

## Newborn Skin Rashes

### COMPETENCIES:

The resident should be able to:

- Recognize presenting signs and symptoms of a neonatal herpes simplex virus infection
- Recognize erythema toxicum and characteristics of its lesions
- Recognize transient neonatal pustular melanosis
- Know commonly seen rashes in the neonatal period.

Depending on history, distribution, and appearance of the rash the more common diagnoses to consider are the following: (listed alphabetically). It is important to be able to distinguish among the more benign rashes from the more clinically significant rashes of herpes simplex or those associated with neonatal sepsis.

**CASE:** A first time mother brings her otherwise healthy 4 day old baby in for her newborn nursery follow up visit and reports she has noticed a rash on the baby's face similar to that of her teenage son and is concerned about what it may be.

### Questions:

- 1) What are common rashes in the 1<sup>st</sup> month of life and what do I do for them?
- 2) What rashes should I be concerned about?
- 3) At the 2 month well child visit, the parent tells you the baby's scalp is greasy and has a lot of scaly patches on the head that she can't seem to wash or comb out. How can you reassure her?

### References

- Gomela, Tricia: Neonatology, 4<sup>th</sup> edition, 1999.  
Hurwitz, Sidney: Clinical Pediatric Dermatology: A textbook of Skin Disorders of Childhood and Adolescence, 1993.  
Yan, Albert C. et al: [www.emedicine.com](http://www.emedicine.com) , Pediatric Seborrheic Dermatitis

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**CASE:** A first time mother brings her otherwise healthy 4 day old baby in for her newborn nursery follow up visit and reports she has noticed a rash on the baby's face similar to that of her teenage son and is concerned about what it may be.

### Questions:

- 1) What are common benign rashes in the 1<sup>st</sup> month of life and what do I do for them?

#### Acne Neonatorum

Frequency:	Unknown
History:	Presents in newborns in 1 <sup>st</sup> month of life
Physical Exam:	Comedones and papules resembling acne vulgaris seen in adolescents.
Distribution:	Seen over cheeks, chin, and forehead.
Causes:	Maternal androgenic hormonal stimulation of sebaceous glands that have not yet involuted to their childhood state of immaturity.
Evaluation:	Due to distinctive appearance in a non-toxic appearing child, lab studies not indicated. However, examination of skin lesion with Wright stain reveals numerous eosinophils. IF ANY DOUBT ABOUT DIANOSIS EXISTS, FURTHER STUDIES ARE WARRANTED TO EVALUATE FOR BACTERIAL, VIRAL, OR FUNGAL DISEASE.
Treatment:	Benign, self-limited condition with no known sequelae that usually requires no treatment. Usually resolves by 3 months of age when effects of mother's hormones have waned. In mild cases, daily cleansing with soap and water is sufficient. In severe cases, mild keratolytic agents such as 3% salicylic acid may be helpful. If persists or does not follow usual course, consultation with dermatologist is advised.

### **Erythema Toxicum Neonatorum**

Frequency:	Affects anywhere from 30-70% of newborns with no racial or sex predilection.
History:	Presents in term neonates age 3-14 days. Onset of 90% of cases after 48 hours but can occur earlier. Limited to neonatal period
Physical Exam:	Small 1-3 mm white-yellow papules, vesicles, and pustules that are surrounded by a distinctive blotchy erythematous halo. Number of lesions varies from few to several hundred.
Distribution:	Anywhere on the body. Spreads centripetally from trunk to extremities and face, often sparing palms and soles Lesions transitory; often disappear within hours and reappear elsewhere on body.
Causes:	Unknown
Evaluation/Histology:	Due to distinctive appearance in a non-toxic appearing child, lab studies not indicated. However, examination of skin lesion with Wright stain reveals numerous eosinophils with relative absence of neutrophils. Peripheral blood eosinophilia may be noted in up to 15% of cases. <b>IF ANY DOUBT ABOUT DIAGNOSIS EXISTS, FURTHER STUDIES ARE WARRANTED TO EVALUATE FOR BACTERIAL, VIRAL, OR FUNGAL DISEASE.</b>
Treatment:	Reassure parents that this is a benign, self-limited condition with no known sequelae that requires no treatment. Usually resolves within 2 weeks. If persists or does not follow usual course, consultation with dermatologist is advised.

### **Milia**

Frequency:	Affects about 40-50% of newborns with no racial or sex predilection.
History:	Presents in term neonates after 4-5 days. May be delayed from days to weeks in preterm infants. Limited to neonatal period
Physical Exam:	1-2 mm (pinhead-sized) papular pearly white lesions noted mainly on chin, nose, forehead, and cheeks.
Distribution:	Anywhere on face (forehead, nose, chin, cheeks) Called Epstein pearls if noted on soft or hard palate.
Causes:	Unknown
Evaluation/Histology:	Due to distinctive appearance in a non-toxic appearing child, lab

	studies not indicated. Histology shows multiple superficial keratin-filled inclusion cysts with no visible opening.
Treatment:	Reassure parents that this is a benign, self-limited condition with no known sequelae that requires no treatment. Usually resolves within 1-2 months.

#### Transient Neonatal Pustular Melanosis

Frequency:	Affects anywhere from 0.2-4% of newborns. Found to be twice as common in black infants as in white infants.
History:	Presents in neonates at birth. Limited to neonatal period
Physical Exam:	Characterized by 3 stages of lesions: 1) 2-4 mm nonerythematous pustules with milky fluid 2) Ruptured vesiculopustules with collarettes of scale 3) Hyperpigmented macules
Distribution:	Lesions seen in clusters under chin, on forehead, nape of neck, lower back, shins, cheeks, trunk, extremities.
Causes:	Unknown
Evaluation/Histology:	Due to distinctive appearance lab studies not indicated. Histology shows sterile lesions with few neutrophils. Important to differentiate from pustulovesicles of staphylococcal, candidal, or herpetic origin. <b>IF ANY DOUBT ABOUT DIAGNOSIS EXISTS, FURTHER STUDIES ARE WARRANTED TO EVALUATE FOR BACTERIAL, VIRAL, OR FUNGAL DISEASE.</b>
Treatment:	Reassure parents this is a benign, self-limited condition with no known sequelae that requires no treatment. Vesiculopustular lesions disappear in 24-48 hours and hyperpigmented macules generally regress by 3 months of age.

## 2) What rashes should I be concerned about?

For example, if a one-week old baby with a normal birth history is noted to have blistering lesion on lower leg at the level of the elastic on his sock. The most concerning diagnosis should be herpes.

### Herpes Simplex

Frequency:	Estimated rate of occurrence is 1 in 1000 to 1 in 5000 deliveries per year.
History:	Genital HSV is prevalent worldwide; approximately 75 percent of disease is caused by HSV-2. Fewer than 10 percent of seropositive individuals reported a history of genital herpes infection and so usually occurs in first born child of woman with no previous history of HSV. HSV is transmitted to an infant during birth primarily through an infected maternal genital tract or by an ascending infection, sometimes through apparently intact membranes. When

	<p>primary genital herpes occurs in pregnancy, the risk of fetal and neonatal involvement is high, especially with infection in the third trimester. As an example, the risk of HSV infection at delivery in an infant born vaginally to a mother with primary genital infection is estimated to be 33 to 50 percent. The risk to an infant born to a mother shedding HSV as a result of reactivated infection is much lower (0 to 5 percent).</p> <p>Most newborns with perinatally acquired HSV appear normal at birth, although many are born prematurely. HSV infection in newborns usually develops in one of three patterns:</p> <ol style="list-style-type: none"> <li>1) {PRIVATE "TYPE=PICT;ALT=bullet"}Localized to the skin, eyes, and mouth (40%)</li> <li>2) {PRIVATE "TYPE=PICT;ALT=bullet"}Localized CNS disease (35%)</li> <li>3) {PRIVATE "TYPE=PICT;ALT=bullet"}Fulminant, disseminated disease involving multiple organs (25%)</li> </ol>
Physical Exam:	<p>Neonatal HSV may be difficult to diagnose because, often, no mucocutaneous lesions are present on physical examination. Respiratory distress, jaundice, and seizures may be the first symptoms. Vesicles occur in 90% of children with HSV SEM disease. Skin vesicles typically develop from an erythematous base and are 1-2 mm in diameter. New lesions form adjacent to old vesicles, coalescing into larger, irregular vesicles or, less commonly, bullae. Because of the viremia associated with the infection, the rash can spread to other cutaneous sites.</p> <p>Tearing, discharge, and the characteristic dendritic lesions on fluorescein staining of the cornea characterize HSV keratoconjunctivitis in the newborn.</p>
Distribution:	<p>Vesicles may appear anywhere on the body.</p> <p>Also may be seen infrequently in oropharynx as well as corneal infection.</p>
Causes:	<ul style="list-style-type: none"> <li>• Vertical transmission of herpes simplex virus at or near birth. Genital HSV infection (mainly HSV-2) can be transferred to a fetus (rarely) and result in a congenital HSV infection.</li> <li>• Newborns may acquire infection after exposure to infected secretions in the mother's genital tract.</li> <li>• HSV-1 is transmitted primarily by contact with infected saliva, whereas HSV-2 mainly is transmitted sexually.</li> <li>• In susceptible individuals, mucocutaneous infection follows inoculation of the virus into mucosal surfaces (oropharynx, cervix, conjunctiva) or through abraded or cracked skin.</li> </ul>
Evaluation:	<p>Diagnostic evaluation for neonatal HSV infection should include cultures of skin lesions, mouth/nasopharynx, eyes, urine, blood, stool or rectum, and CSF evaluation.</p> <p>A skin scraping of the lesion may reveal histologic appearances characteristic of herpes virus infection, such as multinucleated giant</p>

	cells and epithelial cells containing intranuclear inclusion bodies. A punch biopsy can provide optimal tissue for histologic diagnosis of a herpes virus infection, particularly with atypical-appearing lesions.
Treatment:	Treatment for neonatal HSV infection is parenteral acyclovir and supportive care. Acyclovir (60 mg/kg per day in three divided doses) is administered for 14 days if disease is confined to the skin, eyes, and mouth and 21 days for disseminated or CNS disease. Even with antiviral treatment, the prognosis for survivors is poor. Approximately 50 percent of neonates with disseminated disease die despite antiviral therapy; those with encephalitis usually survive but suffer substantial neurologic sequelae. Infants with ocular involvement caused by HSV infection should receive a topical ophthalmic drug in addition to parenteral antiviral therapy.

**3) At the 2 month well child visit, the parent tells you the baby’s scalp is greasy and has a lot of scaly patches on the head that she can’t seem to wash or comb out. How can you reassure her?**

**(Infantile) Seborrheic Dermatitis a.k.a Cradle Cap**

Frequency:	Not well documented.
History:	Begins in first 12 weeks of age of life. May last up to 3 years of age. Lack of pruritis noted.
Physical Exam:	Greasy, scaling associated with patchy redness, fissuring, and occasional weeping. Erythematous, greasy, salmon-colored oval scaly patches.
Distribution:	Predilection for scalp that may spread over the face including ears, forehead, eyebrows and also to the trunk and intertriginous areas and flexural areas. .
Causes:	Inflammatory disorder related to maternal androgenic hormonal influence.
Evaluation:	Due to distinctive appearance in a non-toxic appearing child, lab studies not indicated. Histology is not specific and shows features of both psoriasis and chronic dermatitis.
Treatment:	Self-limited condition with no known sequelae that can clear without treatment. Treatment of scalp is best managed by frequent shampooing and gentle scrubbing with agents that contain sulfur and salicylic acid (i.e....Selsun). If scales are thick and adherent, baby oil or Vaseline can be applied and a soft brush used to remove scale. Often disappears spontaneously by 8-12 months of age. If persists or does not follow usual course, consultation with dermatologist is advised.

References:

Gomela, Tricia: Neonatology, 4<sup>th</sup> edition, 1999.  
 Hurwitz, Sidney: Clinical Pediatric Dermatology: A textbook of Skin Disorders of Childhood and Adolescence, 1993.

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