

# Skin Lesions in Newborns

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### Abstract

We examined a total of 1056 newborns delivered at Jackson Memorial Hospital in Miami, Florida for the presence of skin and oral lesions within 96 hours of birth to determine the frequency of dermatoses and other skin lesions found in normal newborns in South Florida. The seven skin findings most frequently seen were Mongolian spots (72.5%), sebaceous hyperplasia (38.7%), salmon patch (34.6%), Epstein's pearls (33.0%), erythema toxicum neonatorum (26.9%), linea nigra (24.5%), and transient pustular melanosis (18.1%) respectively. Among these findings, Mongolian spots, sebaceous hyperplasia, salmon patch, erythema toxicum neonatorum, linea nigra and transient postular melanosis were statistically significantly more frequent among Blacks than among Caucasians. Congenital pigmented nevi were clinically diagnosed in 36 newborns (3.4%); the majority of the lesions were less than 10 mm in diameter. *Int Pediatr.* 1999;14(1):28-31.

*Key words:* newborn dermatosis, human immunodeficiency virus (HIV), Mongolian spots, sebaceous hyperplasia

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### Introduction

Neonates often present with skin lesions. Some are congenital, some are transient; some are due to infection and others are due to the mode of delivery. Numerous articles report the skin changes in this age group.<sup>1-10</sup> We examined neonates at a local hospital to determine the frequency and types of cutaneous findings in newborns in South Florida.

### Evaluation of Patients

We evaluated 1056 newborns delivered at Jackson Memorial Hospital between August 1991 and April 1992 to determine the frequency of dermatoses and

other skin lesions found in normal newborns in South Florida. The entire skin surface examination, including scalp, oral cavity, and nails were performed by Drs. Duarte and Pruksachatkunakorn. No baby was older than 96 hours at the time of examination, and the majority were less than 48 hours old.

A questionnaire regarding perinatal, maternal, and family medical history (including a history of skin disease, medications, and chronic illness) was administered to the mother of each child.

The newborns were classified according to each skin finding as shown in Table 1.<sup>11-15</sup>

### Clinical Findings

One thousand and fifty-six babies were evaluated. There were 534 (50.6%) females and 502 (49.4%) males. The racial distribution was 616 (58.3%) Caucasians and 440 (41.7%) Blacks. There were 807 (76.4%) appropriate for gestational age, 235 (22.3%) large for gestational age, and 14 (1.3%) small for gestational age. Every neonate had one or more cutaneous findings. The prevalence of skin findings is shown in Table 1.

The top seven dermatoses were analyzed by race. Mongolian spots were seen in 86.6% of Black neonates and 62.5% of Caucasians. These involved mostly the sacrococcygeal region and buttocks (94.2%), the remaining were located on shoulder, back, thighs, legs, arms, forearms, hands and feet. Sebaceous hyperplasia commonly presented on the nose (85%) and was present in 28.2% of Blacks and 46.3% of Caucasians. Salmon patch was commonly found on the nuchal areas (80.6%) and eyelids (16%) and was present in 27.7% of Blacks and 39.5% of Caucasians. Epstein's pearls were most frequently found over the midline at the junction of hard and soft palate (97%) and were present in 29.1% of Blacks and 35.7% of Caucasians. Erythema toxicum neonatorum was frequently seen over the trunk (90.7%) and was mostly seen between the second and fourth day of life. It also correlated to the maturity of the newborns: 71.8% of cases were fullterm babies who were appropriate for gestational age. It was less common in babies who were small for gestational age (0.7%). Erythema toxicum neonatorum was present in 11.6% of Blacks and 37.8% of Caucasians. Linea nigra was more frequently seen in Blacks (51.8%) than in Caucasians (5.0%)—a statistically sig-

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Table 1.—Prevalence of Cutaneous Findings in 1056 infants

Rank	Skin Findings	Number	Percent
1	Mongolian spots (black-gray or black-green patches)	766	72.5
2	Sebaceous hyperplasia (multiple yellow tiny papules on nose cheek and upper lip)	409	38.7
3	Salmon patch (pink patch on the forehead, glabella, upper eyelid and occiput)	365	34.6
4	Epstein's pearls (white or yellow papules along the junction of the hard and soft palate or along the alveolar ridge)	348	33
5	Erythema toxicum neonatorum (localized or widespread erythematous macules, papules, nonfollicular pustules on erythematous base)	284	26.9
6	Linea nigra (a linear darkening between the umbilicus and the pubes)	259	24.5
7	Transient pustular melanosis (1-3 mm flaccid, superficial vesicopustules on the chin, neck, forehead, back and buttocks, ruptured and formed collarette of scale and pigmented macules)	191	18.1
8	Desquamation (superficial scaling or peeling of skin; )	137	13
9	Milia (pearly-white or yellow papules, 1 to 2 mm in diameter)	68	6.4
10	Cutis marmorata (reticulate blue vascular pattern)	37	3.5
11	Congenital melanocytic nevi (brown, flat or raised lesions)	36	3.4
12	Café-au-lait spots (sharply defined, light-brown patches)	30	2.8
13	Petechiae	25	2.4
14	Supernumerary nipple (small fleshy papule on the milk line which run from the anterior axillary fold to the inner thigh)	22	2.1
15	Miliaria (erythematous papules (miliaria rubra) or tiny clear vesicles ruptured easily with gentle pressure (miliaria crystallina) distributed over the forehead, neck, upper chest and back)	18	1.7
16	Hemangioma (macular or raised pink area other than salmon patch)	17	1.6
17	Preauricular skin tag (a soft pedunculated mass anterior to the helix)	16	1.5
18	Sacral dimple (a small pit over the sacral area)	15	1.4
19	Sacral hypertrichosis	14	1.3
20	Seborrheic dermatitis	13	1.2
21	Trauma from delivery procedure (erosion, ulceration, ecchymoses, subconjunctival hemorrhage, petechiae, pressure necrosis, caput succedaneum (swelling or hemorrhagic edema of presenting part), cephalhematoma (subperiosteal hemorrhage presents as swelling of one side limited by the suture lines), and forceps marks on the sides of the face)	10	1
22	Preauricular pits (a small pit anterior to the helix)	9	0.9
23	Hypopigmentation	8	0.8
24	Perianal dermatitis	6	0.6
25	Nevus sebaceous	6	0.6
26	Telangiectasia (face)	5	0.5
27	Subcutaneous fat necrosis	4	0.4

Miscellaneous: Intraoral mucous cyst, Premature teeth, Blue nevus (0.3% each); Sucking blister, Sacral skin tag, Becker nevus, Staphylococcal impetigo (0.2% each); Herpes simplex (localized), Systematic candidiasis, Connective tissue nevus, Halo nevus, Bifid spina (0.1% each)

nificant difference. Transient pustular melanosis most commonly affected the chin, neck, and upper chest, and its prevalence was also statistically significant between Blacks (33.4%) and Caucasians (7.1%).

Desquamation frequently involved the hands and feet (70.2%), but widespread scaling was also seen in a small number of neonates. Milia most frequently occurred on the face (93%). Congenital melanocytic nevi were diagnosed clinically in 36 neonates, and 86.5% of the lesions were smaller than 10 mm in diameter and 13.5% were 10 to 15 mm. All were black-brown lesions. The predominant site was the lower extremities (43.2%). The majority of cases (91.9%) had a solitary lesion. None had a malignant appearance.

Café-au-lait macules were seen mostly on the trunk and lower extremities and most were single lesions (99%) and were smaller than 10 mm (62.6%). None of the mothers with newborns having multiple café-au-lait spots had similar disorders. Hemangioma was most frequently found on the lower extremities (61.1%). Most of

these lesions were flat and solitary. There were three cases with port wine stains on face (1 neonate), and lower extremities (2 neonates). Multiple hemangiomas were seen in two cases: one was diagnosed as an arteriovenous malformation and the other had disseminated hemangiomas associated with opacity of the eyes.

Of 1053 newborn babies, we found 8 cases born to known human immunodeficiency virus (HIV)-infected mothers. Their hospital records indicated their HIV result before this study was performed. All babies except one were appropriate for gestational age. The cutaneous findings are shown in Table 2.

## Discussion

Our evaluations revealed a variety of skin conditions among neonates in the neonatal period. Mongolian spots were the most frequently observed abnormality. Mongolian spots are seen more often in Black neonates than in Caucasian neonates. The occurrence of Mongolian spots

among black newborns ranges from 60% to 97%.<sup>1,6-8</sup> Alper and Holmes<sup>5</sup> reported 88.7% in blacks and 4.8% in white babies. Osburn et al<sup>7</sup> found 64% in blacks and 2.8% in white babies. Rivers et al<sup>4</sup> reported Mongolian spots in 13.3% of Caucasian babies. We found Mongolian spots in 62.5% of Caucasian babies and 86.6% of Black babies. The present study demonstrated a similar pattern of racial distribution that Mongolian spots are significantly more common in the Black babies than Caucasian babies.

Linea nigra, a brown streak running from the umbilicus to the pubes, was observed in 51.8% of Black newborns and 5.0% of Caucasian newborns. This difference is statistically significant. There is a very little known of the nature of this pigmentary change. It has been postulated to be a response to the maternal and placental hormones that enter the fetal circulation.<sup>16</sup> Among these hormones, estrogen and progesterone have been reported to exert a melanocyte-stimulating effect which also cause darkening of linea alba in pregnant women.<sup>17,18</sup> This pigmentary change is also one of a racial difference.

The surveys of congenital pigmented nevi showed 0.4% to 15.6% of newborns, with the highest percentage among nonwhite babies.<sup>1,2,4,6,7,9,10</sup> The prevalence of melanocytic nevi in our whole population was 3.4%, with the high occurrence in black newborns. The size of congenital pigmented nevi is important. Nevi larger than 20 mm in diameter are considered to be the giant type and are one of the precursors of melanoma.<sup>19,20</sup> The small nevi are more common and are a lesser risk of malignant change. We found that 13.5% of congenital pigmented nevi were smaller than 20 mm in diameter and had no clinical evidence of malignant changes.

Café-au-lait spots are present in a small proportion of normal individuals. Yet, they may appear as the earliest sign of many significant diseases, such as neurofibromatosis, Albright syndrome, ataxia telangiectasia, tuberous sclerosis and Fanconi's anemia. These systemic diseases are mainly progressive disorders. Forty-one children with multiple café-au-lait spots were examined annually by Korf.<sup>21</sup> Twenty-four patients had signs of neurofibromatosis type 1 which gradually developed. The remaining patients were diagnosed as having other types of neurofibromatosis, Bannayan-Riley-Rulvalcaba syndrome, multiple lentiginos syndrome, and fibrous dysplasia. Our observation revealed no association of abnormalities. However, we plan to have a regular follow-up examination in all newborns with multiple café-au-lait spots.

Transient pustular melanosis has been observed in 0.2 to 2.2% in term newborns, which is seen more often in Black newborns than Caucasians.<sup>22,23</sup> We also found a significant difference between Black and Caucasian newborns. The differential diagnosis includes erythema toxicum neonatorum, bacterial pustules, candidiasis,

scabies, and herpes infection.

Of the 1056 neonates we evaluated, 8 were born to HIV-positive mothers. The associated skin lesions found in these 8 neonates are listed in Table 2. Mongolian spots and salmon patches were the most frequently seen in these babies. The clinical manifestation of HIV infection usually start by the age of 3 to 6 months.<sup>24</sup>

**Table 2—Cutaneous Findings in Neonates of HIV-Positive Mothers**

Sex	Race	Size	Cutaneous Lesions
M	Black	AGA	MS/EP/TPM/LN
F	Black	AGA	MS/TPM/LN
F	Black	AGA	MS/LN/SP/DRY/SD
F	Caucasian	AGA	MS/SH/SP/ETN
F	Caucasian	AGA	MS/SP/EP/DESQ/HT
M	Black	LGA	MS/SP/PIGM.N
F	Caucasian	AGA	MS
F	Caucasian	AGA	MS/SH/SP/TPM

AGA: appropriate for gestational age; LGA: large for gestational age; MS: Mongolian spots; SH: sebaceous hyperplasia; SP: Salmon patch; ETN: erythema toxicum neonatorum; TPM: transient pustular melanosis; LN: Linea nigra; SD: sacral dimple; HT: Sacral hypertrichosis; PIGM.N: Pigmented Nevi; DESQ: desquamation; EP: Epstein's pearls

## Summary

The most commonly observed skin findings in newborns in South Florida include Mongolian spots, sebaceous hyperplasia, salmon patch, Epstein's pearl, erythema toxicum neonatorum, linea nigra, and transient pustular melanosis, respectively. Congenital nevocellular nevi were also common. This data may lead to prospective studies on the factors and diseases related to these conditions that are first observed in neonates.

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