Which of the following organ systems undergoes significant changes after birth?

a) Lungs
b) Cardiovascular
c) Gastrointestinal
d) Cutaneous
e) all of the above

Neonatal Skin

• Critical organ system

• 23 week viability limit
  – “In the 6th month the skin undergoes differentiation and the epidermis becomes a barrier between the fetus and the outside environment instead of a participant in exchanges between the two”

Neonatal Skin

• At birth
  – The cutaneous organ undergoes rapid adaptation to an entirely different environment
    • Similar to lungs, heart, gut
    • From high pressure aqueous to low pressure dessicated
    • From essentially sterile to microbe ridden
Which of the following are functions of the vernix?

a) Decreasing epidermal water loss  
b) Acidifying skin pH  
c) Suppressing bacterial growth  
d) Lubrication  
e) All of the above

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Vernix caseosa

- Lipid rich biofilm
  - Shed skin cells
  - Sebum; SC lipid
  - Cathelicids
- Skin hydration is higher and skin pH/ erythema lower if vernix retention at birth

What is the estimated surface area of human skin?

a) 2 m²  
b) 12 m²  
c) 25 m²  
d) 50 m²  
e) 75 m²
Does vernix help “sculpt” the acquisition of the cutaneous microbiome?

Neonatal skin care

“Hippocratic” and (somewhat evidence based)

• “Do no harm!”
  – Gentle cleansers
    • Neutral to low pH
      – Normal skin pH is ~5.5
  – Gentle moisturizers
    • Neutral to low pH
    • Good hydrophilicity index
    – Avoid unnecessary exposure to allergens/irritants

Neonatal skin care

• No need for bath immediately after birth
  – Time according to local culture
  – Skin to skin contact
  – Warm water
  • Gentle cleansing; pat dry; bland, gentle emollient
  • Minimize exposure to potential allergens; irritants
A newborn born at 41 weeks gestation presents with the following.

What is the most likely diagnosis?
- a) Collodion baby
- b) Epidermolysis bullosa
- c) Normal neonatal desquamation
- d) Atopic dermatitis
- e) Staphylococcal scalded skin syndrome

Normal Neonatal Desquamation
- Hands and feet common
- Often infants who are post date
- Many term infants as well
- Emollient

A newborn is noted to have this lesion. The most likely diagnosis is?
- a) Electrode injury
- b) Neonatal herpes virus
- c) Epidermolysis bullosa
- d) Congenital candidiasis
- e) Sucking blister
**Sucking Blister**

- Tense vesicle or bulla on non-inflamed skin
  - Subsequent erosion from blister rupture
- May be confused with more serious diseases – HSV, bullous impetigo, bullous mastocytosis

**A newborn is noted to have the following skin changes when laid down. The diagnosis is?**

a) Capillary malformation
b) Harlequin color change
c) Hemangioma of infancy
d) CHILD syndrome
e) Subcutaneous fat necrosis

**A newborn is noted to have the following skin changes when laid down. The diagnosis is?**

- Reddening of dependent side
- Blanching of non-dependent side
- Demarcation on midline
- 10% of newborns
- Resolves in seconds-minutes
- Vasomotor instability

**Harlequin color change**

**A 4 week old infant recently developed the following skin lesions. His parents are concerned. The most likely diagnosis is?**

a) Infantile acropustulosis
b) Neonatal herpes virus
c) Miliaria
d) Erythema toxicum neonatorum
e) Incontinentia pigmenti

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**Erythema Toxicum Neonatorum**

- 50% full term neonates
- Spares palms/soles
- Inflammatory papules/pustules/vesicles
  - Surrounded by blotchy erythema
- Resolves spontaneously
- Confirm diagnosis by prep of pustule contents looking for eosinophils
  - (Wright's stain)

**Miliaria**

- 3 main types: crystallina, rubra, profunda (rare)
  - Crystallina – birth–2 weeks
    - Obstruction of eccrine sweat ducts -> sweat collects beneath stratum corneum
    - Small, flaccid vesicles like “dew drops”
  - Rubra – 2 weeks+
    - Obstruction at deeper level (more inflammatory response -> development of erythematous papules and pustules)
  - *Excessive warming inside incubator, overswaddling, fever or occlusive dressings*

**Miliaria pustulosa**
A 2 week old infant is noted to have the following lesions. The correct diagnosis is?

a) Miliaria
b) Milia
c) Fordyce spots
d) Sebaceous hyperplasia
e) Molluscum contagiosum

Sebaceous hyperplasia

- Small white-yellow papules
- Maternal androgen
- Nose/cheeks/chin/forehead
- Resolve in first weeks of life

Parents present with concerns over lesions in their newborns mouth. The diagnosis is?

a) Thrush
b) Natal teeth
c) Epstein's pearls
d) Milia
e) Bohn's nodules

Bohn's Nodules

- Benign - will disappear with time
- Lateral aspect of gum or on the periphery of the palate
- Small keratinizing cysts
- Remnants of dental lamina or heterotrophic salivary glands
- No treatment
Epstein’s pearls

- Firm, nodules
- Epithelial remnants along fusion lines
- Midline hard palate
  - Posterior
- No treatment

A 2 mo presents with a rash. What is the likely diagnosis?

a) Seborrheic dermatitis
b) Atopic dermatitis
c) Ichthyosis
d) Psoriasis
e) Neonatal lupus

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A 2 mo presents with a rash. Which of the following will be the most likely eventual diagnosis?

a) Seborrheic dermatitis
b) Atopic dermatitis
c) Ichthyosis
d) Psoriasis
e) Neonatal lupus

A 2 mo presents with a rash. Which of the following will be the most likely eventual diagnosis?

a) Seborrheic dermatitis
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c) Ichthyosis
d) Psoriasis
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Infantile Seborrheic Dermatitis

- Erythema on scalp, skin folds, diaper area
- Treatment: topical steroids/antifungal shampoos
- Scalp: oil preparation or weak keratolytic
- Typically forme fruste of AD

A 6 week old infant presents with the following rash. What is the correct diagnosis?

- a) Neonatal candidiasis
- b) Miliaria
- c) Infantile acne
- d) Neonatal cephalic pustulosis
- e) Hyperimmunoglobulin E syndrome

Neonatal Cephalic Pustulosis

- Sometimes called neonatal acne
- Onset 2-3 weeks of life
- Giemsa-stained smear of pustular contents may demonstrate yeast forms, neutrophils and other inflammatory cells
- Self-resolving, limited course
- Treatment: topical triazole antifungals;
Neonatal acne

• True acne
• Comedones
• May be inflammatory or even cystic
• Likely increased risk of more severe acne at puberty
• Treatment: similar to acne vulgaris
  – *Adjust for patient age

Vacuum mark

A newborn presents with scalp lesion. His parents believe it is from his scalp electrode monitor. The diagnosis is?

a) Scalp electrode injury
b) Infantile hemangioma
c) Nevus sebaceous
d) Aplasia cutis congenita
e) Ulcerated hemangioma

Aplasia Cutis Congenita

• Mistaken for electrode injury
• Most commonly vertex near hair whorl
  – 70% isolated; 20% double
  – 8% >2
• Membranous with hair collar
  – Increased risk underlying neural tube defect?
Aplasia Cutis Congenita

- Larger ACC with limb defects; CNS; CV = Adams-Oliver syndrome
- Trisomy 13; chrom. 4p
- Methimazole
  - Maternal exposure during pregnancy

Scalp electrode laceration

An infant presents with the following lesion. What is the risk of underlying intracranial extension?

a) 0%
b) 20%
c) 40%
d) 60%
e) 80%

Dermoid cyst

- Lateral brow; mid-brow
- Non tender mobile SQ nodule
- Lined with epithelium
  - Appendageal structures present
- Ectodermal origin
  - Occur along embryonic fusion planes

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a) 0%
b) 20%
c) 40%
d) 60%
e) 80%
Dermoid cyst

- Midline lesions – 3%
  - May be along scalp; nasal bridge, columella
  - Much higher incidence of deep extension or CNS communication
  - Hairs protruding = risk of underlying sinus ~50%

Congenital midline lesions = Imaging!

Nasal Glioma

- Firm, noncompressible mass
- Ectopic neuroectoderm
- Extranasal – 60%
- Intranasal – 30%
- No intracranial connection

Encephalocele

- Softer
- Compressible
- May enlarge with crying; Valsalva

2 month old male presents with several week history of spreading rash

Using clotrimazole bid for past 5 days with no change
What is the most likely diagnosis?

a) Bullous impetigo
b) Tinea corporis
c) Tinea versicolor
d) Nummular dermatitis
e) Congenital syphilis
Syphilis

- Treponema pallidum
- "The Great Pretender"
  - "The physician who knows syphilis, knows medicine."
  - Sir William Osler
- 1x10^6 pregnancies worldwide
- National notifiable disease
  - Travels with other STDs
    - HIV, gonorrhea
    - 2.5x increased risk of HIV acquisition if also have syphilis

Congenital syphilis

- Risk of transplacental fetal infection: 60-80%
  - Increased during 2nd half of pregnancy
  - Untreated Primary/secondary = transmit
  - Tertiary = 20% transmit (40% early; <10% late latent)
  - Untreated syphilis = 1% risk of stillbirth/neonatal death – 40%
  - Early congenital: birth – 2 yr; 60-90% asymptomatic at birth; symptoms by 5 wks (3mo)
  - Late congenital: >2 yo

Early Congenital syphilis

- Vesiculobullous eruption/ macular copper colored rash; palms/soles; around nose/mouth/diaper area; petechial lesions
- Generalized LA/ HSM
- FTT; mucopurulent/ blood stained nasal discharge – "snuffles"
- Osteochondritis (chondroepiphysitis)
  - Long bones; ribs
  - Pseudoparalysis of limbs
  - Patent dactyly of hands

Congenital syphilis
Snuffles – 1st wk; contagious
• Perforation of palate
• Rhagades

Onset 1-2 wks after rhinitis
• Back; buttocks; posterior thighs; soles
• Red-pink spots
• Progresses over 1-3 wks
  – Desquamation/crusting
  – Dusky red-copper color

Newborn infant
• Minimal prenatal care
  – Maternal drug abuse
• Widespread desquamative eruption onset shortly after birth
• Distended abdomen
  – Hepatosplenomegaly
• Mild respiratory distress

What is the most likely diagnosis?

a) Staphylococcal scalded skin syndrome
b) Epidermolysis bullosa
c) Ectodermal dysplasia skin fragility syndrome
d) Neonatal pemphigoid
e) Pemphigus syphiliticus

What is the most likely diagnosis?

a) Staphylococcal scalded skin syndrome
b) Epidermolysis bullosa
c) Ectodermal dysplasia skin fragility syndrome
d) Neonatal pemphigoid
e) Pemphigus syphiliticus
Pemphigus syphiliticus
“Syphilis pemphigoides”

Present at birth; widespread and bullous
Fluid and ulcers contagious

Thank you for attending!

Please contact me should you have any questions.

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