Iatrogenic Risks: The Hospitalized Patient

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Overview

- Iatrogenic examples of skin reaction phenomena:
  - Pathergy
  - Koebner’s isomorphic response
  - Wolf’s isotopic response
  - Isoradiotopic response
  - Radiation recall
- Defining and differentiating features

Pathergy

- Non-specific inflammatory response to intradermal trauma
- Papules, plaques, pustules, ulceration
- Used as a diagnostic test for Behcet’s Disease
  - 18g needle inserted at an angle through the dermis of the skin
  - Lesions within 48 hours
  - Elicited in a minority of cases

Variable Histology of Pathergy

DDx Pathergy

- Behcet’s Disease
- Acute Febrile Neutrophilic Dermatosis
- Pyoderma gangrenosum
- Bowel-associated dermatosis-arthritis syndrome
- Rheumatoid arthritis

Acute Necrotizing Neutrophilic Dermatosis

- Severe cases of Sweet’s with resulting deep tissue infiltration and necrosis
- Necrotizing fasciitis: no myonecrosis, presence of organisms
- One case of neutrophilic infiltration of myocardium in Sweet’s syndrome
Causes of Sweet’s Syndrome

- Hematologic malignancy (15% of adult cases)
- Solid organ cancers
- Upper respiratory & GI infections, HIV
- Vaccinations

- Drugs
  - G-CSF, ATRA
  - Inflammatory Bowel Disease, Bypass

Course

- Involutes spontaneously over weeks – months
- Recurrences in approximately 30% of cases – 50% with hematologic malignancy
- Can mimic sepsis, but antibiotics are ineffective *except when associated with a recognized respiratory/ GI infection

Treatment

- Prednisone* (1mg/kg/day x 4-6 weeks)
- Dapsone
- Potassium Iodide
- Cyclosporine
- Colchicine
- Allopurinol
- Thalidomide

Koebnerization

- Isomorphic response of Koebner, 1872
- Greek iso- (“equal”) morpho- (“shape”)
- Same disease arising in sites of traumatized skin
- Variable incidence within a particular disease
- Multifactorial etiology: vascularization, microscarring, mast cell infiltration, immune complex deposition, activation of complement cascade, cytolysis

Conditions that Koebnerize

- Psoriasis
- Vitiligo
- Lichen planus
- Lichen nitidus
- Calciphenyx

**Pseudokoebnerization**: inoculation of infection into traumatized sites
- Verruca, molluscum contagiosum, impetigo, Kaposi’s sarcoma

Locus Minoris Resistentiae

- ‘The path of least resistance’
- First described in 1929 with lichen planus arising within a site of healed zoster
- Wolf’s Isotopic Response (1995): the appearance of a new, different disease at the site of an unrelated, already healed skin disease
  - From Greek iso (“equal”) and topos (“place”)

**Source**

Locus Minoris Resistentiae: The first attempt to introduce the concept of vulnerable areas in dermatology. Clinics in Dermatology, 2010-09-01, Volume 32, Issue 5, Pages 557-600.
Wolf's Isotopic Response

- Classic: skin with compromised mechanical integrity is more susceptible to disruption by invasion of bacteria and/or their exotoxin
- General: skin lesions will preferentially present in sites of reduced skin integrity
- Inflammatory, infectious, malignant processes

Reverse Isotopic Response

- Sparing of healed skin previously affected by a dermatosis
- Proposed: altered antigen presenting function of affected keratinocytes vs. depleted Langerhans cells and downregulation of MHCs and ICAMs

Radiation Recall

Drug or contact-induced reactivation of prior tissue toxicity originally induced by prior radiotherapy or sun exposure

Conclusions

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• Defining and differentiating features