Inflammatory reactions: Insights from CARD14-associated papulosquamous eruption

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Overview

- CARD14-associated papulosquamous eruption
- Insights
  - Clinical and histopathologic inflammatory reaction patterns
  - Medication reactions and other diseases with a PRP-like reaction pattern
  - Practical considerations - management and treatment

Histopathology – most common pattern

CARD14-associated papulosquamous eruption

- Clues
  - History of rash from infancy/childhood
  - Family h/o psoriasis or PRP
  - Treatment resistance
- Facial involvement
- Hyperpigmented macules
- Histopathologic

Disclosures

- No conflicts of interest pertaining to this talk
- Will discuss off-label treatments
- Royalties from Elsevier and Wiley-Blackwell

CARD14-associated papulosquamous eruption: A spectrum including features of psoriasis and pityriasis rubra pilaris
CARD14-associated papulosquamous eruption

- Clues
  - History of rash from early age
  - Family h/o psoriasis or PRP
  - Treatment resistance
- Facial involvement
  - Hyperpigmented macules
- Histopathologic

Typically PRP-like

Overview

- CARD14-associated papulosquamous eruption
  - May not be so rare – consider this diagnosis for a papulosquamous/PRP pattern
- Insights
  - Clinical and histopathologic inflammatory reaction patterns
  - Medication reactions and other diseases with a PRP-like reaction pattern
  - Practical considerations - management and treatment

Inflammatory reaction patterns - histopathologic

Examples:
- Epidermal
  - Spongiotic
  - Psoriasiform (papulosquamous)
  - Lichenoid
- Dermal
  - Unscaral
  - Granulomatous
  - Purpuric

Inflammatory reaction patterns - clinical

Examples:
- Epidermal
  - Spongiotic
  - Psoriasiform (papulosquamous)
  - Lichenoid
- Dermal
  - Unscaral
  - Granulomatous
  - Purpuric
Allergic (contact dermatitis)

When acute, ordered vesicles
Intraepidermal mononuclear abscesses
Epidermal or dermal eosinophils

Pityriasis rosea
Mounded parakeratosis
Extravasated RBCs

Irritant (contact dermatitis)
Necrotic keratinocytes
Neutrophils

Seborrheic (dermatitis)
Perifollicular parakeratosis

Spongiotic pattern – potential histopathologic distinguishing features

ACUTE
SUBACUTE TO CHRONIC

Spongiotic drug reactions

• 10% of drug reactions in an inpatient setting in one series
• Usually has
  • Exocytosis
  • Eosinophils
  • Civatte bodies (variably present but hard to find)
  • Papillary dermal edema
  • Mid-dermal extension of inflammation

Photos courtesy of Jonathan Leventhal, MD

Spongiotic inflammatory reaction pattern

• We know microscopic spongiosis is not specific
• Clinical context important

Photos courtesy of Julie Schaffer, Yale Dermatology, Visual Recognition 1e

Inflammatory reaction patterns

• Checkpoint inhibitor reactions support that inflammatory reaction patterns are not specific to given diseases
  • Example: Lichenoid reaction
  • Also psoriasis-like, bullous pemphigoid-like, sarcoidal, etc...

Pityriasis rubra pilaris-like drug reactions

• Pembrolizumab
• Sorafenib, bevacizumab, ponatinib
• Imatinib
• Sofosbuvir, telaprevir
• Insulin
• Topical imiquimod
• Simvastatin

Photos courtesy of JonathaL Leventhal, MD

Spongiotic drug reactions

• 23 patients with generalized (16/23) or localized (esp. lower limbs; 7/23) – culprit drugs = ACEI, ARB, HCTZ
• 50 patients with eczematous eruptions – association with CCB and thiazides
• 102 patients with eczematous eruption; 68% better after stopping CCB

Weedon, 3e

5. Paz C et al, JAAD 2007;65:452
12. Coleman E et al, JAAD Case Rep 2018;4:669
**Practical considerations — management/Rx**

- PRP-like drug
  - Discontinue culprit drug
- PRP:
  - Conventional: MTX, retinoids
  - IL-17A inhibitors (e.g. secukinumab, ixekizumab) or IL-23 inhibitors
- CAPE:
  - Often refractory to MTX, retinoids
  - IL-17A or IL-23 inhibitors (e.g. ustekinumab)
- Ichthyosis: phase 2 trial of secukinumab at Northwestern

**Take-home Points**

- CARD14-associated papulosquamous eruption (CAPE)
  - Typically – PRP-like reaction pattern
  - Can be more non-specific “psoriasiform/papulosquamous”
- Other clinical scenarios can also have a PRP-like reaction pattern
  - PRP-like drug reaction
  - Facial discoid dermatosis
  - Some ichthyoses
  - IL-17 and IL-23 inhibitors may be helpful