Psoriasis

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Learning objectives

- **Recognize the different types of psoriasis and how to effectively treat them**
- **Identify types of nail psoriasis**
- **Describe the pathogenesis of psoriasis and how it correlates with the newest therapies**
- **Identify frequent psoriasis co-morbidities that affect medication management**

The Basics

- Onset
  - Prevalence: 2-3% of world's population
    - US = ? 4-5%
- 2 peaks of onset: 20-30s* and 50-60s
  - Median age onset : 28 yo
  - "Type I": early onset, HLA-Cw6, more severe
  - "Type II": later onset, less severe disease

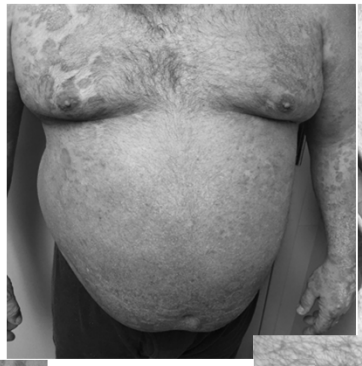
Genetic role

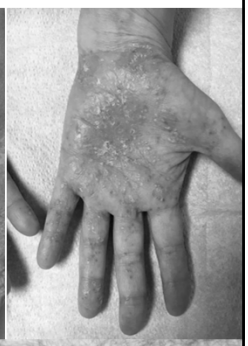
- 2 parents affected, risk of child affected = 41%
- 1 parent affected, risk of child affected = 14%
- Monozygotic twin affected, risk = 35-70%
- 1 non-twin sibling affected, risk = 6%

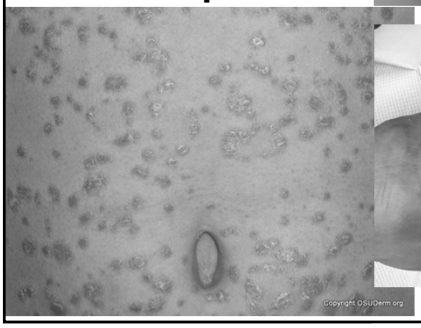
Clinical appearance and treatments

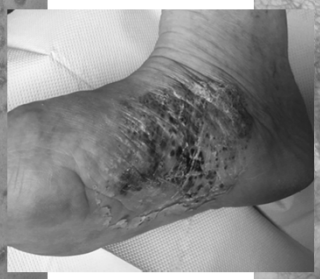
Psoriasis Types

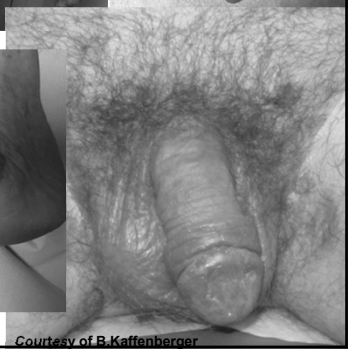
- Plaque
- Pustular
- Inverse
- Guttate
- Palmoplantar





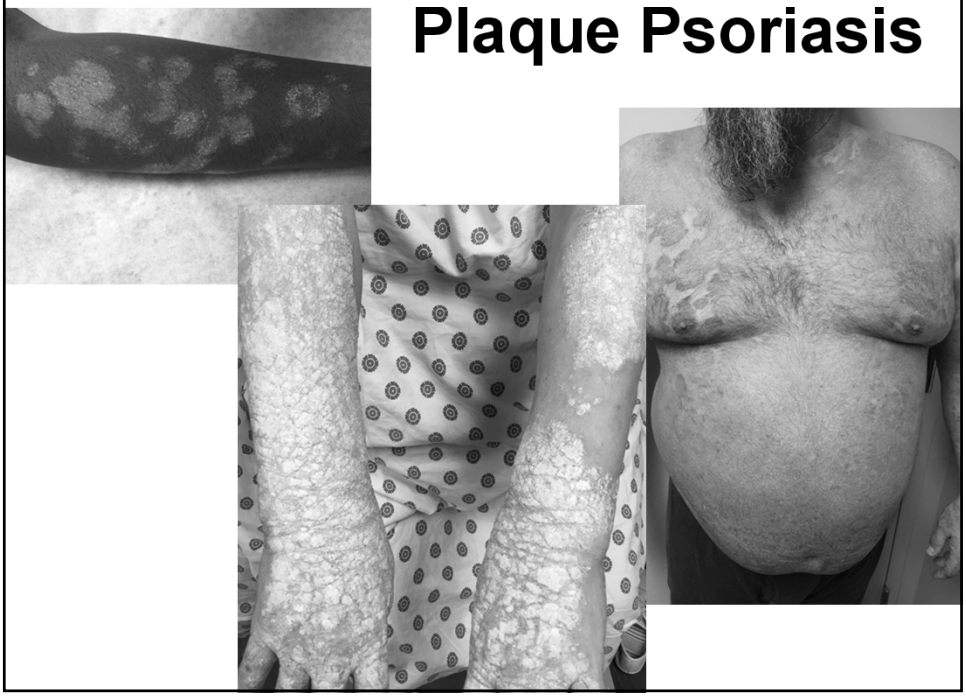




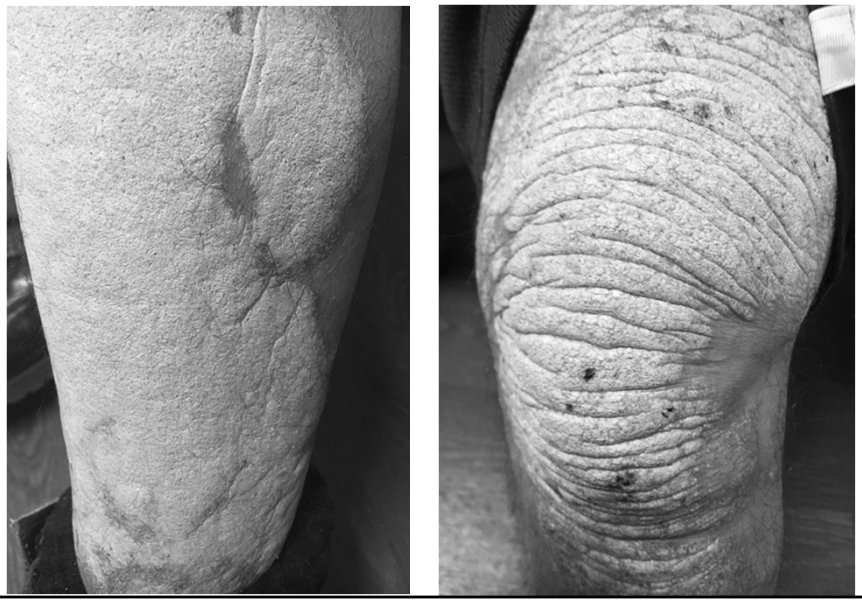


Courtesy of B.Kaffenberger

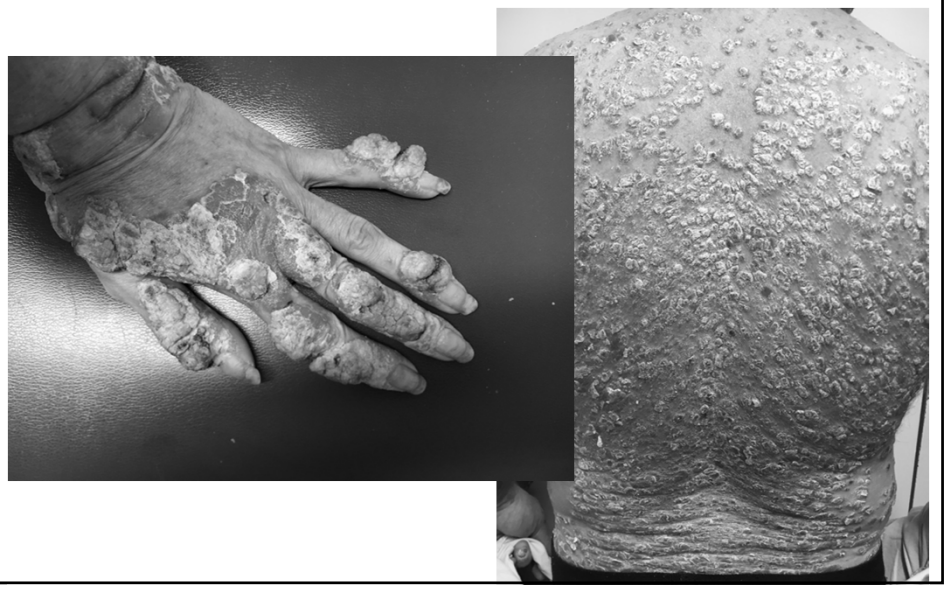
Plaque Psoriasis



Severe plaque psoriasis



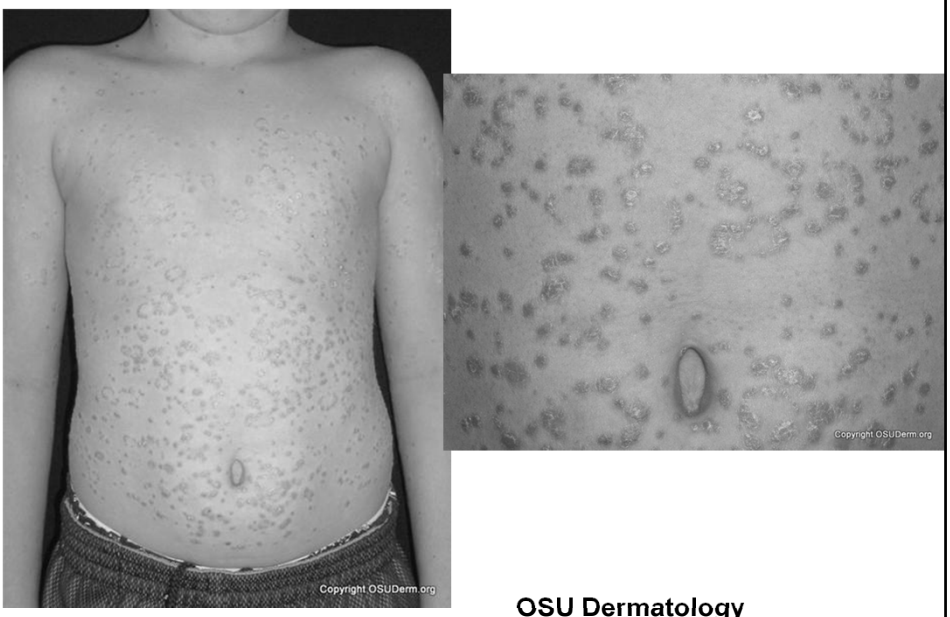
Severe plaque psoriasis



Plaque Psoriasis

- Most common type
- Elbows, Knees, Scalp, Sacrum, Fingernails
- Often itches
- Mild disease – treat with topical steroids
- More extensive or refractory disease- systemic medication

Guttate Psoriasis

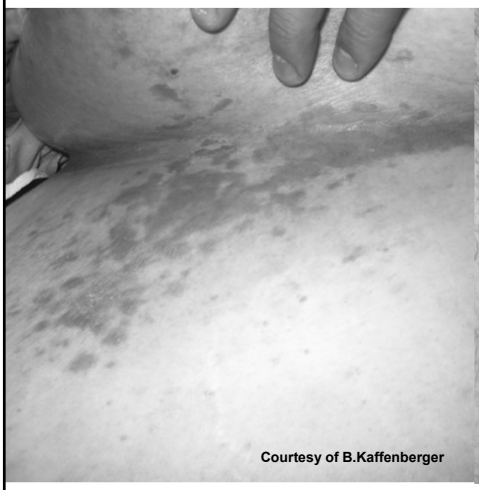


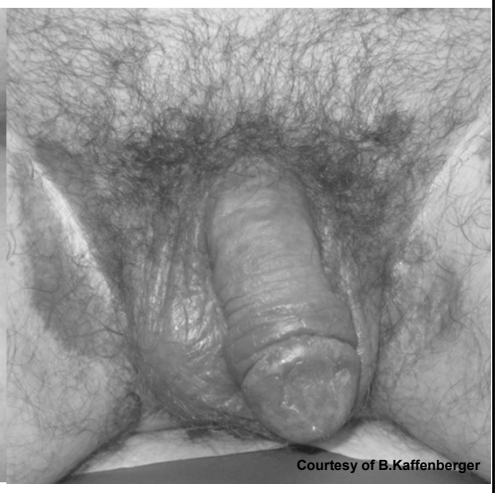
OSU Dermatology

Guttate Psoriasis

- 2nd most common form
- More common in children
- Can be related to strep infections
- Trunk most involved
- Treatment:
  - Treat strep infection if present, topical steroids, if refractory send to a dermatologist

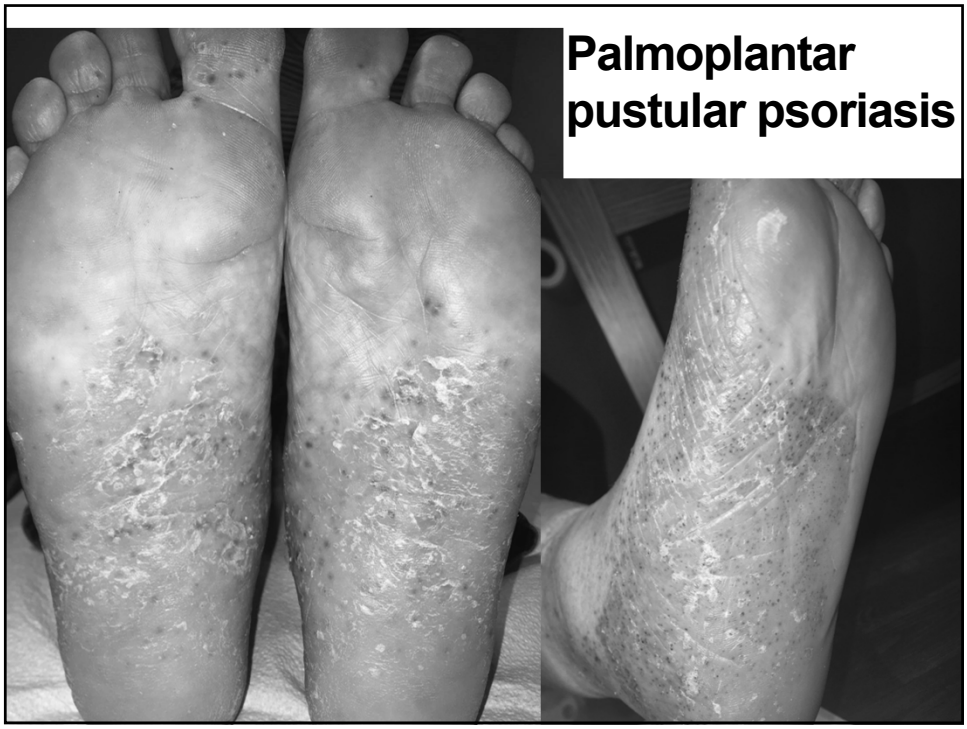
Inverse Psoriasis





Inverse Psoriasis

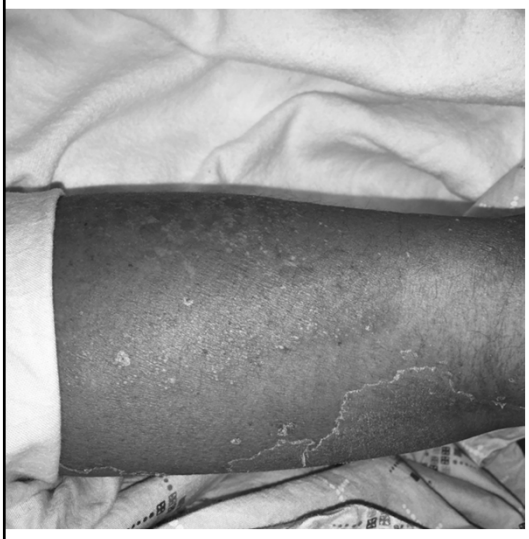
- Can be difficult to diagnosis – no scale
- The maceration and skin on skin contact prevents the silver coloration
- Treatment: Low-potency topical steroid, tacrolimus ointment



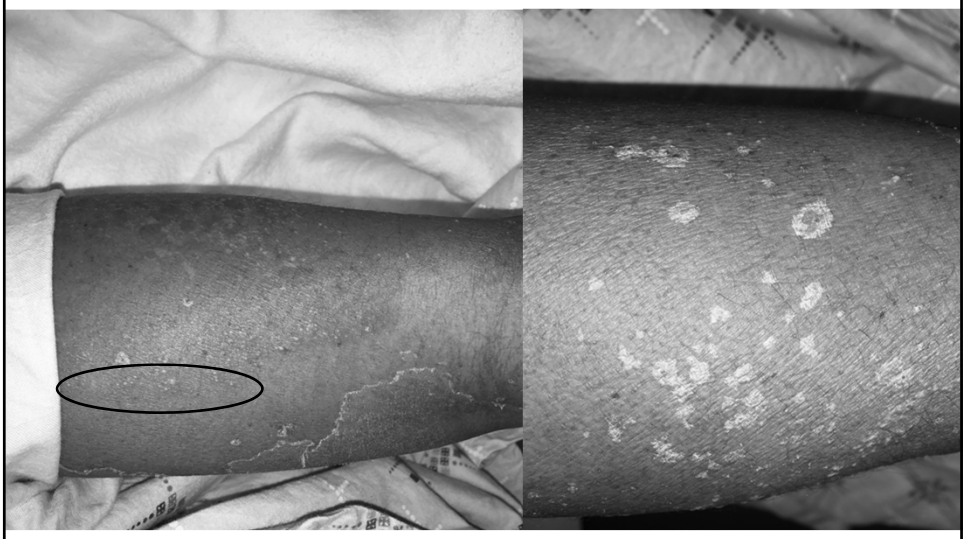
Palmoplantar pustular psoriasis

- Significant morbidity
- Very difficult to treat
- Treatment:
  - High-potency topical steroids, urea 40% cream, tazarotene
    - Use any of above under occlusion
  - Systemic treatments (methotrexate, acitretin, biologics)
- Be careful using ORAL steroids in these patients!

Pustular psoriasis (generalized)



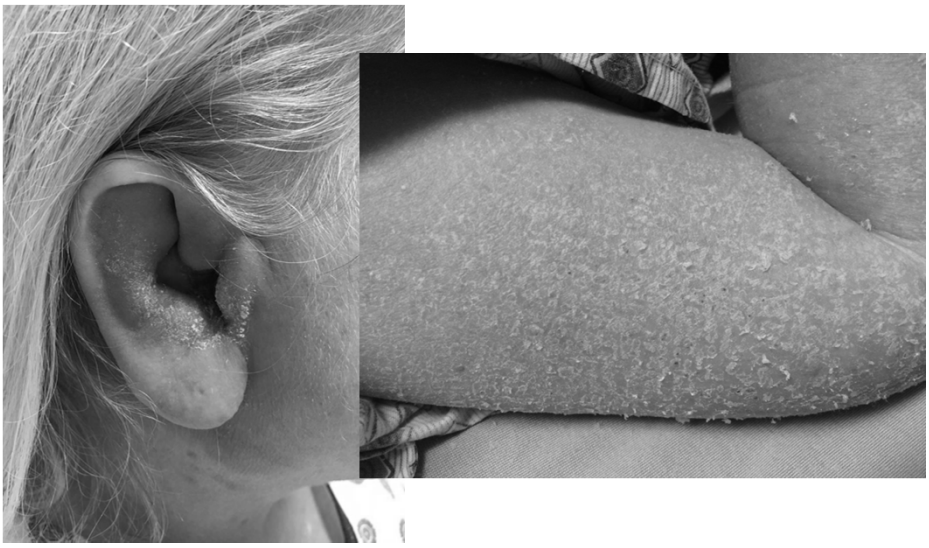
Pustular psoriasis (generalized)



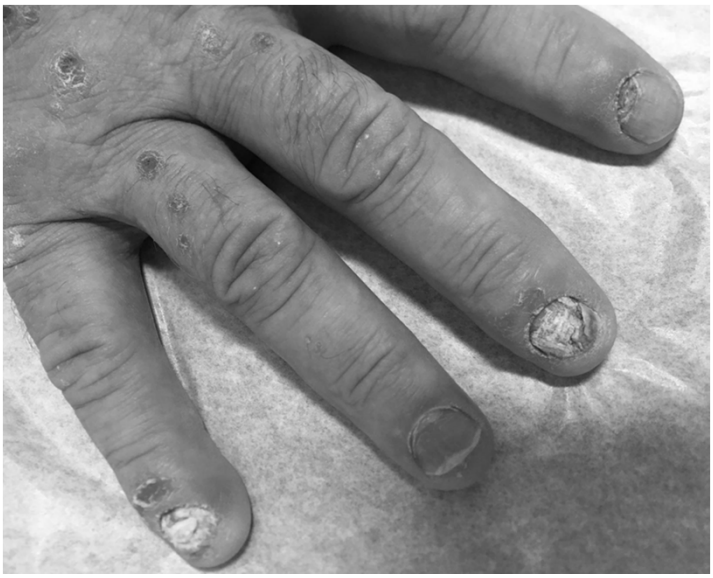
Generalized Pustular Psoriasis

- Most acute type
- Can be life threatening
- May have fevers, elevated WBC, low calcium
- Can be caused by withdrawal of systemic steroids
- Treatment:
  - Call a dermatologist

Special presentations of psoriasis…



Nail psoriasis

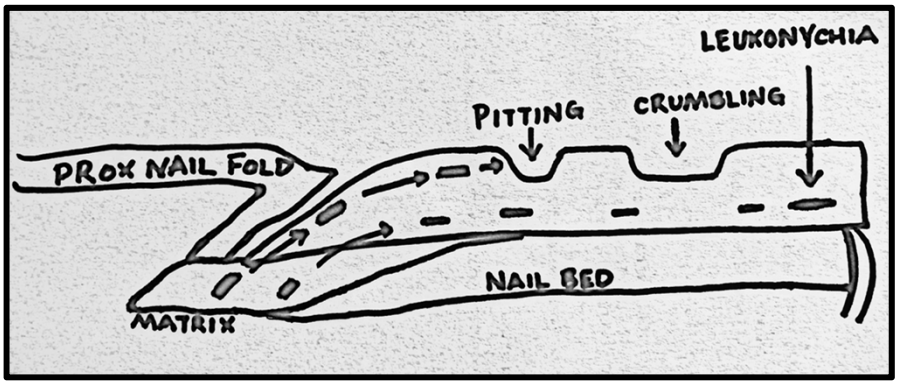


Nail Psoriasis

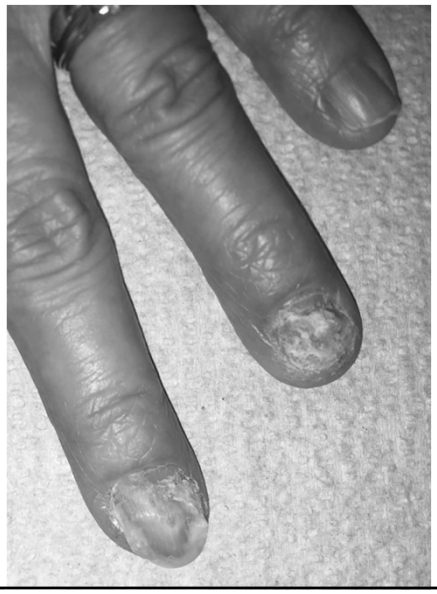
- Caused by psoriatic lesions within nail matrix or nail bed
- Can be very resistant to treatment
- Treatment:
  - Topical steroids
  - Intra lesional steroids
  - Systemic treatments (methotrexate, acitretin, biologics)

Nail psoriasis

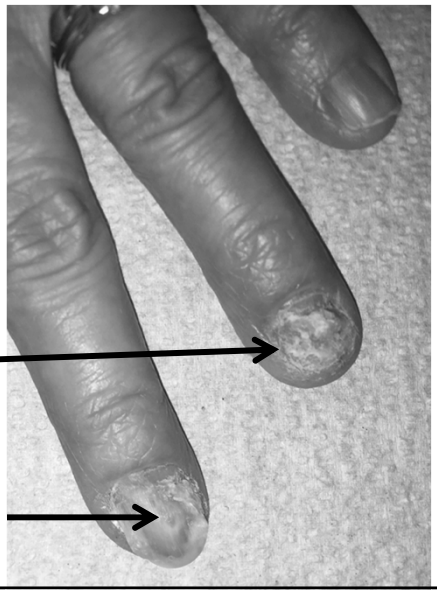
Matrix
Problems!



Nail matrix problem



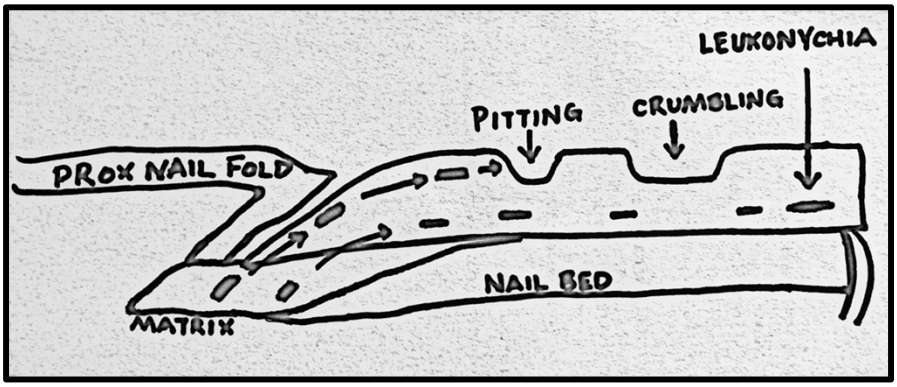
Nail matrix problem



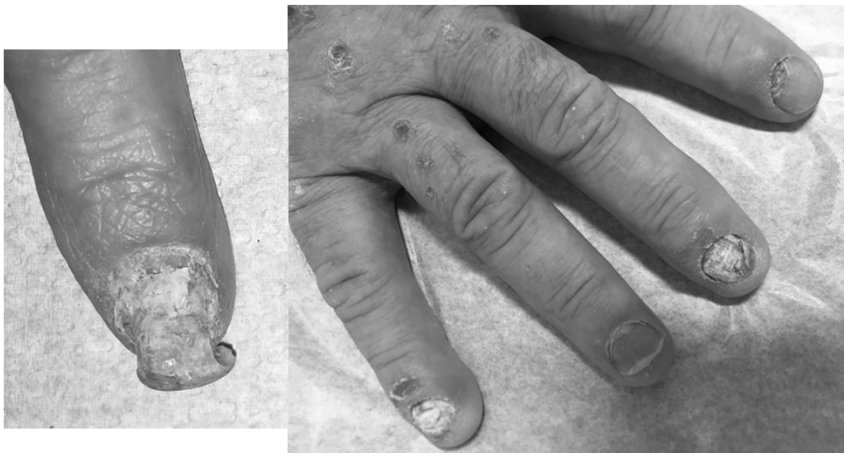
Nail psoriasis

Nail BED signs!!

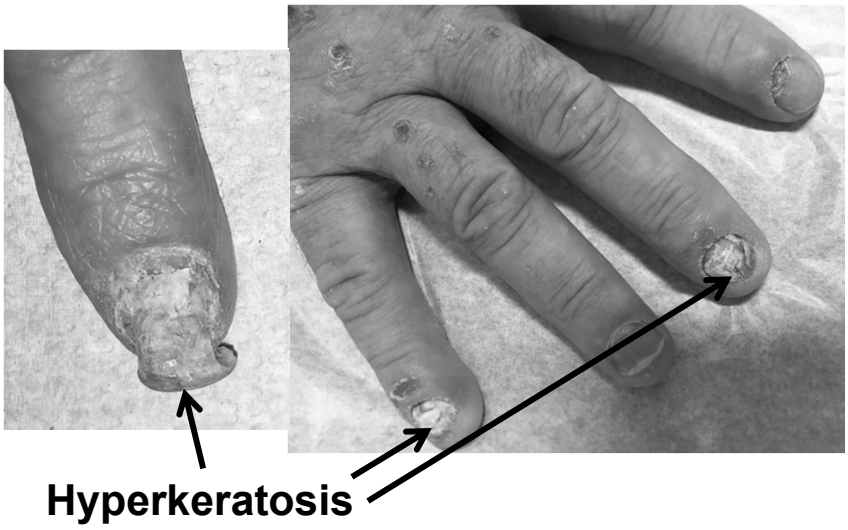
Oil drop/salmon patch
Hyperkeratosis
Splinter hemorrhage



Nail bed problem



Nail bed problem



Topical treatment pearls for psoriasis

- Treat with appropriate strength of topical steroid
  - Plaque
    - Thin plaque – hydrocortisone 2.5%, desonide 0.05%
    - Mod plaque – triamcinolone 0.1%
    - Thick plaque – clobetasol 0.05%, augmented betamethasone 0.05%
  - Inverse
    - Hydrocortisone 2.5%, desonide 0.05%, tacrolimus 0.1%
  - Palmoplantar pustular psoriasis
    - Clobetasol 0.05%, augmented betamethasone 0.05%, urea 40%, tazarotene

Topical treatment pearls for psoriasis

- Consider steroid vehicle
  - Scalp – solutions, foams
  - Body – creams, ointments, spray
  - Intertriginous – cream, ointments

Topical treatment pearls for psoriasis

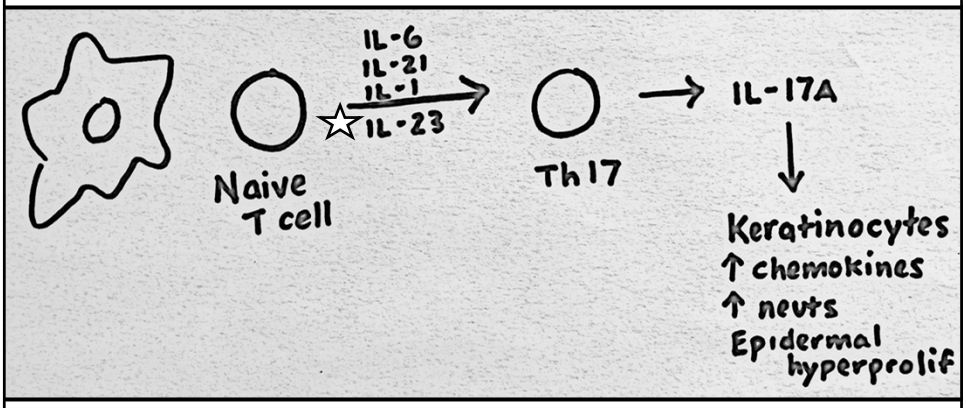
- Consider body surface area affected
  - 30 g = covers entire body for one application
  - If > 10% BSA, consider 454 g of triamcinolone
  - If low BSA, can give lower amounts
- Counsel patients on appropriate use to avoid topical steroid side effects

Pathogenesis of psoriasis and newest therapies

Predominant cytokines in psoriasis

- IL-12 – stimulates Th1 cells
- IL-23 – stimulates Th17 cells
- TH17 cytokines: IL-22, IL-17, TNF-α
- Pro-inflammatory cytokines: IL-1, IL-6, TNF-α

Psoriasis pathogenesis



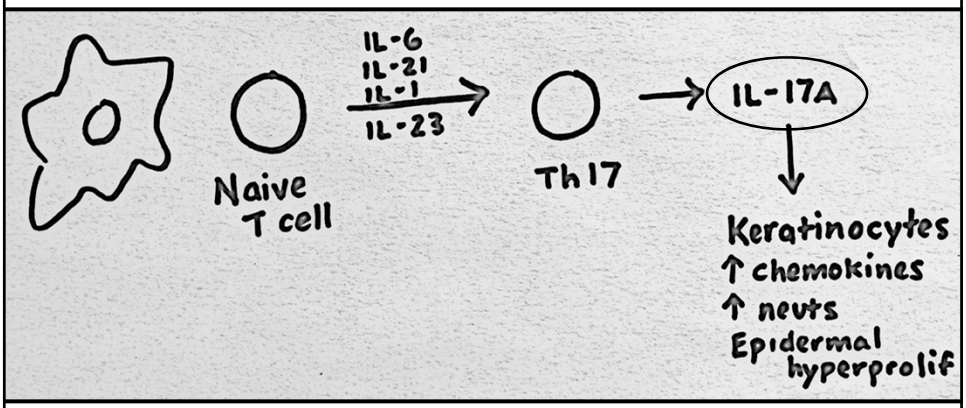
IL-17 cytokines

- 6 members – IL-17A though IL-17F, active a homodimers or heterodimers
- IL-17A is the primary Th17 cell effector cytokine

Effects of IL-17

- Keratinocytes are the principal target for IL-17A
  - Receptors on the surface of keratinocytes throughout the epi
  - IL-17A stimulates keratinocyte expression of multiple chemokines, AMPs
    - CXCL chemokines cause neutrophil migration
    - AMP activate innate immune system
  - IL-17A also contributes to a feedback loop
- Th17 cells and serum IL-17A correlate with PASI

Psoriasis pathogenesis



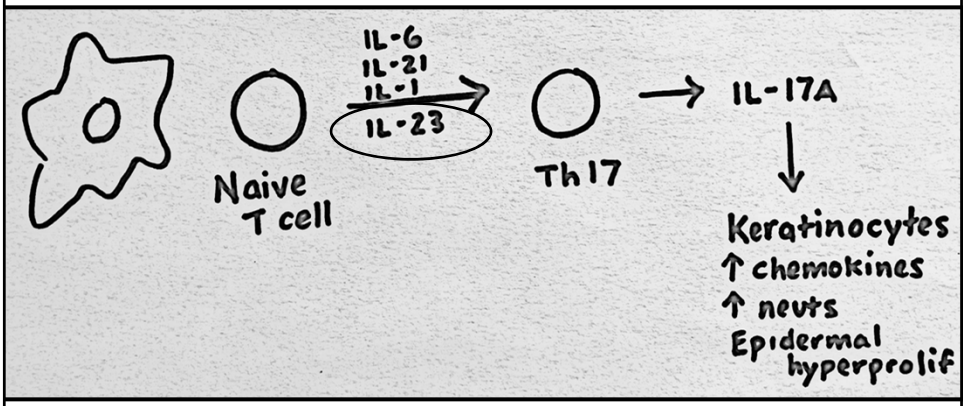
Anti-IL17 medications

Secukinumab – Jan 2015

Ixekizumab – March 2016

Brodalumab – Feb 2017

Psoriasis pathogenesis



Anti IL – 23 medications

Guselkumab – July 2017

Tildrakizumab – March 2018

Several more in clinical trials….

Comorbidities of psoriasis and psoriatic arthritis

Psoriasis co-morbidities

- Psoriatic arthritis
- Hypertension
- Diabetes
- Dyslipidemia
- Obesity
- Crohn's disease
- Uveitis
- Depression
- Alcoholism
- Liver disease
- Chronic kidney disease
- Lymphoma

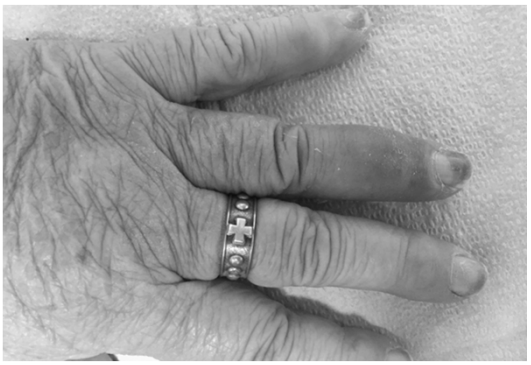
Cost of psoriasis

- **Pso pts in top 10% of healthcare costs -**
  - **More likely to have co-morbidities**
  - **More likely to have hospitalizations, ER visits**
- **Similar biologic use between pso pts in top 10% of healthcare costs and lower 90%**

Psoriatic Arthritis

- **~ 1/4 of pts**
- **Decreases QoL**
- **Over 3/4 pts: skin 1st, arthritis 2nd**
  - **lag time 7 to 12 years**

Psoriatic Arthritis



Clinical patterns:

- **Peripheral (PIP/DIP)**
- **Axial (spondyloarthritis)**
- **Enthesitis**
- **Dactylitis**

About 15% goes undiagnosed!

6 month delay in diagnosis

OR for:

Deformed joints: 2.28

Erosions: 4.58

Osteolysis: 3.6

Sacroilitis: 2.28

Arthritis mutilans: 10.6

CASPAR criteria for PSA
"CIASsification criteria for Psoriatic ARthritis"

Inflamm articular dz + 3 or more of following 5 pts:

1. Evidence of psoriasis (a, b, or c)
    a. Current psoriasis (2 pts)
    b. Hx of psoriasis
    c. Fam hx of psoriasis
2. Nail psoriasis
3. Negative RF
4. Dactylitis (a or b)
    a. Current
    b. History
5. Radiological signs of juxtaarticular bone formation

PEST screening tool "Psoriasis epidemiology screening tool"

1. Hx of swollen joint?
2. Past dx of arthritis?
3. Nail pits?
4. Heel pain?
5. Dactylitis?

Sensitivity 0.68, Specif 0.71

Psoriasis and obesity

"From a public health perspective, nearly a quarter of psoriasis cases could be attributed to overweight or obesity if the estimated associations reflect causal relations"

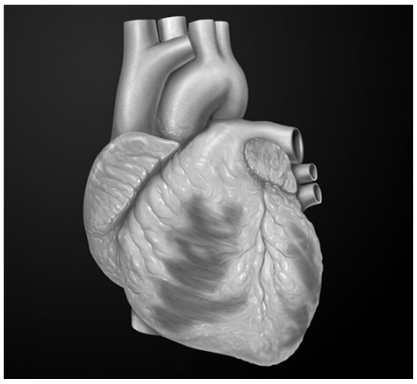
Snekvik et al. J Invest Dermatol. 2017 Dec;137(12):2484-2490.

Psoriasis severity linked with BMI

- **Weight loss helps pso**
  - **Greater PASI reduction**
  - **Need for less aggressive therapies**
- **Low calorie diet helpful**
- **Post gastric bypass –**
  - **HR of incident psoriasis 0.52 (95% CI, 0.33-0.81),**
  - **HR of progression to severe psoriasis 0.44 (95% CI, 0.23-0.86)**

Psoriasis and heart disease

- Cardiovascular risk increases w severity of disease
- Likely secondary to inflammation
- Also increased risk of metabolic syndrome, DM, HTN



Author: Patrick J. Lynch, medical illustrator

Psoriasis and heart disease

- Systemic therapies (esp mtx and anti-TNF) can decr CV disease and major adverse cardiovascular events

Summary

- **Psoriasis – many different forms**
- **Choose treatment based on type of psoriasis, and severity of disease**
- **Pathogenesis – Th17 (IL-23 and IL-17)**
- **Associated with many co-morbidities – look for them and treat them**