INDIAN COUNTRY ECHO

LEADING THE WAY

Growing the Ability to Deliver Quality Healthcare to American Indian and Alaska Native People.

Drug Reactions 101

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Objectives

I. Review clinical findings of common drug eruptions including common culprit medications
II. Discuss “alarm” findings on history, exam, and laboratory studies that may indicate a more serious drug reaction
III. Review treatment of drug eruptions

Basic Assessment

- Exposures (don’t forget to ask about supplements!)
- Timing of when the medication was started compared to when the rash developed (ask about the past few months)
- Rash morphology (blisters? Erosions? Morbilliform rash?)
- Symptoms (itching versus pain)
- Mucosal involvement (make sure to look!)
- Any other associated symptoms (vomiting, shortness of breath, dizziness)

Basic workup

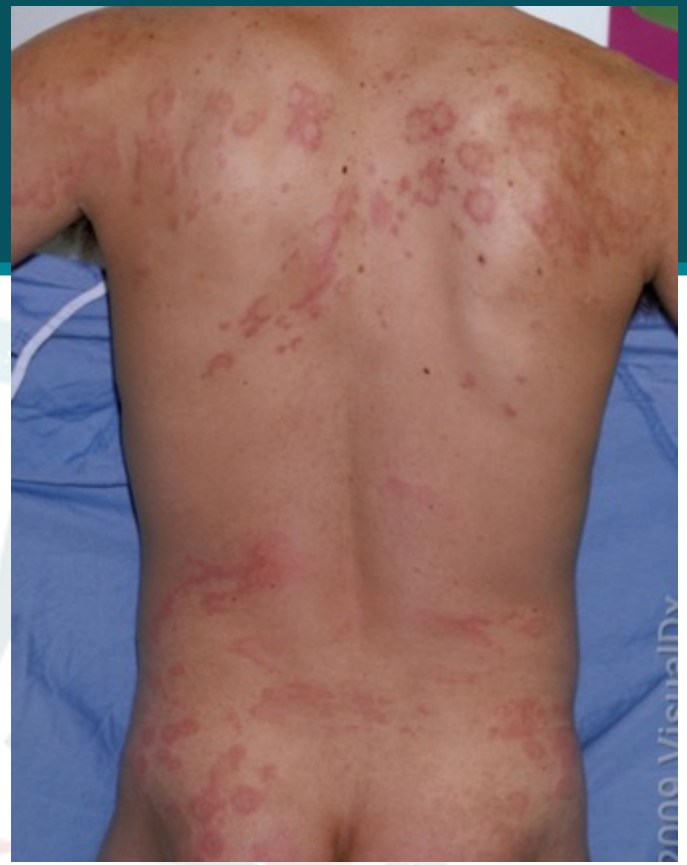
- For most drug rashes, always get a CBC with diff (looking at eosinophils) and CMP (looking at LFTS and creatinine)
- Other labs depending on the type of drug eruption
- For serious drug reactions, stop all unnecessary medications and try to identify the most likely culprit to label them as allergic
- For benign drug eruptions, can continue the medication and treat with topical steroids if needed (must make sure they do not have features of an evolving serious reaction)

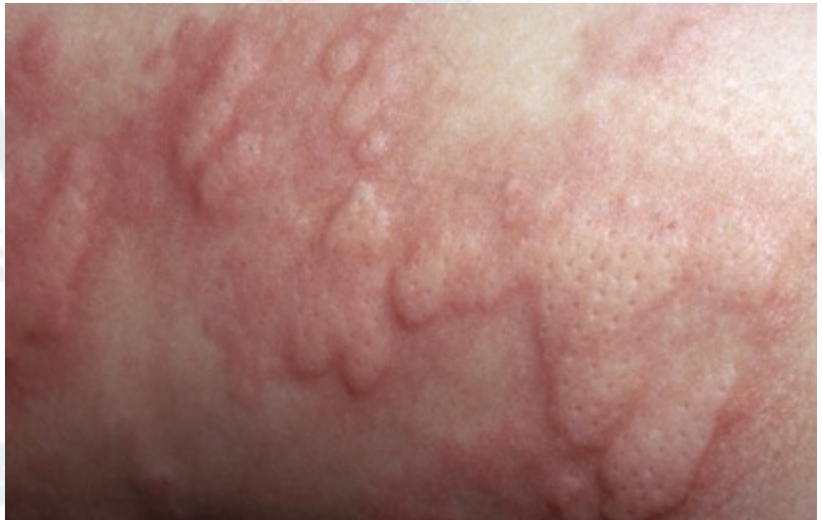
Common culprit medications

- Antibiotics
- Anti-epileptics
- Allopurinol
- NSAIDs
- Antiretrovirals (especially nevirapine)
- **Any medication can cause a drug eruption**

Types of Drug Reactions

- Benign
  - Morbilliform
  - Urticaria
- Serious
  - SJS/TEN
  - DRESS
- Other
  - Fixed drug eruption
  - AGEP
  - Lichenoid, psoriasiform, others





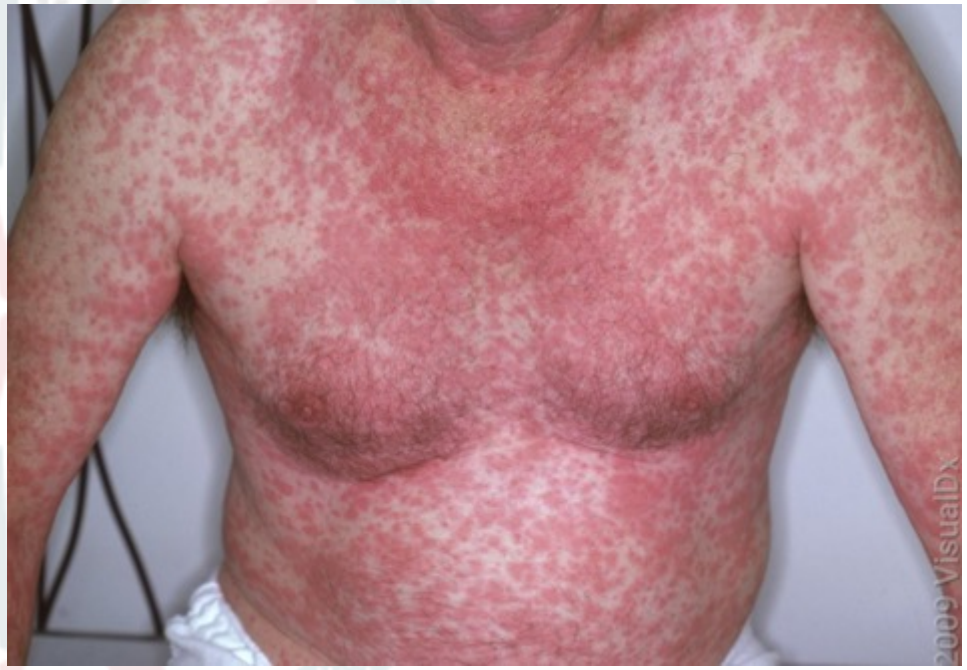
Urticaria

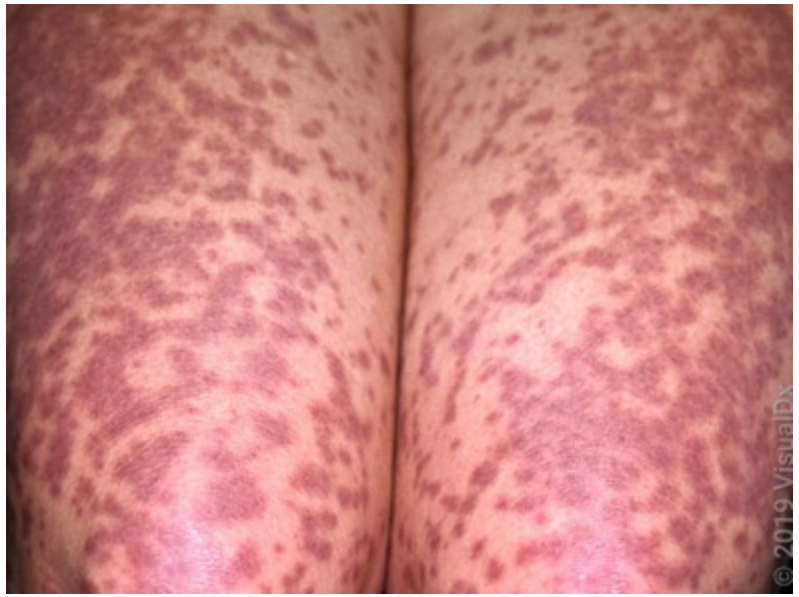
- Common, type I hypersensitivity reaction. Presents within **hours** of exposure
- Urticarial wheels/plaques
- Migratory (individual lesions present for <24 hours)
- Very itchy
- Most cases are not drug-related (usually from a viral infection, food, or idiopathic), but importance to ask about drug exposures (especially ACE inhibitors)
- Ask about anaphylaxis symptoms →ED if concerned for this
- Treat with antihistamines (I like cetirizine, max of 20mg twice daily)

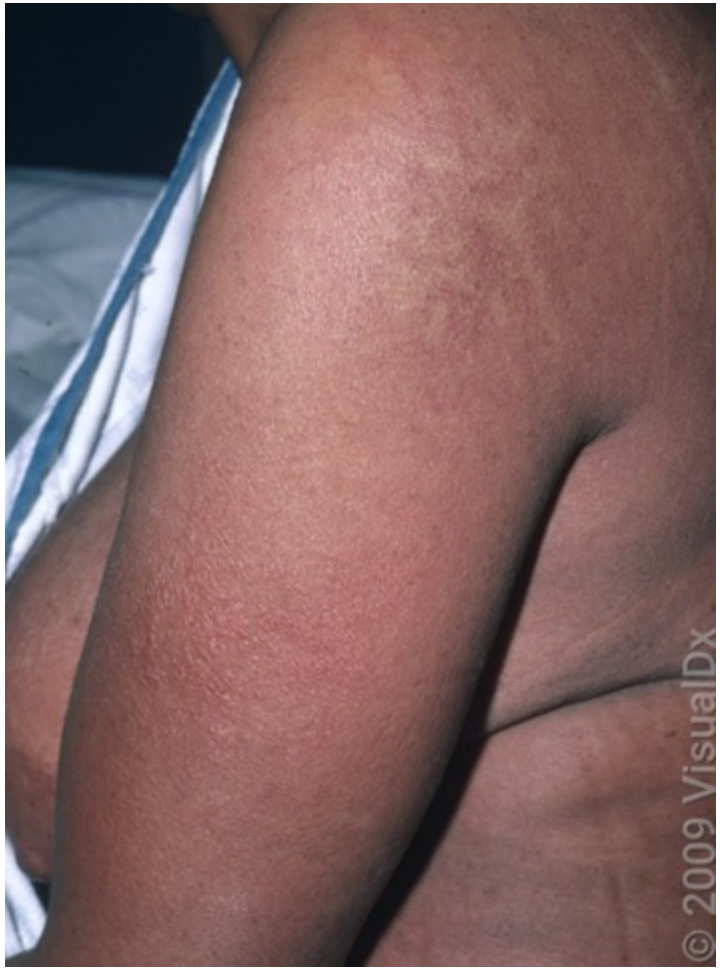
Morbilliform Drug Eruption

- Most common drug rash (type IV hypersensitivity)
- Widespread erythematous macules and papules coalescing into patches and plaques (morbilliform means “measles-like”)
- Itchy, usually starts on the chest or body folds. Rarely involves the face.
- Typically starts 7-14 days after starting medication

Morbilliform Drug Eruption







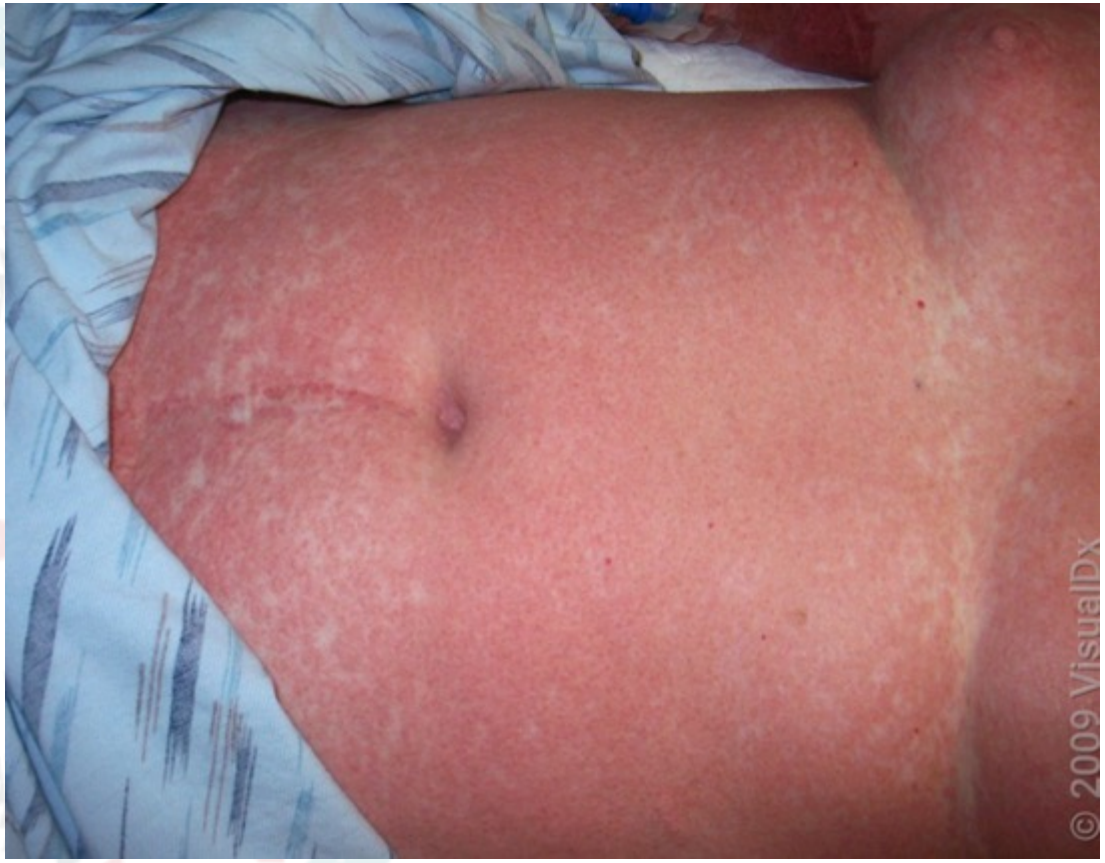
Morbilliform Drug Eruption

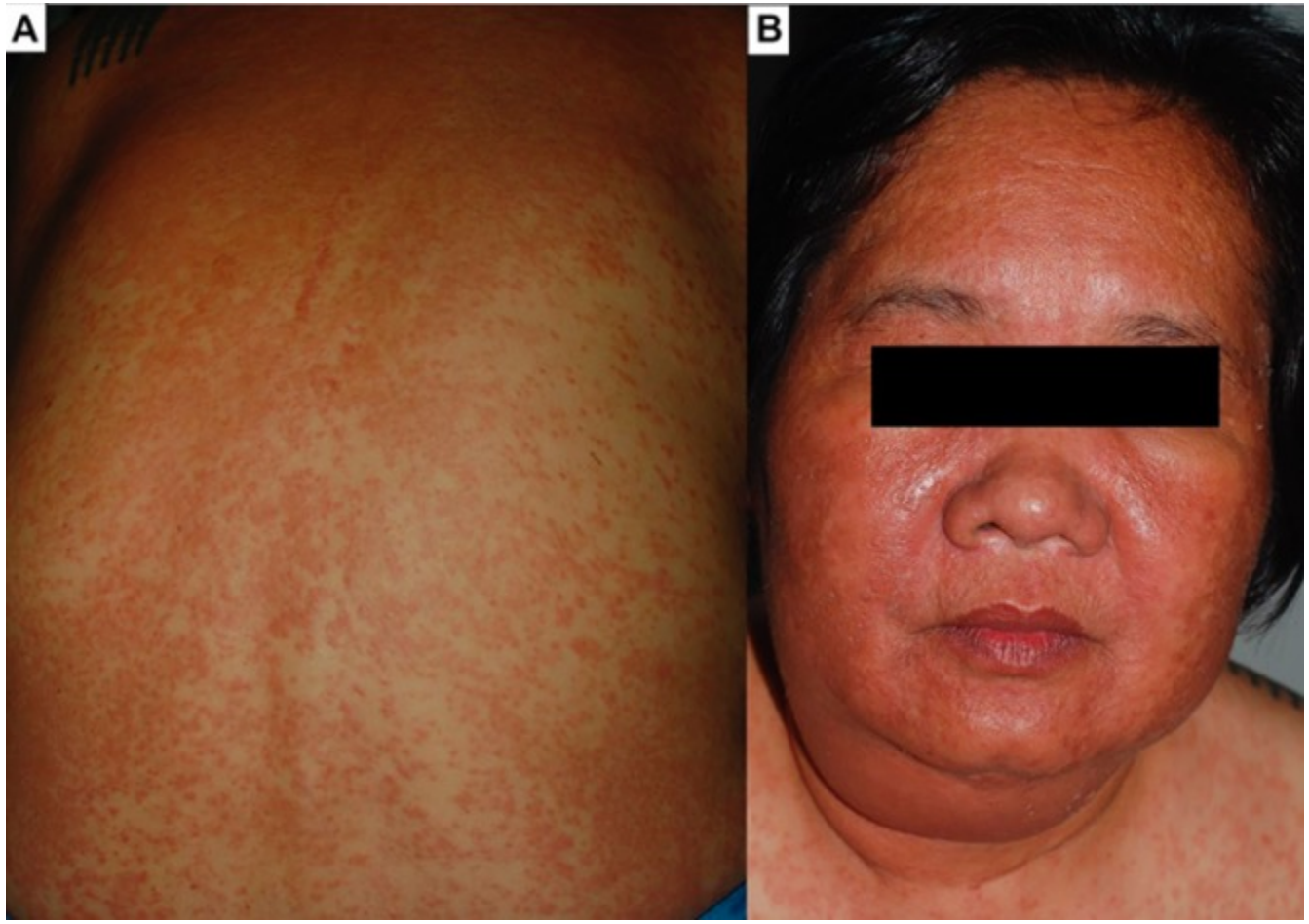
- Management
  - CBC/diff and LFTs to rule out serious drug rash
- Stop culprit med if possible (if it is a necessary medication, can “treat through” the rash with topicals)
- Topical steroid twice daily for 1-2 weeks (usually triamcinolone)
- Rash often worsens for a few days before it starts to get better

Drug Reaction with Eosinophilia and Systemic Symptoms (DRESS)

- Serious drug reaction with internal organ involvement
- ~10% reported mortality rate
- Longer latency period (presents 2-8 weeks after starting medication)
- Morbilliform rash, fevers, lymphadenopathy, edema (especially of face), internal organ involvement (usually liver > kidneys, rarely heart, lungs)

Drug Reaction with Eosinophilia and Systemic Symptoms (DRESS)



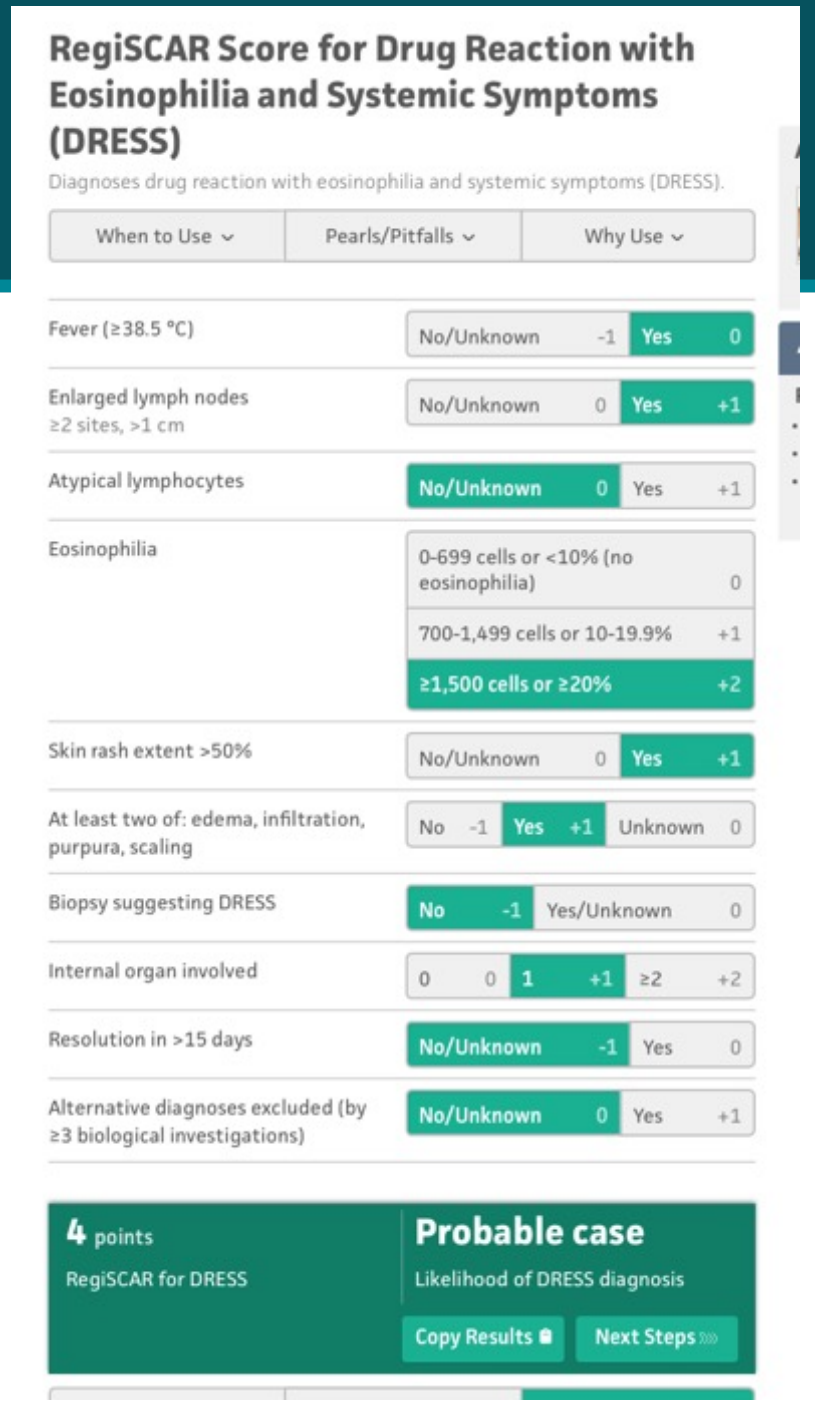


https://europepmc.org/article/med/35517811

DRESS Workup

- CBC/diff and CMP (eosinophils often >1500). Look for elevation in creatinine and transaminitis
- Identify most likely culprit medication(s) and stop all unessential medications
- Hospital admission
- If shortness of breath or other concerning cardiac symptoms, check EKG and troponin (cardiac DRESS is rare but has been reported, especially from minocycline)

RegiSCAR



RegiSCAR Score for Drug Reaction with Eosinophilia and Systemic Symptoms (DRESS)

Diagnoses drug reaction with eosinophilia and systemic symptoms (DRESS).

When to Use | Pearls/Pitfalls | Why Use

Fever (≥38.5 °C)	No/Unknown	-1	**Yes**	**0**		
Enlarged lymph nodes ≥2 sites, >1 cm	No/Unknown	0	**Yes**	**+1**		
Atypical lymphocytes	**No/Unknown**	**0**	Yes	+1		
Eosinophilia	0-699 cells or <10% (no eosinophilia)	0				
	700-1,499 cells or 10-19.9%	+1				
	≥1,500 cells or ≥20%	**+2**				
Skin rash extent >50%	No/Unknown	0	**Yes**	**+1**		
At least two of: edema, infiltration, purpura, scaling	No	-1	**Yes**	**+1**	Unknown	0
Biopsy suggesting DRESS	**No**	**-1**	Yes/Unknown	0		
Internal organ involved	0	0	**1**	**+1**	≥2	+2
Resolution in >15 days	**No/Unknown**	**-1**	Yes	0		
Alternative diagnoses excluded (by ≥3 biological investigations)	**No/Unknown**	**0**	Yes	+1		

4 points
RegiSCAR for DRESS

Probable case
Likelihood of DRESS diagnosis

Copy Results | Next Steps

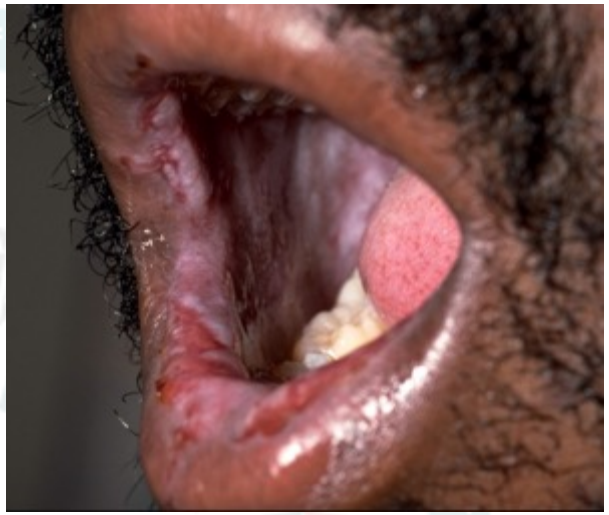
DRESS Management

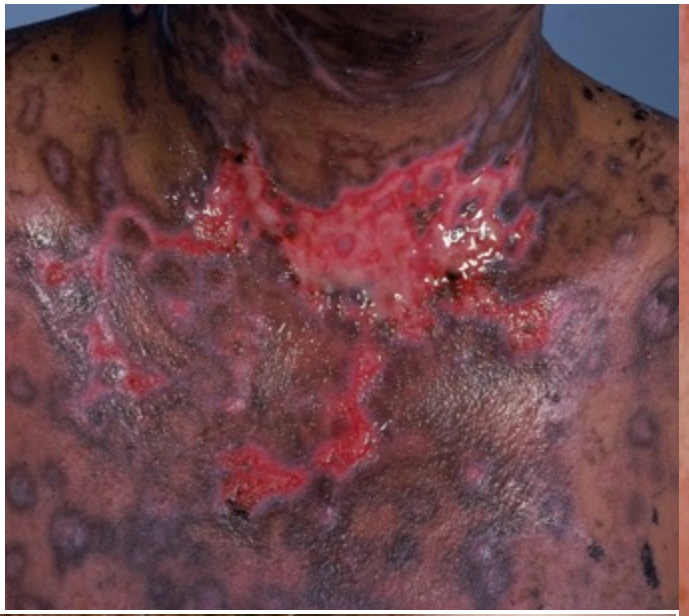
- Systemic steroids are mainstay of treatment
  - Start with 1-1.5mg/kg/day of PO prednisone equivalent
  - Often need to go up to 2mg/kg/day or more of steroids
  - Daily CBC/diff and CMP until eosinophilia and transaminitis resolve, then every 1-2 weeks while tapering steroids
  - **Slow taper** over 2-3 months. Recrudescence is common if tapered too quickly
  - At risk for delayed autoimmunity (especially hypothyroidism > type 1 diabetes). Check TSH at baseline and 3-6 months after the episode.
  - **Avoid any suspected culprit meds for life**

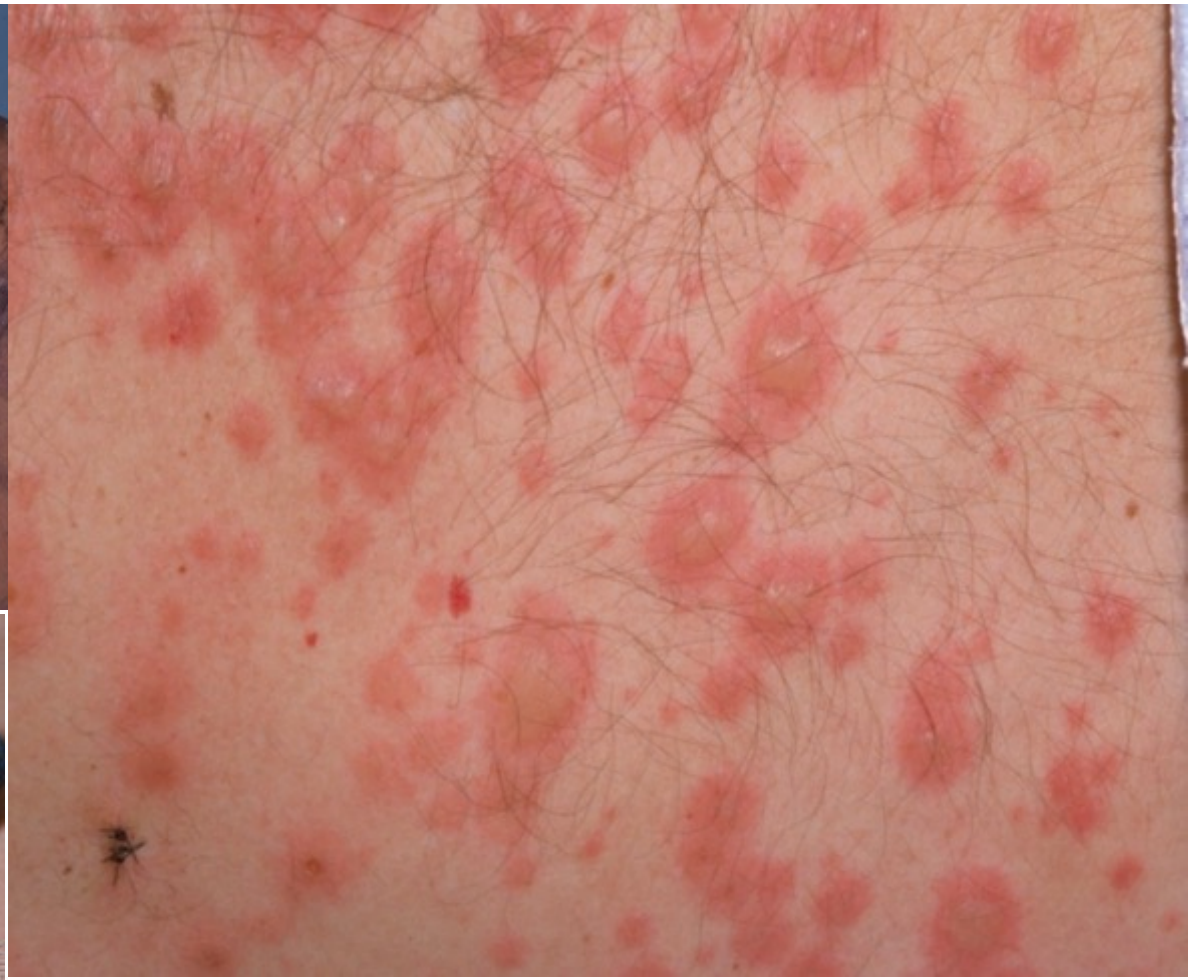
Stevens Johnson Syndrome/Toxic Epidermal Necrolysis (SJS/TEN)

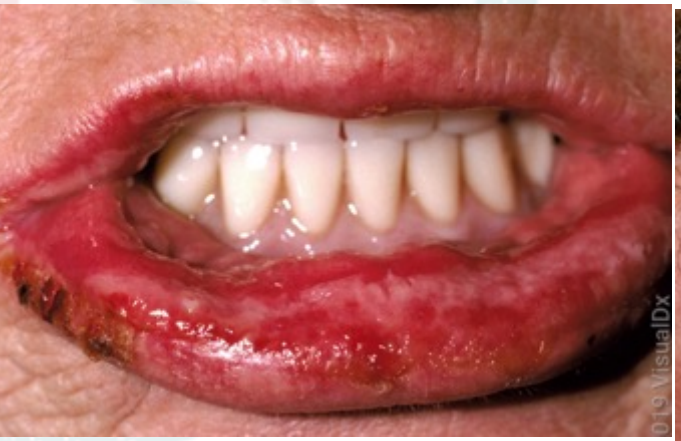
- Severe drug reaction characterized by necrosis and detachment of the epidermis
- Starts 7-14 days after starting medication
- Common culprits, but any medication is possible
- SJS: BSA <10%
- SJS/TEN overlap: 10-30% BSA
- TEN: >30% BSA
- **Almost always has mucosal involvement (lips/mouth; must examine the genitals)**

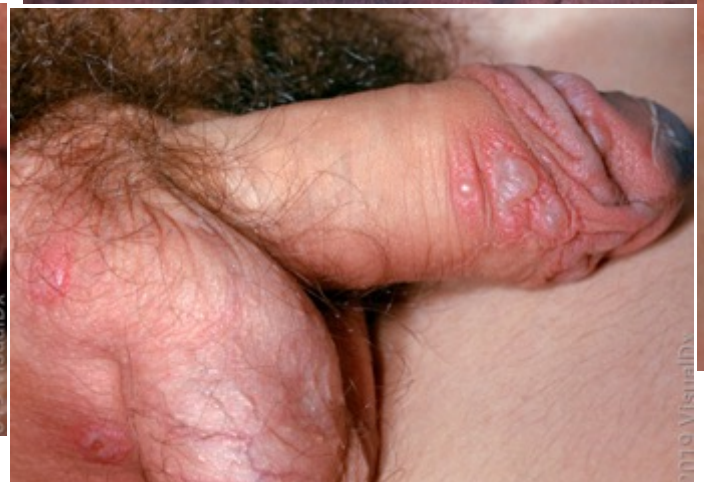
Stevens Johnson Syndrome/Toxic Epidermal Necrolysis (SJS/TEN)



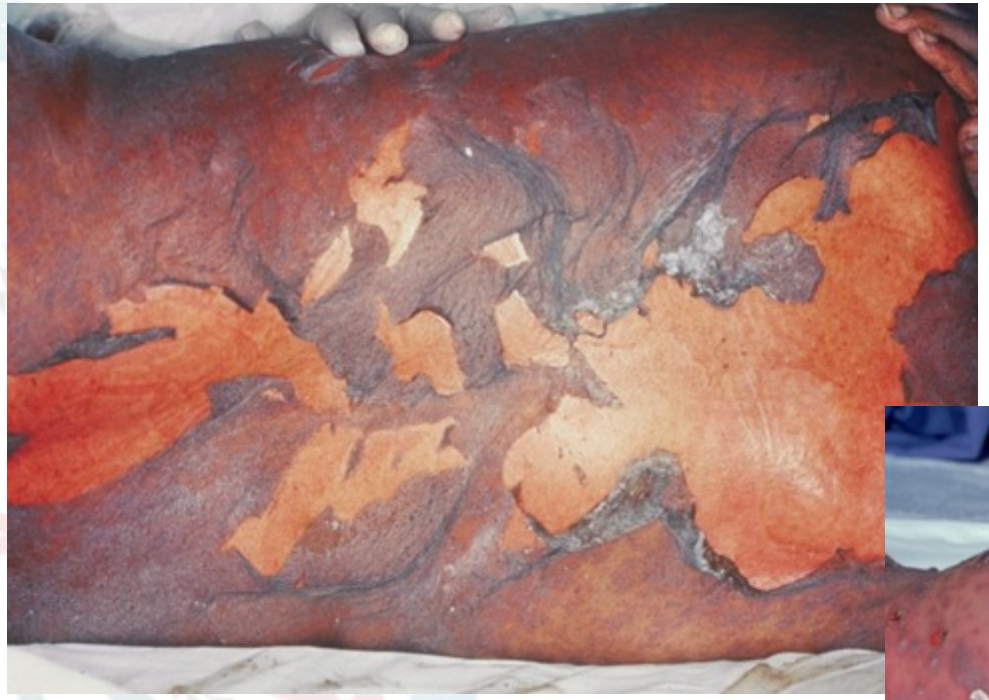


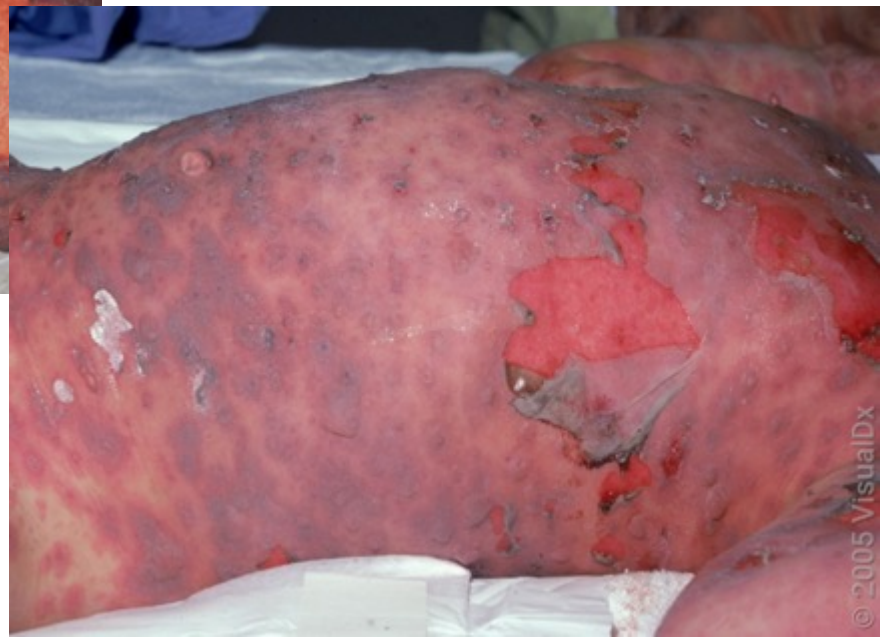


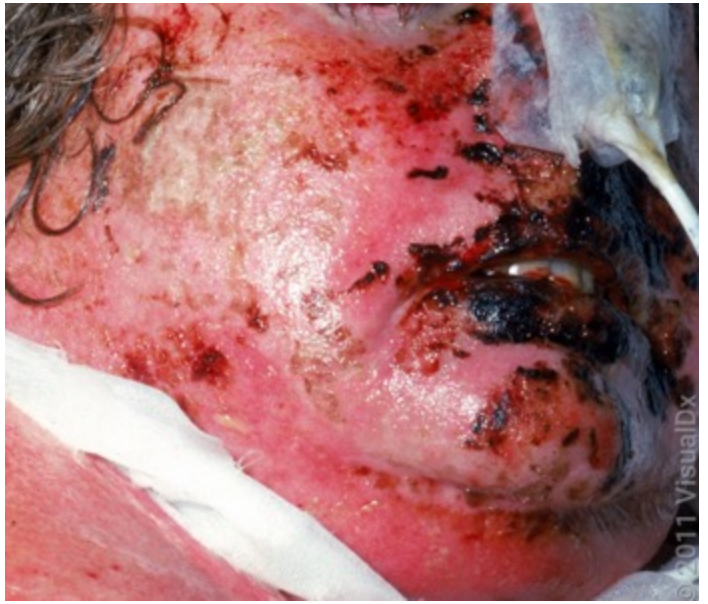




Stevens Johnson Syndrome/Toxic Epidermal Necrolysis (SJS/TEN)



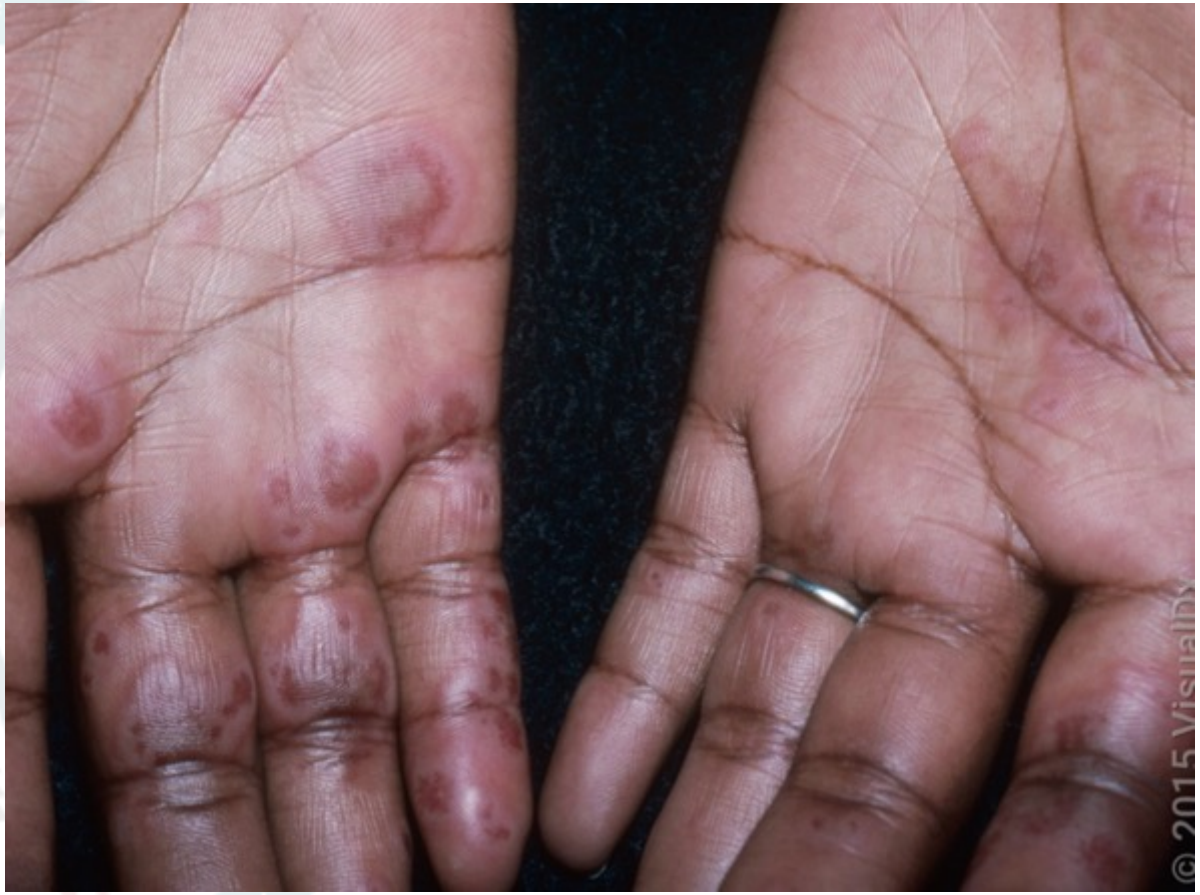


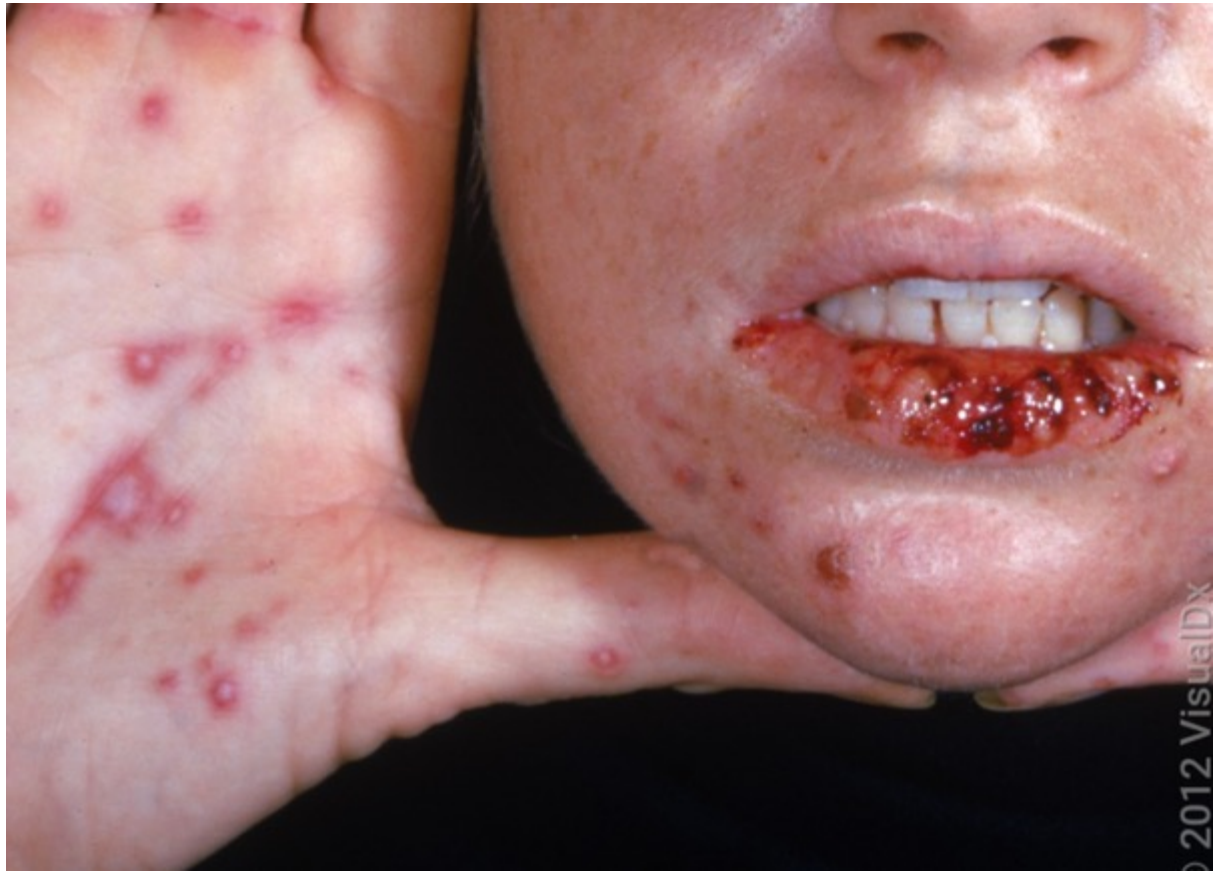


Stevens Johnson Syndrome/Toxic Epidermal Necrolysis (SJS/TEN)

- Management
  - Identify most likely culprit medication(s) and **stop all unessential medications**
  - Needs ICU admission, ideally at a burn center
  - Treatment protocols vary by institution, usually some permutation of steroids, IVIG, etanercept
  - **Ensure patient never receives suspected culprit medication(s) ever again**

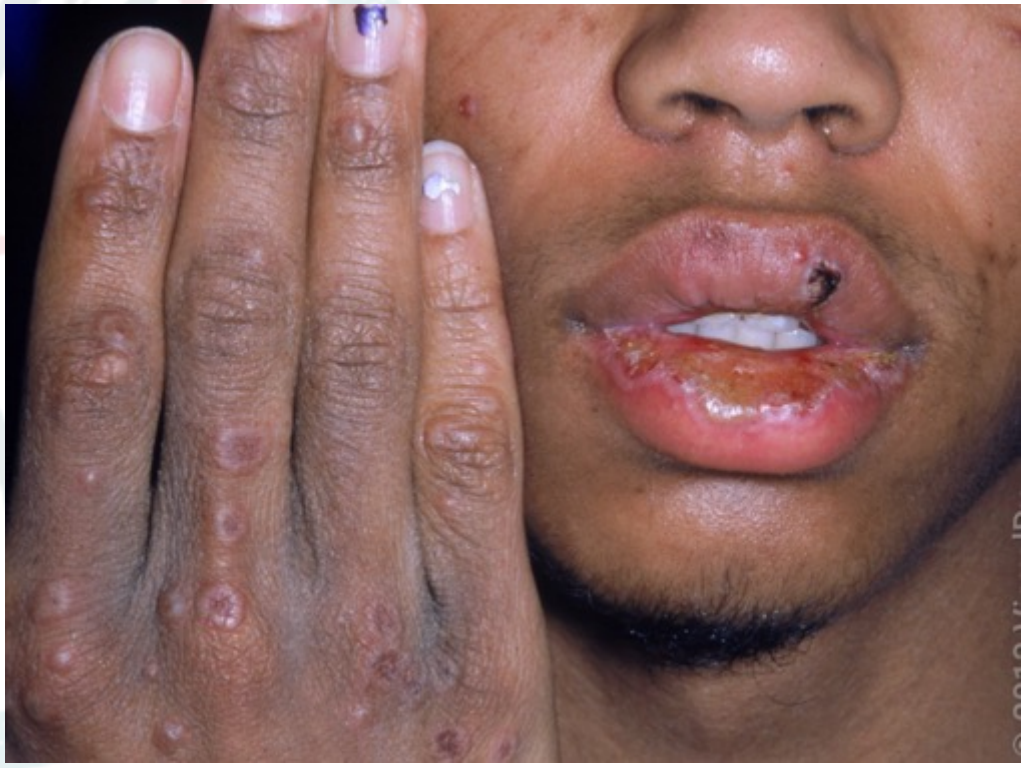
SJS/TEN?

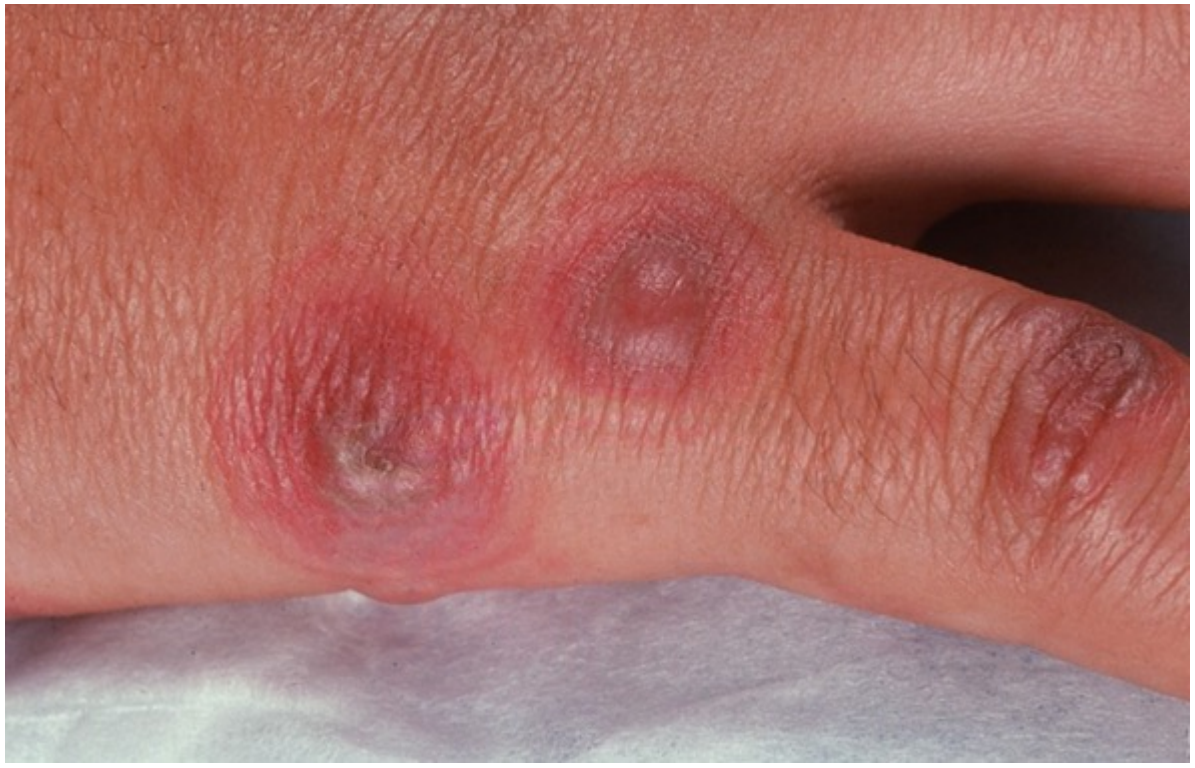




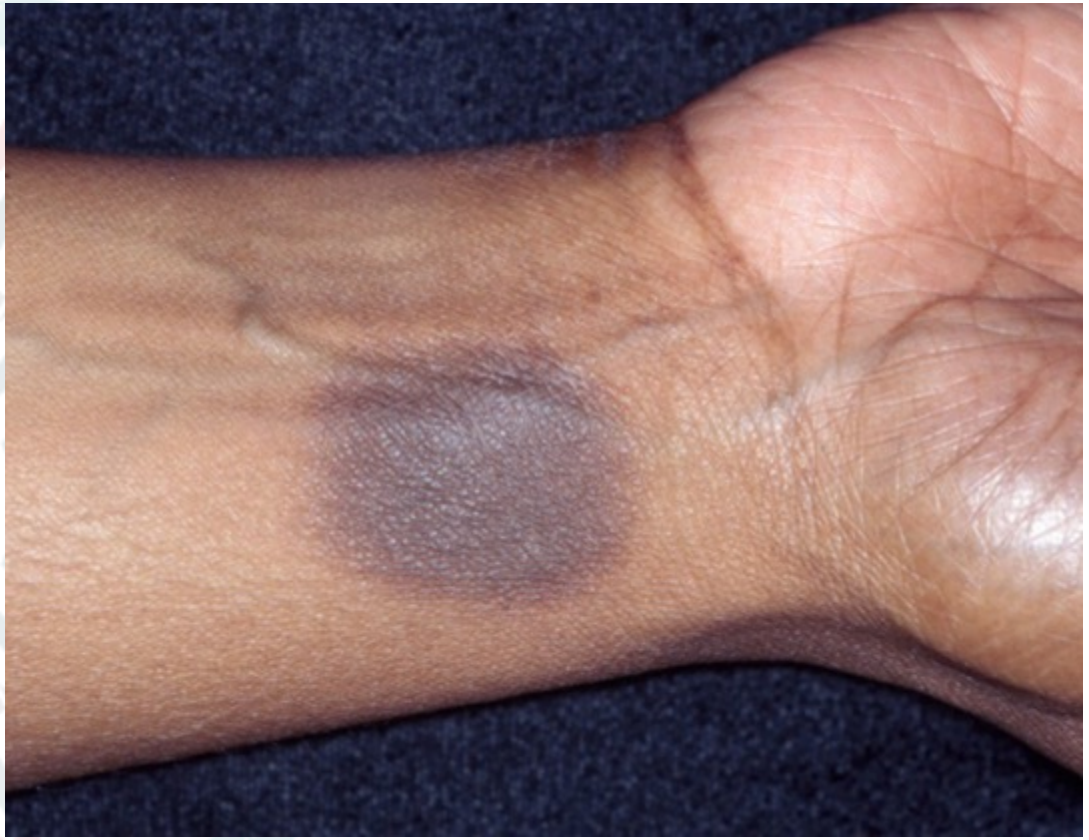
Erythema Multiforme

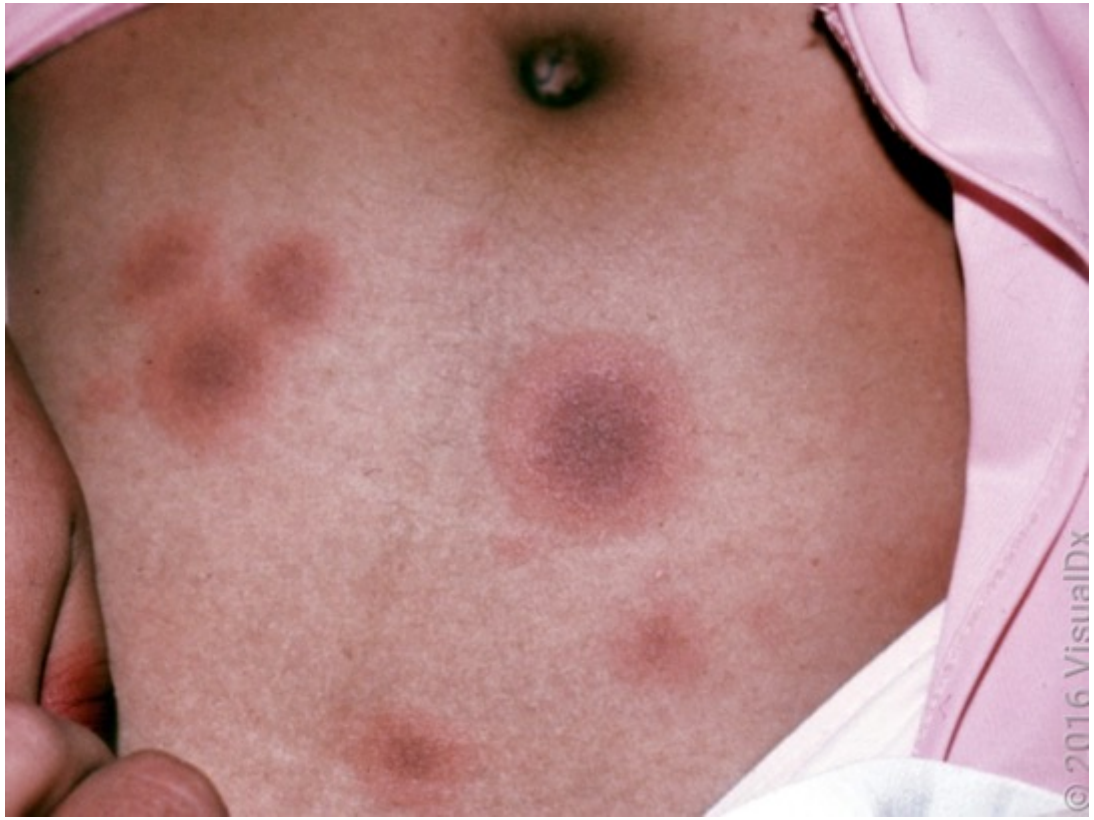
- Reaction pattern characterized by target lesions on acral sites +/- mucosa
- Almost always triggered by HSV



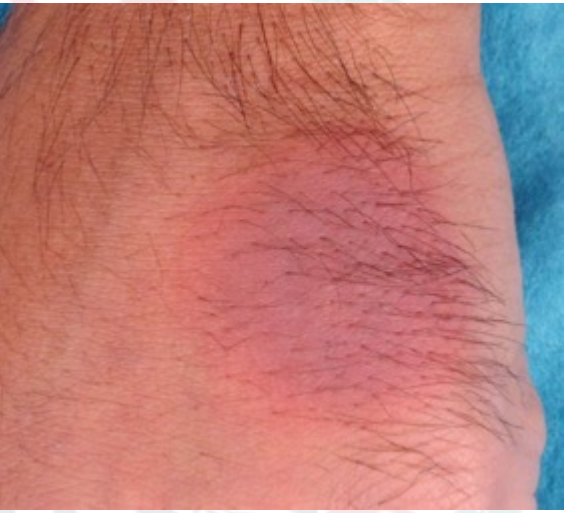


SJS/TEN?



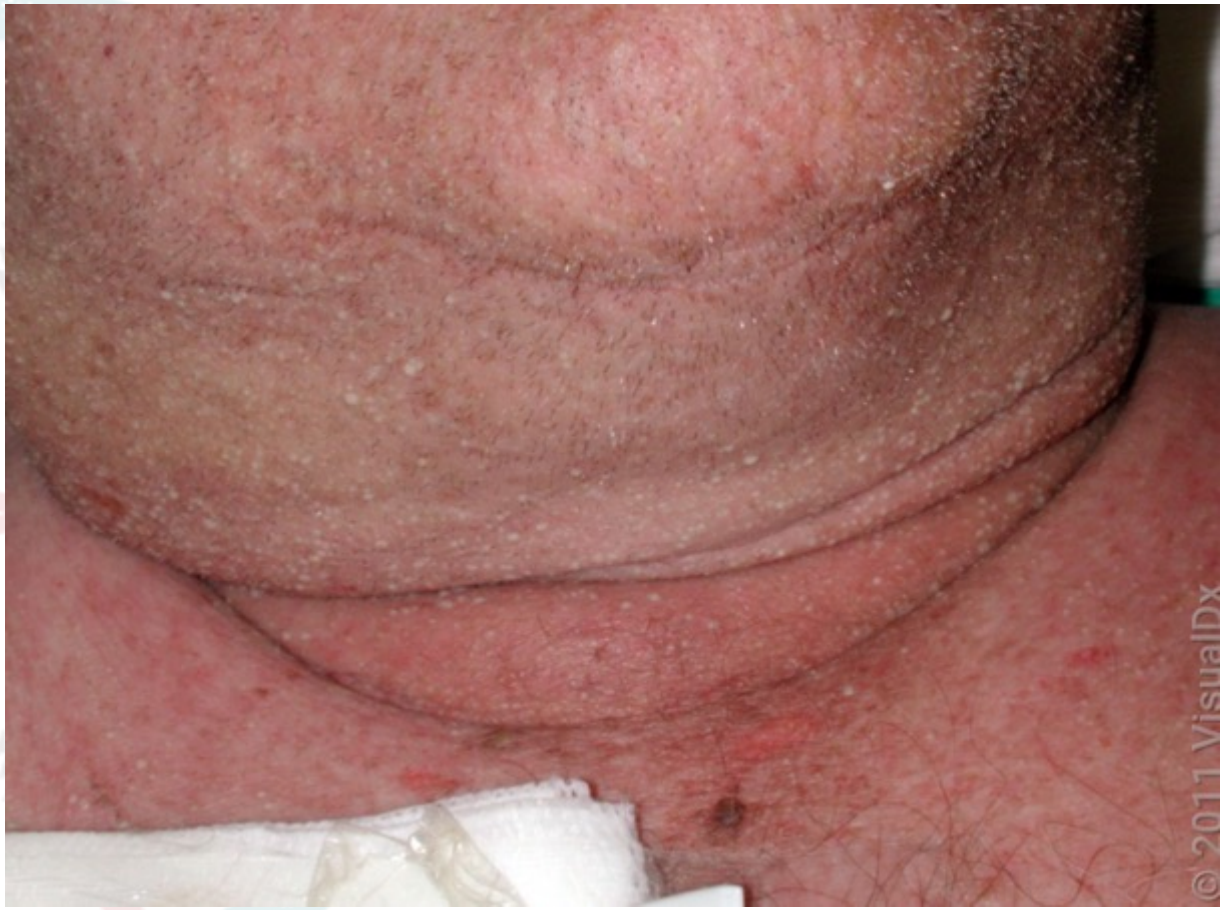


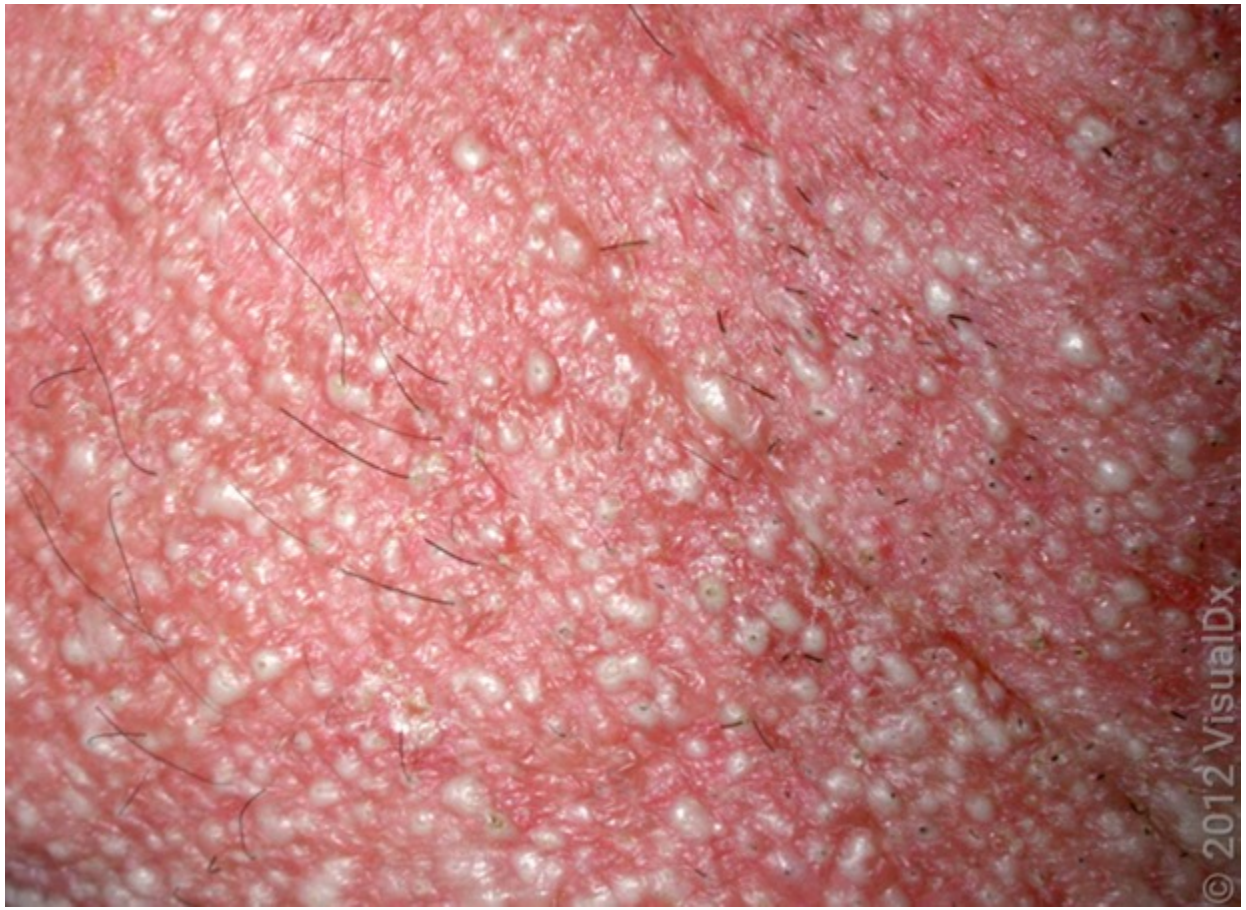
Fixed Drug Eruption



- One or more oval-shaped, well-demarcated plaques. Occurs within minutes to hours of drug exposure
- Often has a burning sensation
- Self-resolves after medication discontinuation, and always recurs at the same spots (may develop additional spots with repeat exposure)

Bonus Case





Acute Generalized Exanthematous Pustulosis (AGEP)

- Antibiotics most common culprit
- Eruption of widespread erythema (starts in body folds) with numerous pinpoint pustules
- Typically starts within a few days of starting the culprit medication
- Often with associated fever
- Self-resolves within 1-2 weeks after stopping the medication

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Visit: IndianCountryECHO.org

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