

26th Annual General Pediatric Review & Self-Assessment

DERMATOLOGY

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Nicklaus Children's Hospital

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26th Annual General Pediatric Review & Self-Assessment

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Pediatric Dermatology Board Review

A. Aurora Badia, MD
Advanced Dermatology and Cosmetic Surgery

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Reaction Patterns

- Eczematous
 - Atopic Dermatitis, Lichen Striatus, Scabies, Tinea Corporis
- Papulosquamous
 - Psoriasis, Pityriasis Rosea
- Vesicular/bullous
 - Epidermolysis bullosa
- Hypopigmented/hyperpigmented
 - Vitiligo
 - CAL's

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Reaction Patterns

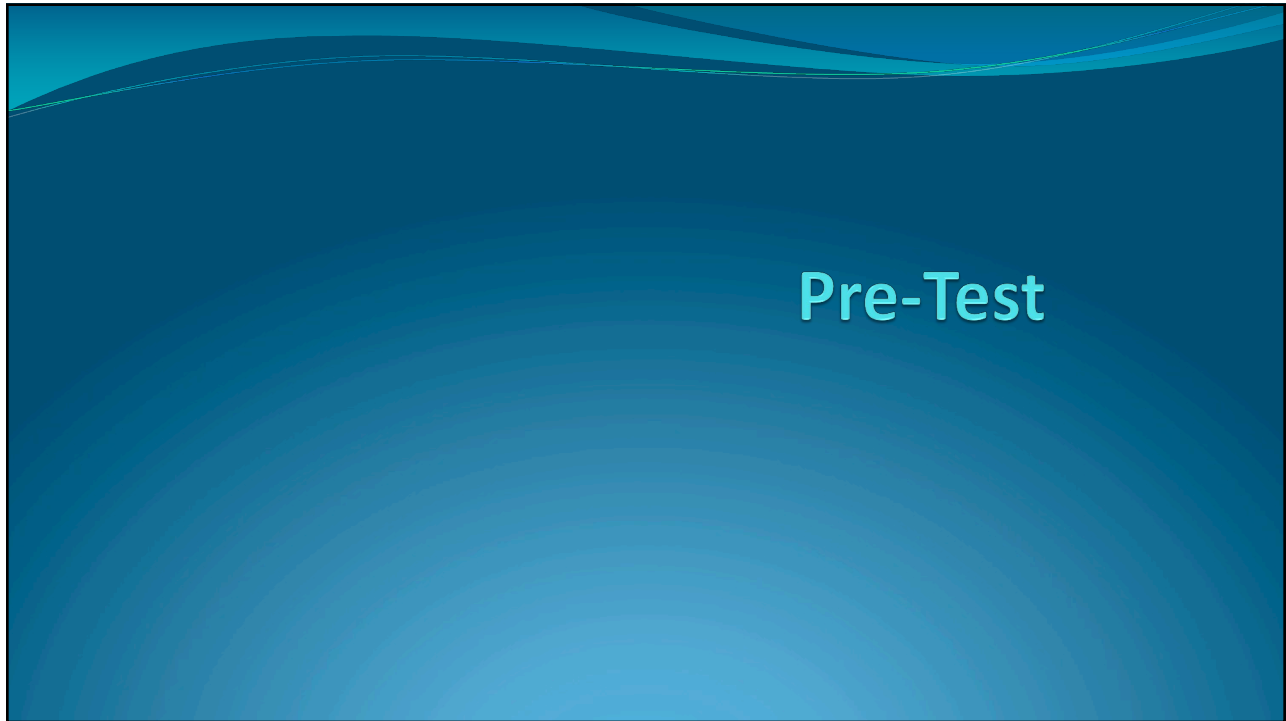
- Purpuric (non-palpable Vs. palpable)
 - ITP vs HSP
- Dermal infiltrative
 - **Granuloma annulare, Mastocytomas**, Blueberry muffin baby
- Sclerosing/atrophying
 - Morphea/ lipoatrophy
- Vascular
 - **Hemangioma/ Capillary Malformation (PWS)**
- Acneiform
 - **Acne Vulgaris**

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Lesion types

- Macule: nonpalpable <1.0 cm
- Patch: nonpalpable >1.0 cm
- Vesicle: fluid filled <1.0 cm
- Bulla: fluid filled >1.0 cm
- Papule: palpable <1.0 cm
- Plaque: palpable >1.0 cm
- Nodule: deep <1.0 cm
- Tumor: deep >1.0 cm

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1. What is the diagnosis?

A photograph of an infant's face showing severe, widespread skin disease. The skin is covered in thick, yellowish, crusting lesions over a background of intense redness and inflammation. The eyes are obscured by a black rectangular box.

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2. What is the treatment of choice?



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3. What is the appropriate w/u?



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4. Why consult a cardiologist for patient #question 3?

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5. What is the appropriate treatment and dosage?



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Eczematous Reaction Pattern Atopic Dermatitis



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Hyperlinear Palms



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Dennie Morgan Folds



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Keratosis Pilaris



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Atopic Dermatitis

- Eczematous reaction pattern
- Chronic relapsing and remitting dermatosis
- Pruritus
- Hannifin & Lobitz Criteria
- Assoc: P alba (DDX TV), KP, Ichthyosis Vulgaris
- DDX: Contact Dermatitis, Scabies
- **Filaggrin gene mutation** confers risk of Atopic Dermatitis
- Staph aureus drives atopic dermatitis

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Pityriasis Alba



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DDx P. alba: Vitiligo



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Pityriasis Alba

- Subclinical dermatosis
- Often misdiagnosed as TV
- Parents most worried about Vitiligo
- W/U: Wood's lamp negative
- Tx: reassurance, emollients, sunscreen
- DDX: Vitiligo

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Keratosis Pilaris

- Follicular keratotic papules
 - Treatment: exfoliation, emollients



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Atopic Dermatitis Treatment

- **Topical** corticosteroids: BID then taper
- Topical immunomodulators: Black box warning. To be used intermittently per label
- **NEW Crisaborole ointment (phosphodiesterase 4 inhibitor)**
- **NEW Dupilumab injection (monoclonal ab vs IL4, IL13)**
- NEW JAK Inhibitors PO Upadacitinib Abrocitinib & Topical Ruxolitanib Delgocitinib
- Emollients: CeraVe (Ceramides), Cetaphil, Aquaphor
- Oral & topical antibiotics (Staph/Strep)
- Bleach baths: 1/4 cup of Clorox in FULL tub of water (CLN cleanser)
- www.eczemacenter.org
- Under My Skin: excellent book for lay persons offered free of charge now is online
- Written handout

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Eczematous Reaction Pattern:

Lichen Striatus



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Lichen Striatus

- Linear eczematous plaque
- Hx -> new lesion NOT present at birth
- Benign
- Reassurance
- Treat symptoms: Topical corticosteroid
- DDX: Linear epidermal nevus -> Hx Present at birth

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Eczematous Reaction Pattern

DDx: Atopic Dermatitis-> Scabies



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Scabies

- *Sarcoptes Scaibei*
- Pruritic
- Family involved
- Look in axillae and groin (scabies in babies), umbilical area, interdigital
- Scabies prep
- Permethrin Cream
 - ? Topical ivermectin

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Papulosquamous Reaction Pattern: Psoriasis



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Psoriasis

- Papulosquamous reaction pattern
- Family history/ HLA
- ASO titers if a guttate eruption
- TX: Erythromycin
- Topical: Vit D derivative (calcipotriene & corticosteroid combination)
- Narrowband UVB
- Biologics: entercept: TNF inhibitor
- DDX: Pityriasis Rosea

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Papulosquamous Reaction Pattern: Pityriasis rosea



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Pityriasis Rosea

- Papulosquamous Reaction pattern
- Christmas tree distribution
- Herald patch
- HHV 7
- Treatment: Erythromycin
- Symptomatic treatment: Mild topical steroids?

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Dermal Infiltrative Reaction Pattern: Mastocytoma + Darier Sign



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Mastocytoma

- Infiltrative
- Brown patches (myriad -> urticaria pigmentosa)
- CC: lesions get red and blister
- + Dariers sign
- Treatment: reassurance usually benign
- Rarely systemic symptoms -> hemeonc w/u mast cell leukemia RARE
- Serum tryptase

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Dermal Infiltrative Reaction Pattern: Granuloma Annulare



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Granuloma Annulare

- Dermal infiltrative
- DDX Tinea Corporis
 - No scale
- Treatment: reassurance, topical corticosteroid, Bx

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DDx GA:Tinea Corporis



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Acneiform Reaction Pattern

Acne Vulgaris

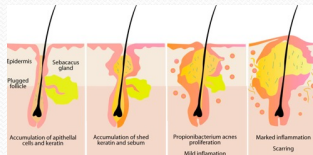


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Acne Vulgaris

- Acneiform reaction pattern
- Common
- Affects almost all teens
- Physical and psychosocial effects
- Papules/pustules, comedones, cysts and nodules
- P. Acnes in the pilosebaceous gland



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Mild Acne

- Topicals:
- Benzoyl Peroxide
- Clindamycin
- Retinoids: Tretinoin, Tazarotene, Adapalene
- Exfoliating wash

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Moderate Acne Vulgaris

- Topicals +
- Antibiotic PO:
 - Tetracycline family
 - Doxycycline: Phototoxicity/ GI
 - Minocycline: Serum Sickness/ Lupus-like reaction, DRESS syndrome (Drug Rash, Eosinophilia, Systemic Symptoms)

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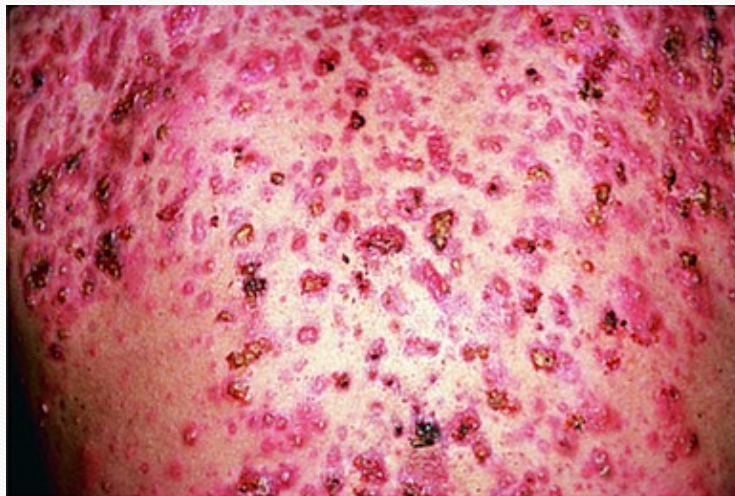
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Severe Acne Vulgaris

- Accutane
- I-Pledge
- Birth control
- Monthly visits
 - LFTs
 - CBC
 - Lipids
 - GGT
 - CPK
 - Bhcg Quant

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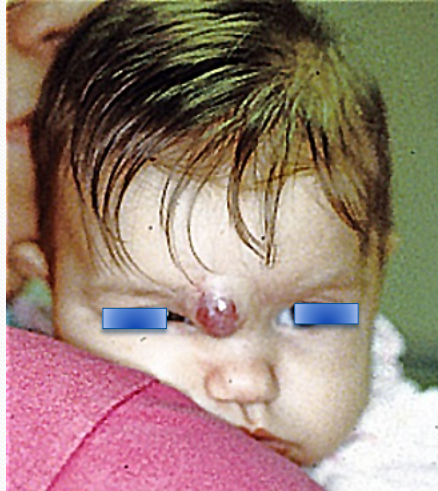
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Acne Fulminans

- Severe acneiform reaction
- Fever, arthritis, elevation ESR, WBC
- Treatment Oral/IV steroids

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Vascular Reaction Pattern Infantile Hemangioma



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Infantile Hemangioma

- Vascular reaction pattern
- Most common tumor of infancy
- Superficial & deep & mixed
- Glut +
- DDX NICH/PICH/RICH (glut negative)
- PHACES
- PELVIS/ LUMBAR / SACRAL
 - GU/ Renal
- Beard distribution associated with airway involvement

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Epidemiology

- Older maternal age
- Gestational bleeding
- Twin pregnancy

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Superficial Hemangioma of Infancy



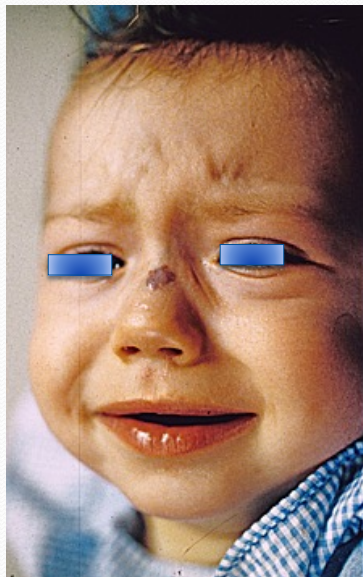
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Superficial Infantile Hemangioma

- Observation
- Reassurance in most cases
- Facial lesions:
 - Pulsed Dye Laser
 - Timolol, topical propranolol
 - ? Imiquimod/ topical steroid
- Involution:
 - 50% by age 5 yr
 - 70% by age 7 yr
 - 90% by age 9 yr

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Before and After Laser tx
PDL



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Large Deep Infantile Hemangioma



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Large Segmental HOI



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Deep Hemangiomas of Infancy

- Location, Location, Location
- Lower 1/3 of the face aka Beard distribution: think airway obstruction
- Treatment: close observation, consider **propranolol*** ENT eval.

*NEJM June 2008

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Propranolol **EARLY**

- Start 1.0 mg/kg/day at 1 month of age
- Inc. weekly until at 3.0mg/kg/day
- Hold dose until 1.5 years of age
- Must be given with food
 - High risk of hypoglycemia
- Dose bid or tid
- Asthma is a contraindication
 - Reactive airway disease

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Large Intraorbital HOI



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PHACES

- **P**osterior fossa defects
- **H**emangioma (segmental anywhere on body)
- **A**rterial anomalies (Atypical coarctations)
- **C**ardiac defects
- **E**ye/endocrine (hypothyroid)
- **S**ternal, supraumbilical raphe

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PHACES W/U

- MRI/ MRA with and without contrast head, neck and upper thoracic.
- Cardiology evaluation
 - Transthoracic Echo if deemed necessary
- Ophthalmology eval if periorbital
- Possible endocrine eval
- Multidisciplinary approach
 - TIBI Team

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Syndromes

- PELVIS
 - Perineal hemangioma
 - External genitalia abnl
 - Lipomeningomyelocoele
 - Vesicorenal anomalies
 - Imperforate anus
 - Skin Tag

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DDx: RICH/ PICH /NICH

- Rapidly Involutional Congenital Hemangiomas
 - Glut 1 neg
- Partially Involutional Congenital Hemangiomas
 - Glut 1 neg
- Non involutional Congenital Hemangiomas
 - Glut 1 neg

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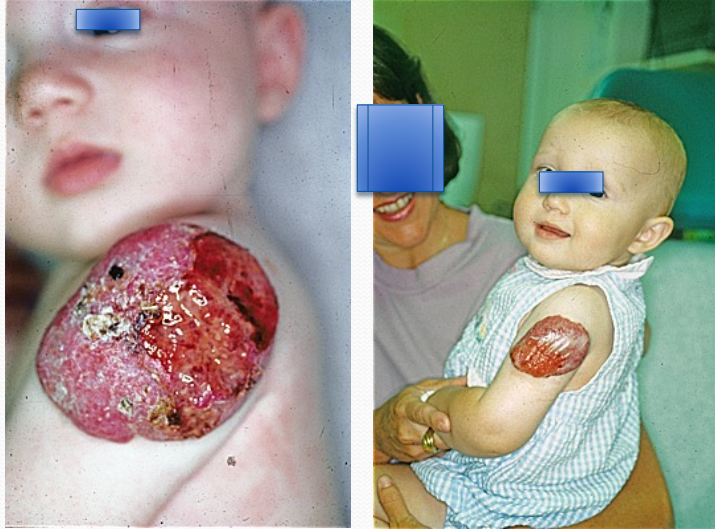
DDx: Hemangioendotheliomas

- Tufted Angiomas
- Kasabach Merrit syndrome
 - Consumption coagulopathy



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Painful Ulcerated IH



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Complication IH :Ulceration

- Painful!
- Treatment:
 - Pulsed Dye Laser
 - Wound care

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Vascular Reaction Pattern: Capillary Malformation (PWS)



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Capillary Malformation Port Wine Stain

- Congenital vascular (**capillary malformation**)
- W/U Sturge Weber Syndrome:
 - GNAC Gene mutation
 - Ophthalmology eval: glaucoma
 - MRI: Ipsilateral angiomas

Treatment PWS **EARLY**:

Pulsed Dye Laser 585 nm

MOA: selective photothermolysis

Target: oxyhemoglobin

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Syndromes

- Sturge Weber Syndrome
 - PWS V1/V2, glaucoma, ipsilateral calcifications
 - Contralateral seizures
- Klippel Trenaunay (Spectrum with PROS)
 - PWS venous varicosities over growth of bone and soft tissue

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Post-Pulsed Dye Laser Purpura



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Alopecia Reaction Pattern:
Non-scarring & scarring/ Infectious &
autoimmune



Tinea Capitus (Black Dot Tinea) Trichophyton tonsurans

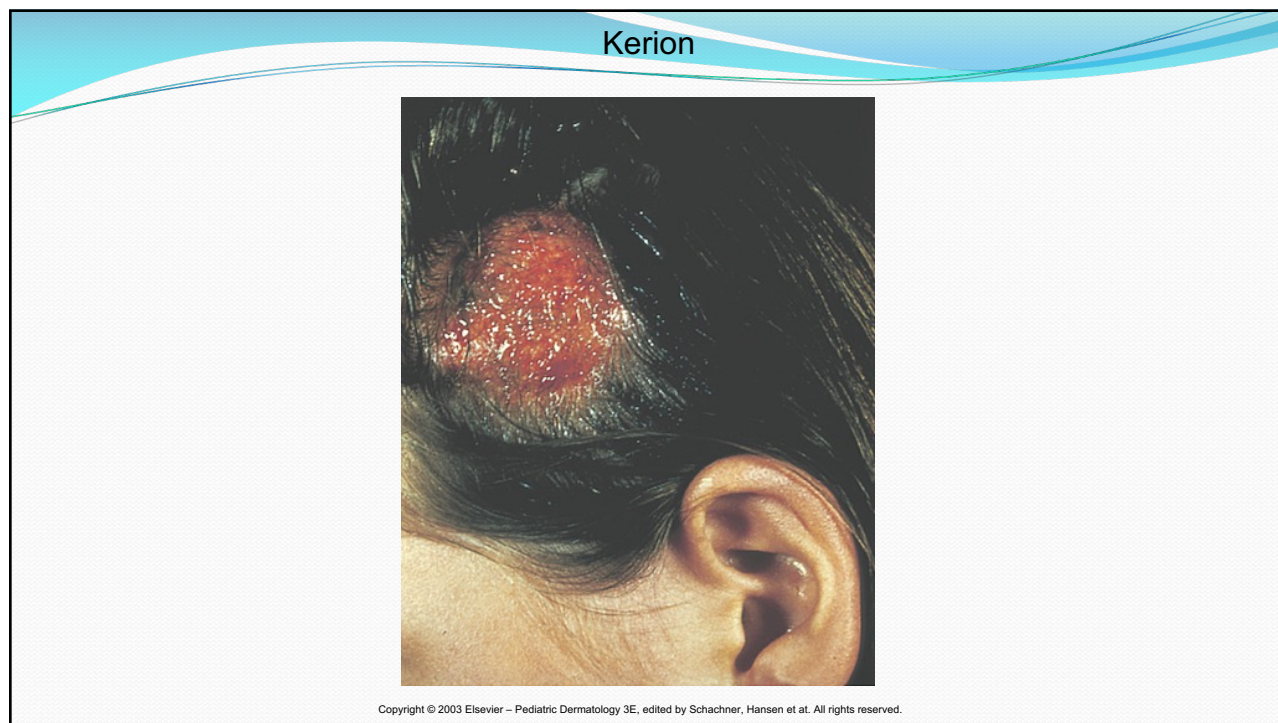
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DTM Positive



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Tinea Capitis

- Trichophyton Tonsurans
 - Black dot tinea
- Microsporum Canis
 - Inflammatory
- W/U: DTM
- Treatment: Topical and Oral
 - Griseofulvin 20mg/kg/day X 6-8 weeks
- DDx: Alopecia Areata

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Kerion

- Inflammatory reaction to fungus
- Boggy mass
 - Treatment:
 - Griseofulvin
 - 20 mg/k/day X 6-8 weeks
 - Oral Corticosteroids
 - Intralesional corticosteroids

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Alopecia Reaction Pattern: Alopecia Areata (non-scarring/ autoimmune)



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Ophiasis Pattern



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Alopecia Universalis



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Alopecia Areata

- Autoimmune
- Annular nonscarring patchy hair loss
- Totalis: All scalp hair loss
- Ophiasis: Periferal hair loss Poor prognosis
- Universalis: All hair loss

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Alopecia Areata

- Treatment:
 - Topical corticosteroids
 - Intralesional corticosteroids
 - PO high dose pulse corticosteroids
 - Contact sensitization-> Squaric Acid
 - Methotrexate
 - Topical/Oral JAK inhibitors
 - Tofacitinib topical cream
- No treatment works well
- Check AM cortisol periodically

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DDx P. alba: Vitiligo



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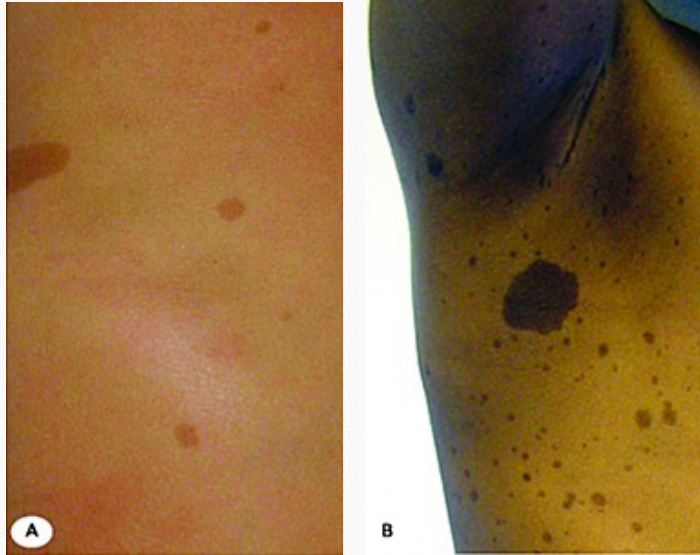
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Vitiligo

- Depigmentation reaction pattern
- Autoimmune
- Bilaterally symmetrical
- Wood's lamp eval: **Depigmentation**
- Treatment:
 - Topical corticosteroids/ topical immunomodulators
 - Topical JAK Inhibitors
 - Narrowband UVB/ PUVA
 - Not approved under age 12 yr.
 - Topical PUVA
 - Excimer Laser
 - Antioxidants
 - Dr Peral Grimes UCLA
 - Vitiligo Foundation

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Pigmented Reaction Pattern CALs



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Dermal Infiltrative Reaction Pattern: Mastocytoma + Darier Sign



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Café Au Lait

- Brown patches
- Do not urticate on stroking
- Multiple (>5, 0.5 cm /1.5cm ->consider NF)

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Important Topics for Review Pigmented Reaction Pattern:

- Congenital Nevocellular Nevi
 - Small, midsized
 - Giant
 - W/U for neurocutaneous melanosis
- Melanoma in Children
 - Pyogenic Granuloma like lesions
 - Atypical Spitz Nevi
- ABCD' s
- Sunscreens SPF 30 or > uvA uvB and water resistant



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Answers to questions:

- 1. Atopic dermatitis
- 2. Large hemangioma of infancy : Tx Propranolol
- 3. PHACES W/U: MRI/MRV with and without contrast head neck thorax to great vessels/ Ophthalmology eval.
- 4. Hemangioma of infancy cardiology consult for possible treatment with propranolol
- 5. Tinea capitis with kerion: Griseofulvin 20mg/kg/day X 6 to 8 weeks and prednisone for 5 days PO.

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