The inflammatory skin diseases you need to know and practical ways to diagnose them

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Erythema multiforme
• An acute interface dermatitis
• A lymphocytic infiltrate that attacks the epidermal-dermal junction elicits vacuolar alteration
• Typically evoked in reaction to a medication or by virus

EM
• Look for vacuolar alteration along the junction – with perijunctional necrotic keratinocytes
**EM**

- Look for evidence of an acute dermatitis, typically indicated by a woven stratum corneum
• Look for a lymphocytic infiltrate that occasionally includes eosinophils
EM

- Look for confluent epidermal necrosis when severe
- Look for a context that mentions target lesions, blistering, and/or mucosal involvement
Always in your differential

• Acute graft-vs-host disease
Lichen planus

- A chronic interface dermatitis
- Analogous to EM but with a longer time frame
- Generally idiopathic, but may be linked to a medication
- Manifest clinically as pruritic purplish papules
LP

- Look for vacuolar alteration along the junction – with perijunctional necrotic keratinocytes and squamotization

LP

- Look for evidence of a chronic dermatitis, including a compact, thickened stratum corneum with associated hypergranulosis
**LP**

- Look for a lymphocytic infiltrate that sometimes includes eosinophils
**LP**

- Slight spongiosis can be seen

**LP**

- Look for a context that mentions small papules, pruritus, or violaceous coloration
Always in your differential

- Lichenoid drug reaction
**Spongiotic dermatitis**

- The most common form of inflammatory skin disease
- A common finding in biopsies
- Includes entities contact dermatitis, nummular dermatitis, and atopic dermatitis
- Also known as “eczema”
“Eczema”

- Look for spongiosis (edema spaces separating keratinocytes in the epidermis)

- Look for parakeratosis mixed with serum
“Eczema”

- Look for a modest superficial infiltrate that includes lymphocytes and/or eosinophils
“Eczema”

- Remember that the epidermis may become psoriasiform with chronicity
“Eczema”

• Obtain a PAS-D stain to be certain tinea is not present
“Eczema”

- Look for a compatible clinical context, which may be challenging because the provided information may be vague
- When they generically say “dermatitis,” they probably mean “spongiotic dermatitis”

Psoriasis

- Any dermatitis that causes elongation of rete is psoriasiform
- Spongiotic dermatitis can be secondarily psoriasiform
-Circularly, psoriasis is our prototype of psoriasiform dermatitis

Pso: 3 things

1. Configuration of rete
2. Configuration of stratum corneum
3. Configuration of vessels
**Pso**

- Configuration of rete
  - look for rete elongated in uniform fashion
$Pso$

- Configuration of stratum corneum
  - should include parakeratosis mixed with neutrophils but generally lack serum
Pso

- Configuration of vessels
  - in dermal papillae, dilatation and tortuosity are supportive
Pso

- The stratum granulosum may be preserved but not exaggerated
**Pso**

- Neutrophils in the stratum corneum – get a PAS-D stain to verify that dermatophytes are not present

**Granuloma annulare**

- A diffuse dermatitis of unknown cause typified by a histiocytic infiltrate
- The clinical spectrum is broad but the most conventional cases include annular lesions, thus the name
- Acral annular lesions are especially stereotypical
GA

- Look for a diffuse or interstitial infiltrate that clearly includes histiocytes
- So-called *interstitial* GA can be microscopically subtle
- CD68 and CD163 stains can be considered to confirm the presence of authentic histiocytes
GA

- While early lesions may have only interstitial histiocytes, fully-developed lesions are *palisaded* (with central degeneration surrounded by a clearly granulomatous infiltrate)
GA

- Mucin deposits can be seen in the centers of palisaded zones
- Consider colloidal iron or alcian blue staining
• If deep, especially if subcutaneous: 
  
  *deep GA*
Always in your differential

- Necrobiosis lipoidica
**Sweet’s syndrome**

- An acute dermatitis with a diffuse dermal infiltrate rich in neutrophils
- Systemic symptoms such as malaise and fever may be associated
- Underlying malignancy, especially hematolymphoid proliferations, often represents an inducing factor
Sweet’s

- Look for a relatively diffuse infiltrate that includes many neutrophils
Sweet’s

- Look for leukocytoclasis, which is commonly present; full-fledged leukocytoclastic vasculitis is only rarely apparent
Sweet’s

• Look for papillary dermal edema
• The epidermal is prototypically normal, but secondary spongiosis or exocytosis of neutrophils can be seen

Sweet’s

• Special stains for microbes can be considered to address infection

Morphea

• A form of dermatitis that eventuates with sclerosis of the reticular dermis
• Similar to scleroderma by typically localized and only occasionally generalized
• Manifest clinically with hard, indurated, and woody skin, but early disease may be misconstrued as unrelated disorders such as cutaneous T-cell lymphoma
Morphea

- Look for alteration of the reticular dermis with accentuation of collagen bundles and reduction in space between them
Morphea

- Look for involvement of the deep dermis; rarely, superficial morphea may present with involvement of the upper reticular dermis
Morphea

- Look for a lymphocytic infiltrate that also includes plasmacytes; plasmacytes near the subcutaneous juncture are especially valuable diagnostically.
Morphea

- If the infiltrate is granulomatous, rethink your diagnosis
- One potential form of “granulomatous morphea” is sclerotic necrobiosis lipoidica
Morphea

- EVG staining shows a relatively normal configuration in morphea; in scars, loss of elastic tissue can be seen by EVG staining

Erythema nodosum

- The most common form of panniculitis
- Typically septal in distribution
- Involvement can be paraseptal, so some diagnostic flexibility is warranted
- Relatively nonspecific clinical morphology
- Sometimes associated with sarcoidosis
EN

- Verify sufficient adipose tissue to permit evaluation of a panniculitis
- A septal or paraseptal configuration is characteristic
EN

• Seek
  – widened or fibrotic septa
  – an infiltrate with multinucleate macrophages
  – a neutrophilic infiltrate, sometimes, if early
• Look for lipomembranous fat necrosis, which can also present in the form of Miescher’s radial granulomas
Alopecia

- Focus on identifying scarring and non-scarring forms
- Transverse sectioning increases the number of follicles that can be seen, thereby improving diagnostic yield, but implementation may be difficult for the occasional user
Alopecia

- Look at the sebaceous glands and look for fibrosis around follicles
  - if fibrosis is prominent and sebaceous glands are absent, it’s scarring

Alopecia

- Look at the sebaceous glands and look for fibrosis around follicles
  - if fibrosis is minimal and sebaceous glands are there, it’s non-scarring
Alopecia

- The spectrum of scarring alopecia
  - lymphocyte-mediated scarring alopecia
  - neutrophil-mediated scarring alopecia
Inflammatory diseases

- Erythema multiforme
- Lichen planus
- Spongiotic dermatitis
- Psoriasis
- Granuloma annulare
- Sweet’s disease
- Morphea
- Erythema nodosum
- Alopecia