is the significance of the lesion on the tip of the nose?
- Who should get a shingles vaccine?

Epidemiology:

- Who is at risk?

Case 2: Vesiculobullous Dz

- 55-year-old woman from **Lebanon**
- A couple months ago, had a couple of erosive lesions in her **mouth** which were tender. They spontaneously resolved. Now has noted lesions on her **back and abdomen** which are painful and blister. The blisters rupture easily and spread with lateral pressure.



Pemphigus Vulgaris

Description:

- Multiple polymorphic 1-3 cm bullae on the lower back that are easily ruptured (also involving the mouth)
- Spread of the blister following application of lateral pressure to an active lesion:
- **NIKOLSKY' s SIGN**

Epidemiology:

- Age 40-60
- Middle Eastern descent

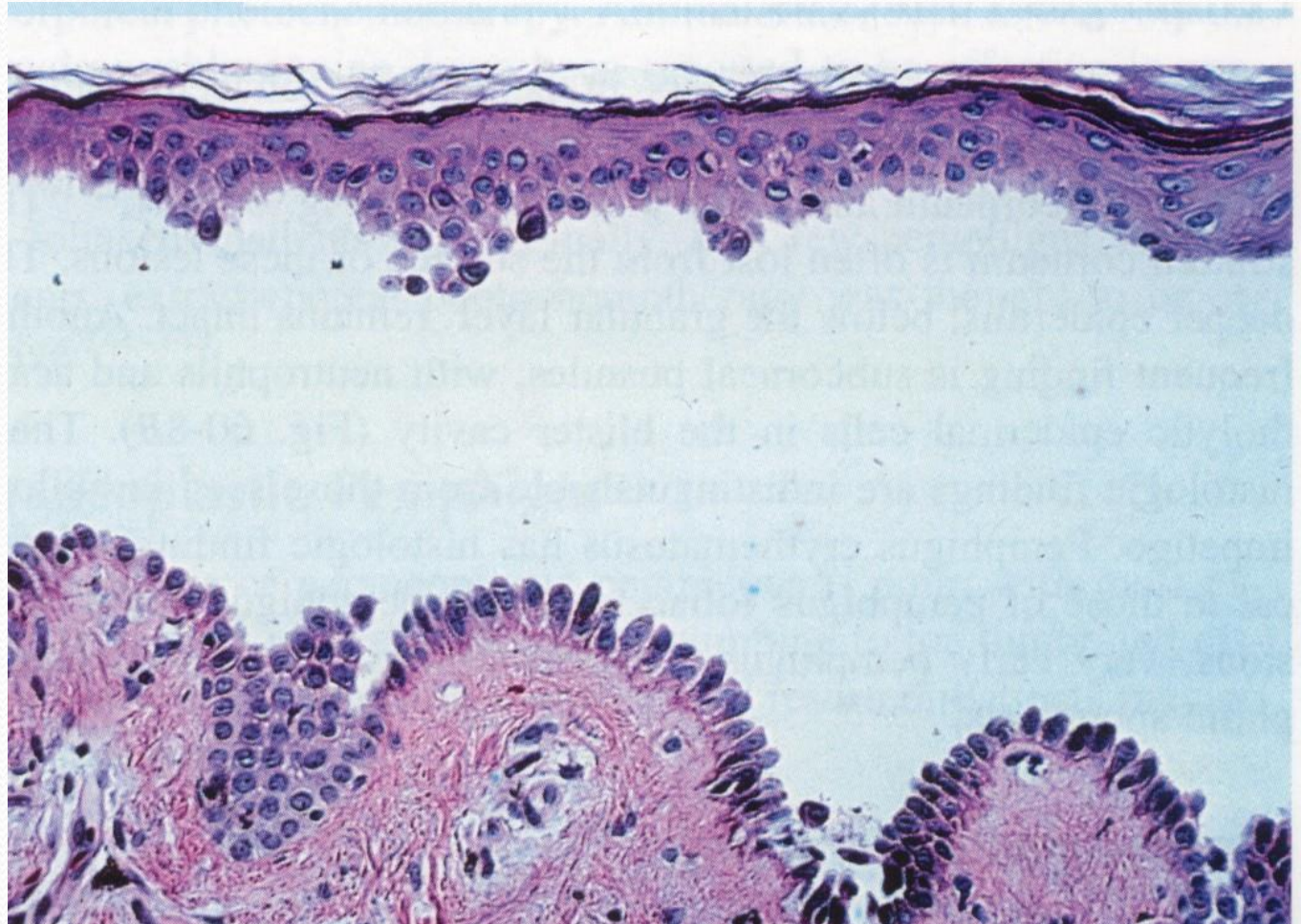
Diagnosis:

- **5 mm punch biopsy x 2!**
 - H and E (the edge of the lesion)
 - Immunofluorescence (Michel' s media) (perilesional normal skin)



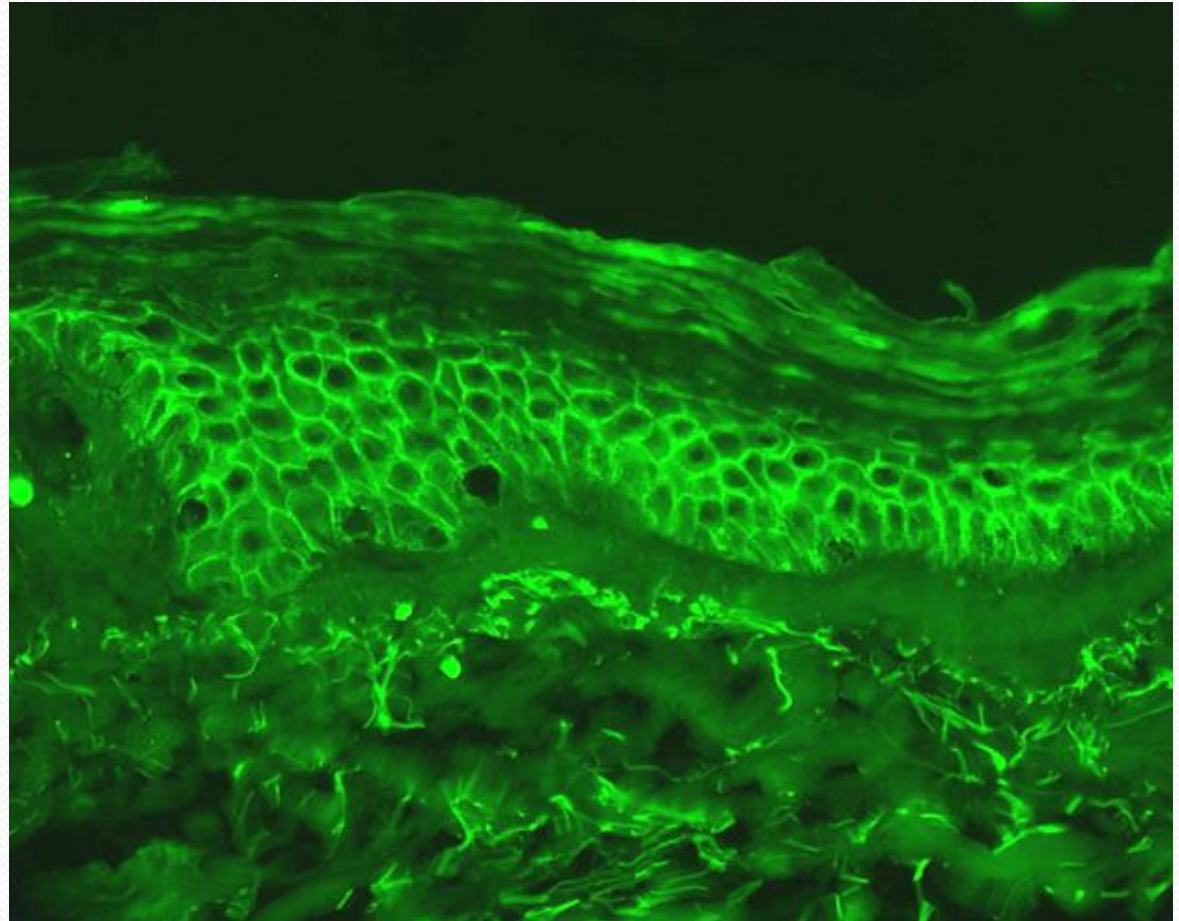
Pemphigus Vulgaris

Punch biopsy with H and E stain shows **acantholysis**: separation of the epidermis occurs **above the basal layer** revealing a “row of tombstones”.



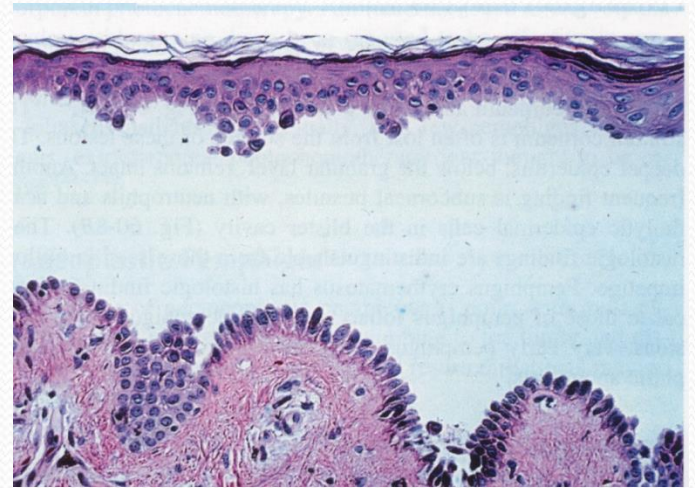
Pemphigus Vulgaris

Direct immunofluorescence reveals **IgG and C₃ stain at the cellular junctions** between the stratified squamous epithelial cells in the epidermis.



Treatment

- Dermatology referral
- High-dose steroids
 - Prednisone 40-120 mg/day to start
 - Up to 200 mg/day
 - Complicated to manage
- Steroid sparing agent
 - Azathioprine or Cyclophosphamide



Case 3: Vesiculobullous dz

- 70-year-old woman
- 2 months ago, had “hive-like” pruritic lesions which continued until the current lesions appeared



Bullous Pemphigoid

Description:

- On the legs, there are many 1-5 cm bullous lesions with firm, unruptured roofs on erythematous skin (often start as urticarial type lesion)

Epidemiology:

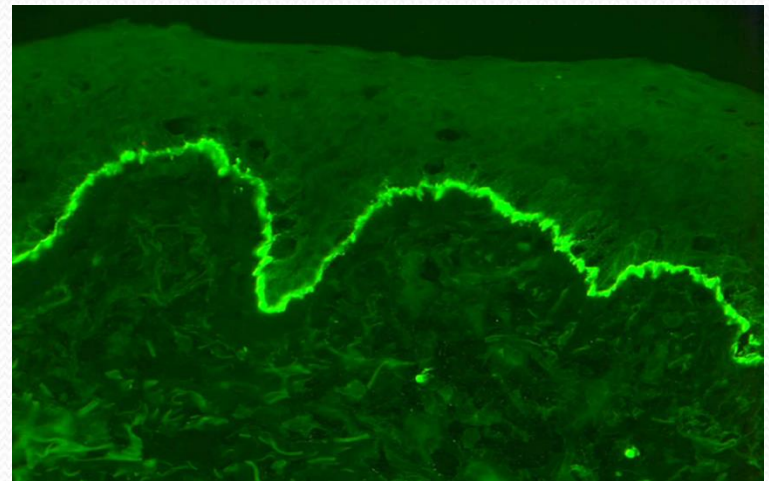
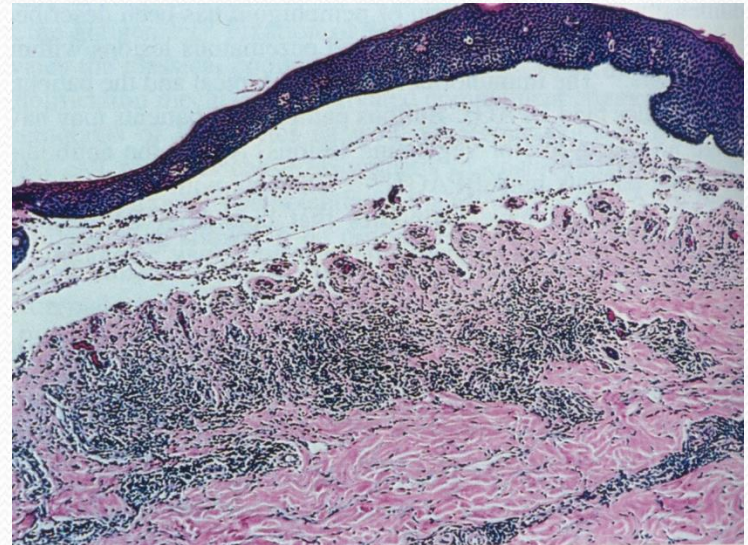
- > Age 60 or childhood

Diagnosis:

- You tell me!

Treatment:

- Prednisone to induce remission
 - Steroid-sparing agents
 - Dapsone



Case 4: Vesiculobullous dz

- 25-year-old woman
- Intensely pruritic and “burning” rash on knees, elbows, and buttocks for the past several weeks. She has a past medical history of Hashimoto’s thyroiditis for which she takes thyroid supplement.



Dermatitis Herpetiformis

Description:

- On the extensor sides of both knees, there are small grouped vesicles on an erythematous base. (strikingly symmetrical, annular pattern)

Epidemiology:

- Age 30-40

Diagnosis:

- You tell me!

- What autoantibody is involved and seen on biopsy?
- What treatment is helpful to control the disease?



Case 5: Vesiculobullous dz

- 28-year-old woman
- History of a **lesion on her lip approximately 2 weeks ago**, which was painful and crusted and went away spontaneously. Now, complains of diffuse rash **involving her palms and soles** and arthralgias.



Erythema Multiforme Minor

- Description:
 - On the palms of both hands there are multiple 5 mm-1 cm targetoid lesions with central vesicles that appear necrotic.
- Pathology:
 - Immune complex deposition in cutaneous microvasculature with mononuclear cells predominating (type 3 hypersensitivity)
- What 3 infections are often linked to EM Minor?
 - **Herpes simplex virus**
 - Coccidioidomycosis
 - Mycoplasma
- What is the spectrum of disease?
 - Erythema multiforme minor
 - Erythema multiforme major (SJS)
 - Toxic epidermal necrolysis (TEN)

Erythema Multiforme MAJOR = STEVEN's JOHNSON (SJS)= DRUGS



Case 6: Vesiculobullous dz

- 50-year-old man
- Painful blisters in sun-exposed areas; heal with scarring, several months duration
- History of IVDU and chronic renal insufficiency



Porphyria Cutanea Tarda (PCT)

Description:

- On the dorsum of the hand, there are two 1 cm unruptured bullae, on the second MCP joint, there are three white papules, and on the second PIP joint there is a pink well-circumscribed scar.

Pathophysiology:

- Enzyme in heme synthesis “UROD” functioning at 25% capacity with build up of uroporphyrin in urine and plasma

Associations:

- HEPATITIS C (50%) (IVDU)
- Liver disease
 - Iron overload or etoh abuse
- Renal failure
 - Porphorins are renally excreted



Vesiculobullous Diseases

- Herpes (Zoster, Simplex)
- Pemphigus Vulgaris
- Bullous Pemphigoid
- Dermatitis Herpetiformis
- Erythema Multiforme
- Porphyria Cutanea Tarda



PUSTULAR

Case 1: Pustular dz

- 25-year-old man
- Rash on face, worsened by shaving
- Lesion duration: days
- Lesions are minimally tender, slightly pruritic



Superficial Folliculitis

- Multiple pustules that confined to ostium of hair follicle in the distribution of the beard
- What is the usual organism?
- Hot-tub folliculitis due to what organism?



Case 2: Pustular dz

- A 42-year-old woman
- Complains of a deep ulcer on the anterior shin which began 3 weeks ago. The patient thinks that she might have injured her leg on the edge of a coffee table. She developed a nodule in the area which broke down into a deep ulcer. On ROS, she has intermittent diarrhea and crampy abdominal pain.



Pyoderma Gangrenosum

- Irregular, boggy, blue-red ulcer with undermined “heaped up” borders surrounding a purulent, necrotic base
- What systemic disease is it most commonly associated with?
- What should you NOT do to the lesion? Why?



Case 3: Pustular dz

- 50-year-old woman
- Red rash on face for several months. Worsened with drinking hot tea and coffee.
- No systemic symptoms



Rosacea

- Chronic acneform inflammation of the pilosebaceous units of the face, coupled with a peculiar increased reactivity of capillaries to heat, leading to flushing and telangiectasias
- NO comedones
- What organ of the face (besides the skin) is often involved?



Case 4: Pustular dz

- 20-year-old woman
- Skin colored to white “bumps” for years on backs of upper arms and upper thighs
- Bothered by appearance
- PMH: asthma
- Exam: “pseudo-pustules”



Keratosis Pilaris (KP)

- Distribution: Back of arms or thighs
- Follicular plugging
- 25% of population
- Association: Atopy
- Treatment: Lac-Hydrin lotion



Pustular and Pseudopustular Diseases

- Superficial Folliculitis
- Pyoderma Gangrenosum
- Perioral dermatitis
- Rosacea
- Hidradenitis Suppuritiva
- Keratosis Pilaris

SKIN-COLORED PAPULES AND NODULES

Case 1: Skin colored papule and nodules

- 19-year-old sexually active male
- Lesions noted on face for the past 2-3 months
- Not pruritic or painful
- No systemic symptoms

Case 1:



Molluscum Contagiosum

- Pearly-white or skin colored papules or nodules with **central umbilication**
- Children, Young Adults (sexually transmitted)
- What is the causative virus?
- Multiple facial lesions suggest what disease?

Case 2: Skin colored papule and nodules



Cutaneous Horn

- Three Diagnoses in Differential:
 1. Keratoacanthoma
 2. Actinic Keratosis
 3. Squamous Cell Carcinoma

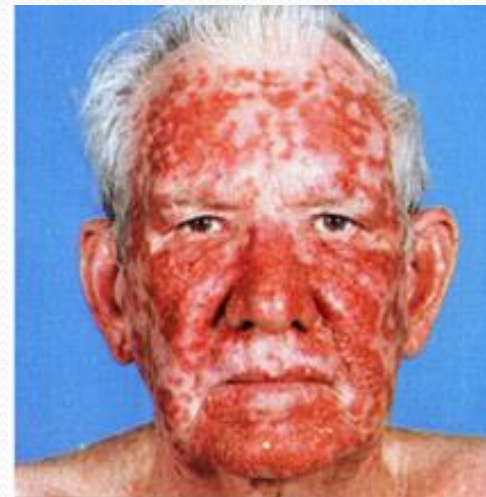
Keratoacanthoma

- Benign but mimics SCC
- Rapid growth
- Central keratotic plug
- Heals with scarring
- Surgical removal



Actinic Keratosis (AK)

- Sun exposure
- Rough red scaly hyperkeratotic papules
- Rx: Cryotherapy if few; Efudex (topical 5-FU) if generalized
- SCC from AK: 1:1000



Squamous Cell Ca. (SCC)

- SCC In Situ = Bowen's
- Well margined, hyperkeratotic plaque usually in sun-exposed area
- Invasive SCC
 - Ulcerated
 - Metastatic (3-4%)
 - Risks:
 - Immunosuppression
 - Areas of chronic inflammation
 - Burn scars



Case 3: Skin colored papules and nodules

- 40-year-old man
- Native to Arizona, likes to golf and play tennis
- Lesion present for a couple months, occasionally bleeds



MD Challenger Sample Photo

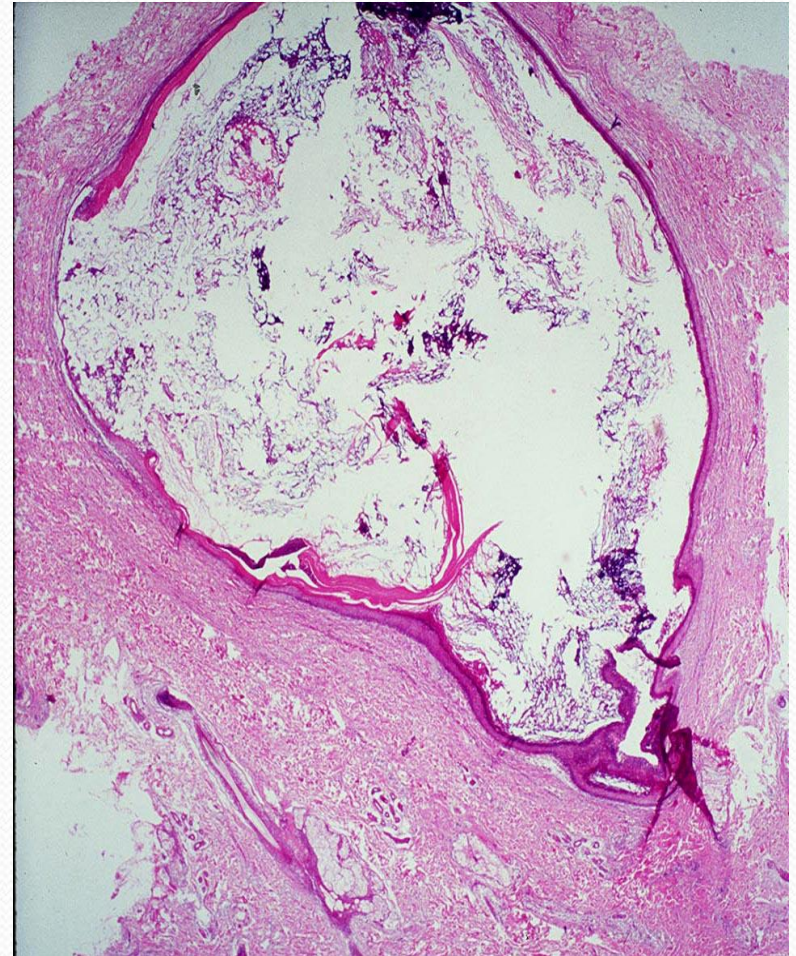


Basal Cell Carcinoma

- **Most common** NMSC
- ~1,000,000 new BCC/year
- Classic: Skin-colored **pearly** papule with **telangiectasia** and rolled borders
- Categories: Superficial, Nodular, Pigmented, Sclerosing
- **Rarely metastatic** – local invasion “Rodent ulcer”



Case 4: Skin colored papules and nodules



Epidermoid Cyst

- Synonyms: Wen, sebaceous cyst, epidermal cyst
- Follicular with CENTRAL PORE
- Keratinaceous debris
- “CHEESY”, smell rancid
- Ruptured cyst invokes inflammation; it does not mean it is infected!
- Important to remove sack or will recur!

Skin-colored papules and nodules

- Verruca Vulgaris
- Verruca Plana
- Molluscum contagiosum
- Cutaneous Horn
- Keratoacanthoma
- Actinic keratosis
- Squamous cell CA
- Basal cell CA
- Epidermoid cyst
- Dermatofibroma

WHITE LESIONS

Case 1: White Lesions



Vitiligo

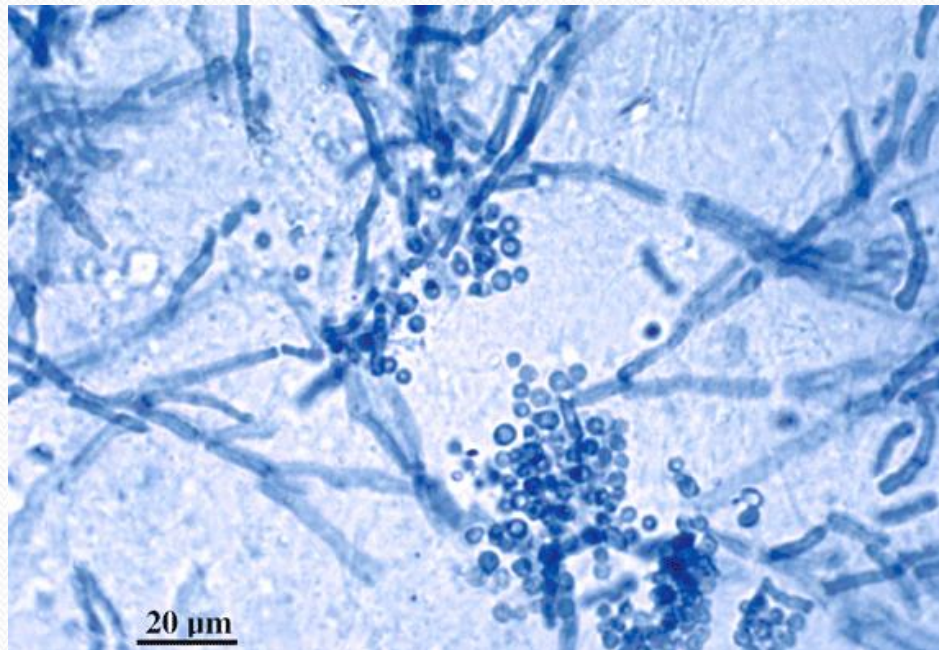
- Autoimmune destruction of melanocytes
- Poliosis: Vitiligo macule
- Association: Thyroid Disease (30%)
 - Also: Pernicious anemia, Addison's, Diabetes type 1
- Very difficult to treat in hairless areas!
 - Recruits melanocytes from follicles
 - Glucocorticoids and phototherapy

Case 2: White Lesions



Tinea Versicolor

- Clinical: Hyper or hypopigmented
- KOH: Spaghetti and meatballs



White lesions

- Vitiligo
- Tinea versicolor

BLUE, BLACK, and BROWN LESIONS

Case 1: BBB lesions





Acanthosis Nigricans

1. Internal Malignancy

- Adenocarcinoma
- More mucosal involvement

2. Insulin Resistance

- Presumed mechanism: ↑↑ IGF
- Skin tags (acrochordon)
- Tripe palms

Case 2: BBB lesions



Melasma (Chloasma) “Mask of Pregnancy”

- 90% Female
- ? Due to progesterone
- Risk factors: Pregnancy, OCPs
 - Always in addition to sun
- Tx: Bleaching + Sunscreen

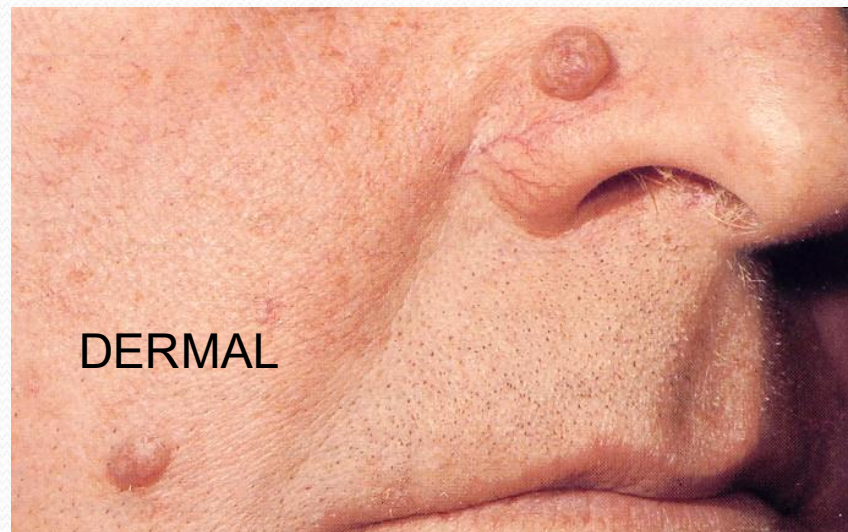
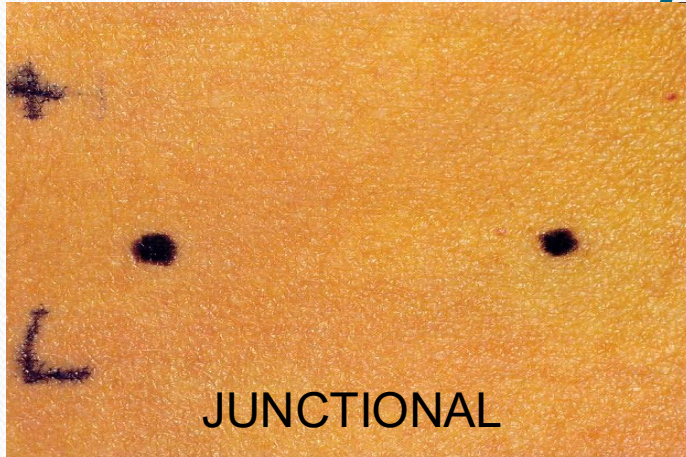
Case 3: BBB Lesions



Seborrheic keratosis

- Slightly elevated, warty, keratotic brown plaque; the lesion appears “stuck on”
- Not common < 30 years old
- Increase with age “barnacles on a ship”
- Horn cysts seen with a hand lens
- Benign

Case 4: Types of Nevi



Case 5: BBB Lesions

- Asymmetry
 - Border Irregularities
 - Color Variation
 - Diameter < 6mm
 - Elevation
-
- Dermatologists like to refer to the “flag sign”.



Types of melanomas



Superficial spreading



Nodular



Lentigo maligna melanoma



Acral melanoma

Blue, Black and Brown Lesions

- Acanthosis Nigricans
- Melasma
- Seborrheic keratosis
- Nevus
- Melanoma

YELLOW LESIONS

Case 1: Yellow Lesions



Xanthomata

- TYPES
 - Tendinous xanthoma
 - Tuberos xanthoma
 - Eruptive xanthoma
 - Palmar xanthoma: Primary biliary cholangitis (PBC)
 - Xanthlasma
- Lipid abnormalities

Case 2: Yellow Lesions

MI at age 37

Angioid streaks
on retinal exam

“Chicken-skin”
appearance to
neck



Pseudoxanthoma elasticum

- Connective tissue disorder (Elastin)
 - Skin: **Peau d' orange**
 - Blood vessels: **Premature MI**, Renovascular HTN, Claudication
 - Eye: **Angioid streaks of retina**
 - GI: Gastric artery hemorrhage (hematemesis)
- “Genetic Counseling”

Angioid Streaks



Yellow lesions

- Xanthomata
- Necrobiosis Lipoidica
- Pseudoxanthoma Elasticum

RED PAPULES AND NODULES

Case 1: Red Papules and Nodules



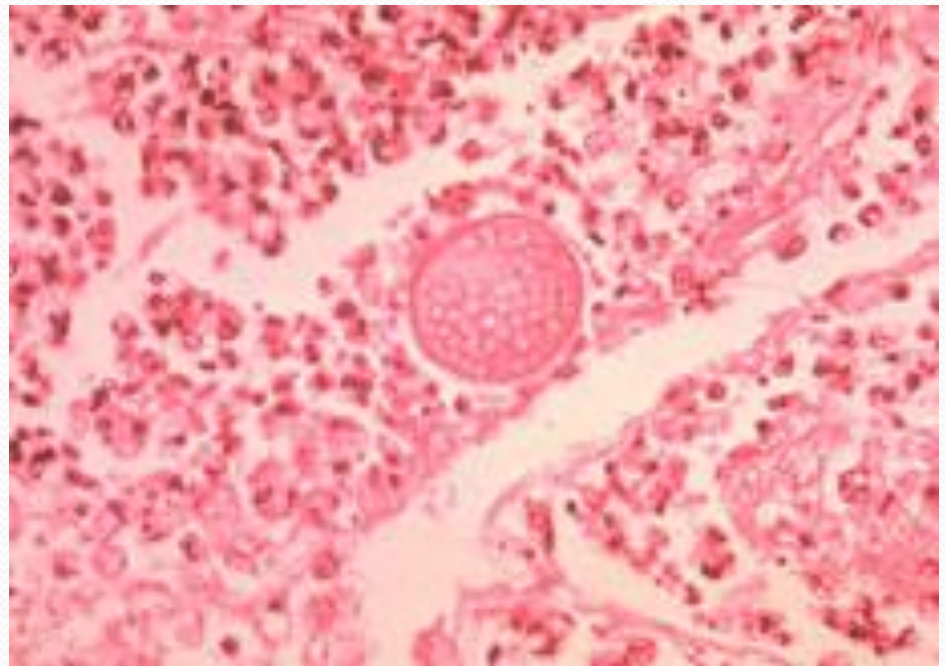
Erythema Nodosum (EN)

- NECK:
 - Post-streptococcal infxn
- CHEST
 - Cocci/Sarcoidosis
- ABDOMEN
 - Inflammatory bowel dz
- PELVIS
 - OCPs
- TENDER deep inflammation of CT around fat

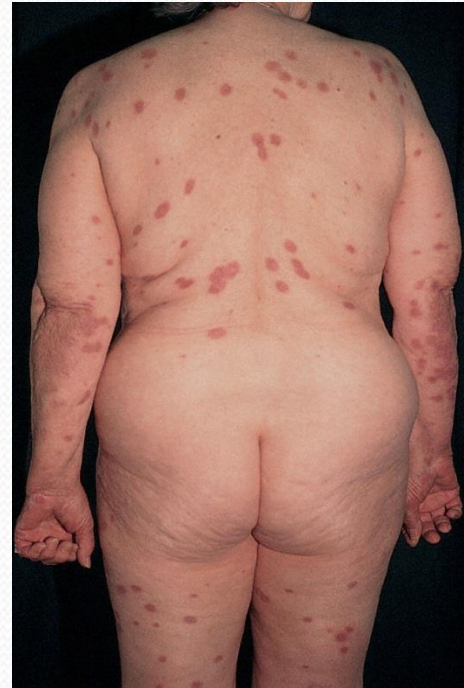


Erythema Nodosum (EN)

- Poststreptococcal
- Cocci
- OCPs
- IBD
- Sarcoidosis
- TENDER
- PANNICULITIS
 - Very deep



Case 2: Red Papules and Nodules



SWEET'S SYNDROME

(Acute Neutrophilic Dermatositis)

- Red tender plaques
- Sweet's is a reaction to an internal condition.
- It may follow:
 - Upper respiratory tract infection (strep throat)
 - Vaccination
 - **Inflammatory bowel disease** (UC or Crohn's)
 - Rheumatoid arthritis
- Blood disorders including **leukemia** (AML).
- **Internal cancer** (bowel, GU or breast)
- Pregnancy
- **Drugs** (G-CSF, NSAIDs, cotrimoxazole)
- Sometimes difficult to distinguish from Pyoderma Gangrenosum

Red papules and nodules: (solid, red, non-scaling)

- Cherry angiomas
- Erythema nodosum
- Erythema chronicum migrans
- Sweet's syndrome

VASCULAR REACTIONS

Case 1: Vascular reactions



Leukocytoclastic Vasculitis

- Palpable Purpura
- Histologic diagnosis (no etiology)
- Small vessel necrotizing vasculitis
 - MOST COMMON
- Immune complexes in walls of post-capillary venules
- Major cause: Drugs

Case 2: Vascular reactions



Henoch-Schonlein Purpura

- Palpable Purpura
- Non-blanching on diascopy
- Association? URI (75%)
- GI: Bowel angina or bloody diarrhea
- Arthritis
- UA...HEMATURIA (RBC casts)
- What is HSP localized to the kidney?

IgA Nephropathy (Berger's Disease)

Case 3: Vascular Reaction



Morbilliform Drug Eruption

- Allopurinol
- Carbamazepine
- Beta-Lactam Abx
- Sulfonamides
- Starts 1-4 weeks after initiation of drug
- DRESS syndrome

Case 4: Vascular Reactions



Urticaria

- Wheals (Hives)
- Blanching on diascopy
- Classification: Acute or Chronic
- Many physical and immunologic causes
- Changes in size and shape and can disappear -
DYNAMIC

Case 5: Vascular Reactions



- Hereditary or Acquired Angioedema

First test to check is C4!



Vascular Reactions

- Leukocytoclastic vasculitis
- Henoch-Schonlein Purpura
- Morbilliform drug eruption
- Urticaria
- Angioedema

PAPULOSQUAMOUS

The 3 Ps, 3Ls, and Fungus!

Case 1:

Papulosquamous





PSORIASIS

- Many types
 - Plaque
 - Scalp
 - Pustular
 - Guttate
 - **POST-STREP**
- Nail pitting
- Onycholysis
- Oil spots



Case 2: Papulosquamous

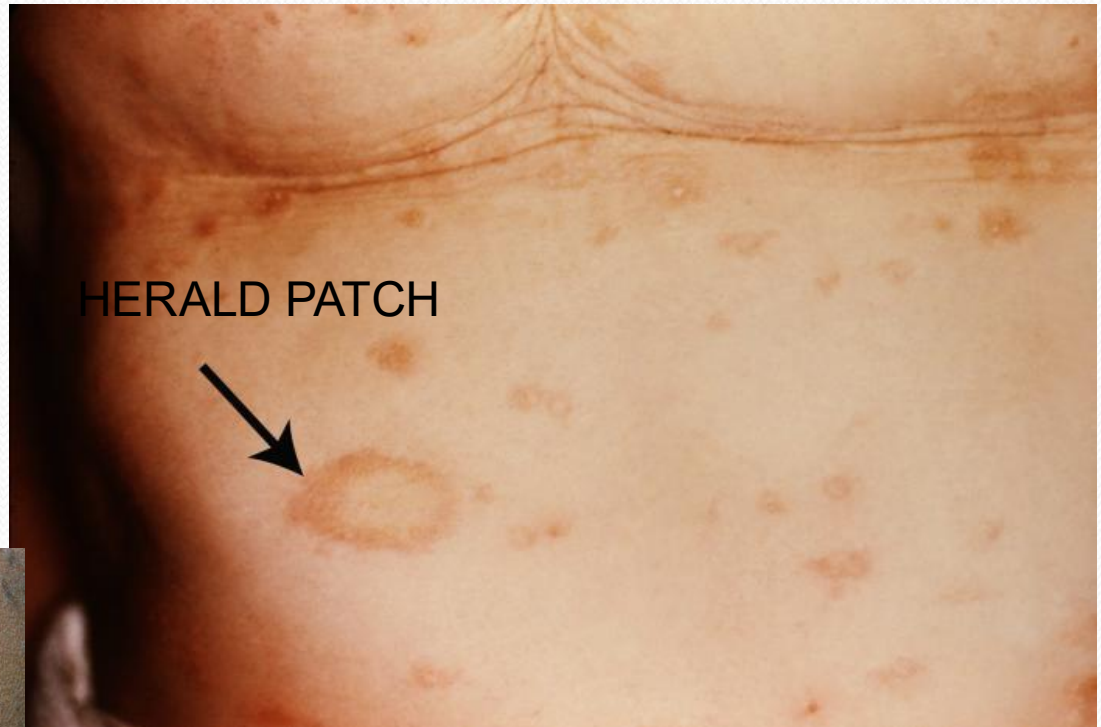
Parapsoriasis – Cutaneous T-cell Lymphoma (Mycosis Fungoides and Sezary Syndrome)



Case 3: Papulosquamous



Case 4: Papulosquamous Pityriasis Rosea



DISTRIBUTION?



PROBABLE
VIRUS?

HHV-7

3Ps: Papulosquamous

- Psoriasis
- Parapsoriasis
- Pityriasis Rosea
- Now to the Ls...

Case 4: Papulosquamous



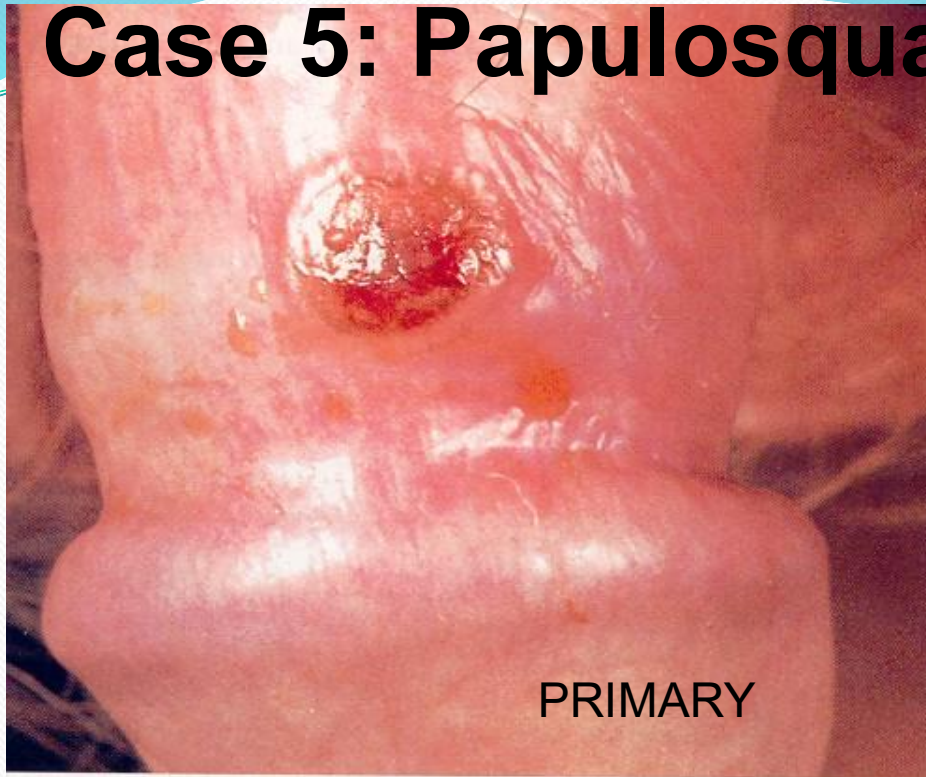
lichen planus

Classic description

- 5Ps
 - PURPLE
 - POLYGONAL
 - PLANAR
 - PRURITIC
 - PAPULES
- What are the little white lines atop the LP?
WICKHAM'S STRIAE
- Major Association?
HEPATITIS C

When you see a papulosquamous
disease, be careful because
it could be...

Case 5: Papulosquamous



Lues (Secondary Syphilis)

- Palms and soles involved
- Primary lesion: Chancre
- Secondary (in addition to rash)?

CONDYLOMA LATA

- Tertiary: Neurosyphilis

Case 6: Papulosquamous: LUPUS



KNUCKLE
SPARING



Discoid (DLE)

Papulosquamous= 3P' s, 3L' s

- Psoriasis
- Parapsoriasis
- Pityriasis Rosea
- Lichen Planus
- Lues (Secondary Syphilis)
- Lupus
- AND

Fungal Infections

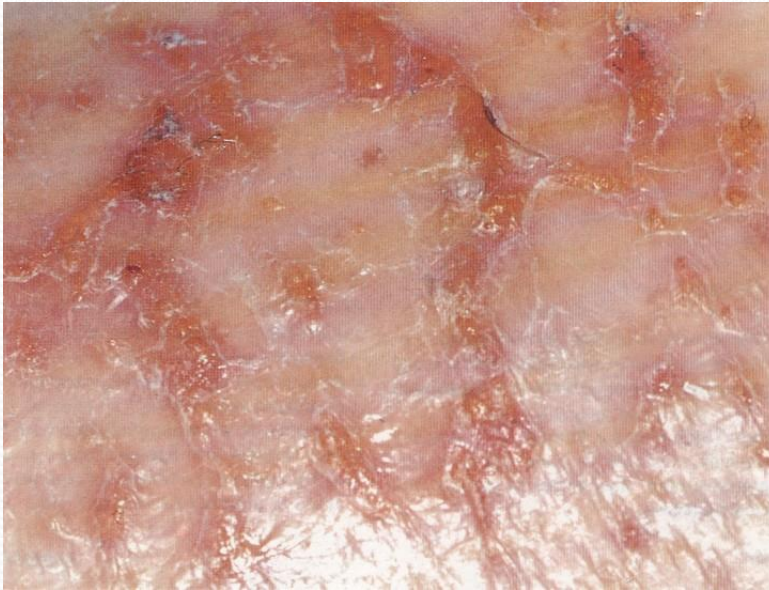


ECZEMATOUS DISEASES

Atopic Dermatitis



Asteatotic Dermatitis (Eczema Craquele)



Venous stasis dermatitis



Seborrheic Dermatitis (Dandruff)



Seborrheic Dermatitis (Dandruff)



Contact Dermatitis



What kind of testing is this??
PATCH TESTING

Contact Dermatitis

- Allergic Contact
 - Nickel
 - Neomycin
 - Tape
- Irritant Contact
 - Lip-lickers
 - Dribble
 - Chemicals

Eczematous Diseases

- Atopic dermatitis
- Eczema craquelatum (asteatotic)
- Nummular eczema
- Seborrheic dermatitis
- Contact dermatitis
- Scabies