A New Concept!
The Immunocompromised District

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9:10 am-9:55 am

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Disclosures

- Clinical Trials: Galderma Labs; Novartis, Glaxo-Smith-Kline; Corrona Registry
- Advisory Boards: Intraderm Pharmaceuticals
- BUT, no relevant disclosures for this presentation
Why Concepts?

- An effort to learn how things work
- Aid in making diagnoses
- More valuable than memorization
- Rare and should be treasured
  - Antigen-antibody complexes: e.g. vasculitis
  - Infectious disease concepts including portal of entry

Immunocompromised District:

Altered immune response (higher or lower) with associated localized cutaneous disease. (Ruocco)
4 cases

- Downregulated Immunity
  - Regional
  - Cutaneous
- Upregulated Immunity Regional
  - Cutaneous

Immune Privilege

- Localized areas of skin with the ability to tolerate the introduction of antigen without inciting an immune response.
- Examples: Eye and Brain where antigen-induced inflammation would cause damage
  - Active Process suppresses antigen response
  - "Antigen injected into the eye is captured by eye APCs that carry the antigen to the spleen. These eye APCs activate NKT cells which, in turn, produce cytokines such as TGF-β that induce the generation and expansion of antigen-specific MHC class I-restricted CD8+ Tr cells. These CD8+ Tr cells, by production of cytokines such as TGF-β and IL-10, can downregulate subsequent Th1-mediated DTH reactions against the same antigen."

Local Immunity **Downregulated**
Regional extracutaneous

**Case 1**

Traditional Cellulitis
Traditional Lymphangitis
Hypersensitivity Cellulitis
(Recurrent Lymphangitic Cellulitis)


The Disease

- Red, blanching, tender rash, lacking confluence with shaggy or feathered border
The Disease

- Red, blanching, tender rash
- Recurrent

- Unilateral in CABG donor leg
The Disease

- Red, blanching, tender rash
- Recurrent
- Unilateral in CABG donor leg
- Fever, Malaise, Elevated WBC

The Disease

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- Proximal lymphadenopathy
The Disease

- Red, blanching, tender rash
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- Unilateral in CABG donor leg
- Fever, Malaise, Elevated WBC
- Proximal lymphadenopathy
- Distal interdigital tinea

Concept

- CABG interrupts lymphatics
Concept

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- Bacteria enter distal fissures
**Concept**

- CABG interrupts lymphatics
- Bacteria enter distal fissures
- Bacteria and toxins clear slowly
- Antibiotics clear acute disease
Concept

- CABG interrupts lymphatics
- Bacteria enter distal fissures
- Bacteria and toxins clear slowly
- Antibiotics clear acute disease
- Must kill tinea to stop recurrences

Similar Diseases

- Kaposis Sarcoma in lymphedematous limb
- Angiosarcoma of Stewart – Treves\(^1\)
- Angiosarcoma in healed shingles\(^2\)

Local Immunity \textbf{Downregulated}
Intra-cutaneous

Case 2
Average Number of Warts per 1000 mm² and the percentge of Area Involved by Warts

<table>
<thead>
<tr>
<th>Warts per 1,000 mm²</th>
<th>Black (n=5)</th>
<th>Color (n=3)</th>
<th>Normal (n=3)</th>
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<tbody>
<tr>
<td>Mean ± s.d. (95% CI)</td>
<td>11.33 ± 11.65 (0, 25.80)</td>
<td>0.16 ± 0.14 (0, 0.52)</td>
<td>0.08 ± 0.09 (0, 0.30)</td>
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<tr>
<td>Wart area per mm²</td>
<td>Percentage of area (95% CI)</td>
<td>4.16% (0, 15.22%)</td>
<td>0.13% (0%, 0.28%)</td>
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Concept

- Immunocompromised district
- Immune privileged site
- Both!
References


M = DNA Marker
VS = Patient’s DNA
C = Control DNA
R = Reagent Control
M = DNA Marker
VS = Patient’s DNA
NC = HPV Negative Control DNA
PC = HPV Positive Control DNA
R = Reagent Control

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<th>1</th>
<th>2e-108()</th>
<th>229/235(97%)</th>
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Similar Disease

- Topical steroid addiction syndrome

- Alopecia areata sparing areas of psoriasis in scalp

Regional Immunity *Upregulated*
Regional extracutaneous

Case 3a and 3b
Clinically, histopathologically, and immunologically identical to bullous pemphigoid, BUT localized to amputation stump

Brunsting-Perry Pemphigoid: Clinical
1) Chronic, recurrent blisters
2) Localization to the head and neck
3) Atrophic scars and alopecia
4) Elderly patients

Histopathology of B-P Pemphigoid
- Subepidermal blistering
- Numerous lymphocytes, eosinophils, and neutrophils within dermis and blister
Local Immunity \textit{Up-regulated} Intracutaneous

Case 4
Psoriasis in a tattoo

References


Similar Disease

- Psoriasis in a tattoo
- Cutaneous sarcoidosis in specific-colored dye in a tattoo
- Cutaneous sarcoidosis appearing in a scar decades after healing
Acknowledgment: VINCENZO RUOCCH, MD