

Cutaneous Lesions in Newborn Babies: A Hospital-based Study

B Sandeep, C Susheela, S Keerthi

Department of Paediatrics, Vydehi Institute of Medical Sciences and Research Centre, Bengaluru, Karnataka, India

Abstract

Background: Newborns can present with a vast variety of skin lesions. Most of these lesions are physiological, transient, or self-limited and require no therapy. Although a few studies have been done, the results of these studies show differences according to racial and environmental factors.

Objective: To study the hospital-based incidence of neonatal dermatoses during the early neonatal period and to know the clinical pattern of various cutaneous lesions.

Materials and Methods: A total of 250 consecutive neonates delivered at VIMS were examined in a hospital-based study satisfying inclusion and exclusion criteria, cross-sectional study between the period of January 2014 and December 2014.

Results: 96.1% of newborns had one or other skin lesions out of 250 newborns examined. Male: Female ratio was 1.27:1. Skin lesions were commonly seen in full-term neonates. Mongolian spot was seen in 61.8%, milia in 32.4%, jaundice in 10.4%, vernix caseosa in 7.2%, and physiological scaling in 6.4%. Among transient non-infective lesions, erythema toxicum neonatorum (ETN) was the most commonly seen in 36.4%, followed by miliaria in 6.4% and transient pustular melanosis in 6.8%. Cafe-au-lait macule was most commonly birthmark seen in 2% followed by congenital melanocytic nevi in 0.15% and hemangioma in 0.4% of cases.

Conclusion: The hospital-based incidence of neonatal dermatoses was 96.1% without sexual predilection. The physiological and transient skin lesions commonly seen were Mongolian spot, milia, ETN, and physiological scaling. It is important to differentiate them from other more serious skin conditions to avoid anxiety among parents and unnecessary therapeutic interventions. Patterns of neonatal dermatoses may be influenced by racial and geographic factors.

Key words: Neonatal, Physiological, Transient dermatoses

INTRODUCTION

The neonatal period is regarded as first 4 weeks of extrauterine life. The transition from an aqueous atmosphere to a dry one represents a dramatic challenge to the skin of a newborn.

The neonatal skin differs from that of an adult structurally and functionally. The cutaneous barrier function, absorption, and temperature regulation vary depending

on maturity. A variety of lesions which may be transient, physiological, or pathological may be present during the neonatal period. However, most of these conditions are benign and self-limiting.

Some of the commonly encountered benign and transient lesions during neonatal period are erythema toxicum neonatorum (ETN), miliaria, physiological desquamation last for first few days of life, and others such as Mongolian spots and hemangiomas may persist for several months. Although harmless, these conditions may cause anxiety and concern among the parents to seek medical advice. Other conditions may be pigmentary birthmarks, congenital anomalies, cutaneous signs of internal disease, or a pathological condition such as epidermolysis bullosa.

Correct diagnosis and counseling the parents may relieve the anxiety and mental trauma. It also avoids unnecessary

Access this article online



www.ijss-sn.com

Month of Submission : 06-2016
Month of Peer Review : 07-2016
Month of Acceptance : 08-2016
Month of Publishing : 08-2016

Corresponding Author: Dr. B Sandeep, Department of Paediatrics, Vydehi Institute of Medical Sciences and Research Centre, Bengaluru, Karnataka, India. E-mail: sandydlion@gmail.com

investigations and medications. Further, the pattern of neonatal dermatoses may vary depending on the race and environmental factors. Although a few studies have been done in India, there is none in this part of the country. Hence, a study was undertaken on this subject.

MATERIALS AND METHODS

Source of Data

All newborns below 28 days of life admitted in postnatal ward/OPD in VIMS and RC, Bangalore.

- a. Duration of study: 1 year
- b. Inclusion criteria: Term neonates <28 days of life of either Inborn/OPD will be included in the study.
- c. Exclusion criteria:
 1. Neonates above 28 days of life.
 2. Preterm neonates
 3. Neonates born to mothers with a history of drug and alcohol abuse, and maternal illness.
 4. Neonates with gross congenital malformations.
 5. Critically sick neonates on ventilator.

Procedure

Data were collected after obtaining informed consent from parent/guardian of each neonate up to 28 days of extrauterine life. Detailed history regarding the age of the mother, parity, history of consanguinity, mode of delivery, blood group of mother, and history of maternal of illness during pregnancy was taken.

The neonates were examined thoroughly, and the morphology of skin lesions and findings were recorded. The sex, birth weight, presence of any systemic illness, and age at the time of examination were noted in each case. Diagnosis was made based on clinical features. When necessary, Gram's stains, KOH mount, bacterial culture, and maternal blood venereal disease research laboratory was done.

Statistical Analysis

The results of the study were tabulated and analyzed with SPSS 16.0 version. Simple proportions and percentages for incidence, comparison of different variables such as age and sex was used. The relationship between skin lesions and various maternal-neonatal aspects were calculated using Fisher's exact test and Chi-square test was used, with $P \leq 0.05$ considered statistically significant.

RESULTS

In the present study, a total number of babies taken as per inclusion and exclusion criteria, out of 260 babies examined taking prevalence into consideration, 250 term

newborns had cutaneous lesions (96.1%); 139 (55.56%) were male, 111 (44.4%) were female. Of these, history of consanguinity was present in 8 (3.2%) cases. 229 (91.6%) mothers had undergone regular antenatal checkups.

131 (52.4%) newborns were delivered by normal vaginal route and 119 (47.6%) by cesarean section. 123 (49.3%) mothers were in the age group of 25-30 years, 111 (44.4%) were in the age group of 21-25 years, and 10 (4%) were more than 30 years and below 20 years 6 (2.4%).

Physiological skin lesions found among all babies summoned to 271, followed by transient cutaneous lesions seen in 124, birthmarks in 15, and others in 2. Among the physiological skin lesions, Mongolian spot was the most commonly seen in 154 neonates (61.6%), ETN in 91 (36.4%), milia in 81 (32.4%), physiological jaundice in 26 (10.4%), vernix caseosa in 18 (7.2%), transient pustular lesions in 17 (6.8%), and physiological desquamation in 6 (6.4%).

Distribution of various dermatoses with respect to both sexes.

All cutaneous newborn lesions were more common in males than females except for infantile pustulosis and physiological desquamation, milia which are commonly seen in females (Figures 1-13 and Tables 1-6).

DISCUSSION

Cutaneous lesions are not uncommon among neonates. The incidence and pattern of lesions may depend on various factors. In our study, 250 neonates had cutaneous lesions with hospital-based incidence of 96.1%. In a study done in North India, 94.8% neonates had one or more cutaneous lesions.¹

The prevalence of neonatal dermatoses in different studies varied in between 57% and 99.3%. These differences in the results may be related to study methods and racial factors.²

The prevalence of ETN, Milia, and ETN is similar to other Indian studies. The frequency of various neonatal dermatoses in our study is compared with other Indian studies.

The most common skin manifestation noted was Mongolian spots in 154 neonates (61.6%). The incidence of Mongolian spots in our study was similar to others, which ranged from 56% to 98% in various studies of Sachdeva *et al.*^{1,3,4} Its incidence in Asiatic newborn was found to be 81% in one study. Majority were found over lumbosacral region. It is evident that greater the degree of natural pigmentation, the higher is the occurrence of Mongolian

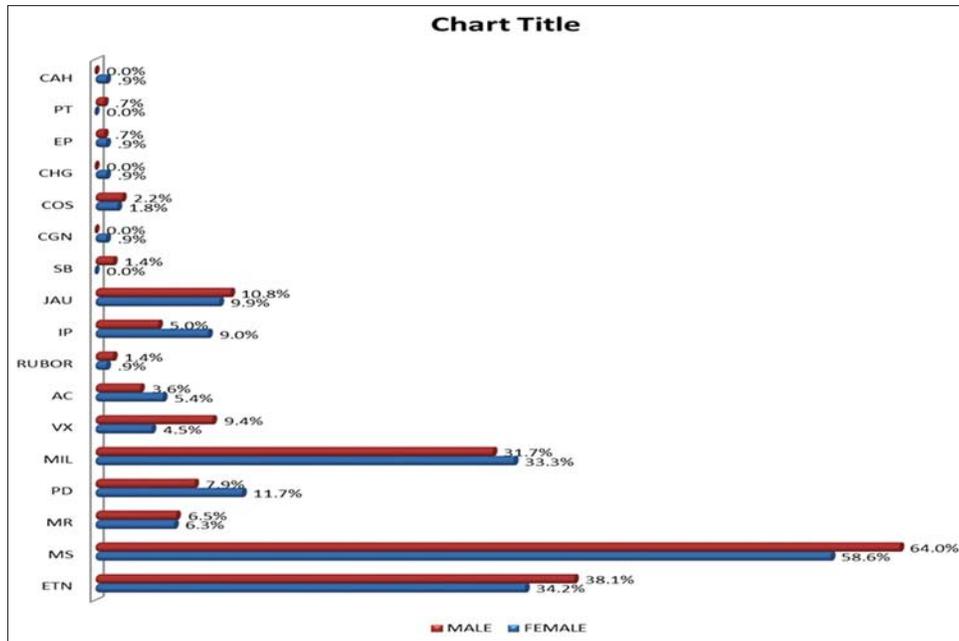


Figure 1: Clinical image



Figure 2: Clinical Image



Figure 4: Clinical image



Figure 3: Clinical image



Figure 5: Clinical image

spots in the newborn. Higher incidence in black babies, Asiatic babies, Ladino babies, and Mongolians point toward its racial variation.¹ These were seen more commonly in males and term babies, with a higher incidence in neonates born to multiparous women. There was no relation to

maternal illness or mode of delivery similar to a study by Sachdeva *et al.*¹

Milia were seen in 32.4% cases. This is comparable to the incidence observed by other Indian workers.^{1,3} A higher



Figure 6: Clinical image



Figure 9: Clinical image



Figure 7: Clinical image



Figure 10: Clinical image



Figure 8: Clinical image



Figure 11: Capillary hemangioma

incidence was seen in term babies and in babies weighing more than 2.5 kg, delivered vaginally, which has also been noted by Sachdeva *et al.*^{1,3}

ETN was seen in 36.4%, similar to Baruah *et al.*⁴ All the babies were born at term which is in concurrence with other studies.^{1,3} Most of the babies developed ETN on day 2 or 3. The day of examination (second to fourth day) and onset of ETN showed statistical significance ($P < 0.00$).

Physiological scaling was seen in 9.6% of cases. The incidence of superficial cutaneous desquamation varied from 7.2-83% in other studies of Dash *et al.*^{1,3,4} The incidence varies depending on the day of examination, being more in studies where babies were followed up for more than 5 days. It was more in term and post-term neonates. The day of examination (5-7th day) and onset of physiological desquamation showed statistical significance ($P < 0.00$).

Table 1: Relationship of skin lesions with maternal factors

Factors	n (%)
H/O consanguinity	
NC	242 (96.8)
C	8 (3.2)
Parity	
Primi	113 (45.2)
Multi	137 (54.8)
Route of delivery	
Vaginal delivery	131 (52.4)
Cesarean section	119 (47.6)
Maternal blood group	
A+	61 (24.4)
A-	4 (1.6)
B+	57 (22.8)
B-	3 (1.2)
O+	80 (32)
O-	4 (1.6)
AB+	40 (16)
AB-	1 (0.4)
Maternal age	
<20	6 (2.4)
21-25	111 (44.4)
26-30	123 (49.3)
>30	10 (4.0)

Table 2: Relationship of skin lesions with neonatal factors

Neonatal factors	n (%)
Sex	
Male	139 (55.6)
Female	111 (44.4)
Maturity term	250 (100)
Birth weight	
>2.5 kg	250

Most of the cutaneous lesions are seen in males (55.6%)

Miliaria was seen in 6.4% cases. The incidence in other studies varies in between 2.6% and 9.6% which may be attributed to climatic variations.^{1,9}

Scrotal hyperpigmentation was seen in 0.4% neonate. There was no history of maternal illness or drug intake. It was speculated that the variation in genital hyperpigmentation may be related to the differential activation of melanocytes.

Table 3: Distribution of various neonatal dermatoses

Skin lesions	n (%)
Physiological skin lesions	
Vernix caseosa	18 (7.2)
Physiological scaling	16 (5.4)
Milia	81 (32.4)
Epstein pearls	2 (0.8)
Pigmentary changes due to melanin	
Mongolian spot	154 (61.6)
Pigmentation other than melanin	
Physiological jaundice	26 (10.4)
Transient non-infective conditions	
ETN	91 (36.4)
Miliaria rubra	16 (6.4)
Transient neonatal pustular melanosis	17 (6.8)
Birthmarks	
Vascular	
Hemangioma acrocyanosis	1 (0.4)
Rubor	11 (4.4)
Pigmentary	3 (1.2)
Congenital melanocytic nevi	1 (0.4)
CALMs	5 (2.0)
Stroke bite	2 (0.8)
Others	
Hyperpigmentation of genitals (CAH)	1 (0.4)
Prenatal teeth	1 (0.4)

CAH: Congenital adrenal hyperplasia, CALMs: Café-au-lait macule, ETN: Erythema toxicum neonatorum

Table 4: Pattern of skin lesions

Factors	n (%)
Physiological skin lesions	271 (108)
Transient	
Non-infective conditions	124 (49.6)
Birthmarks	15 (8.8)
Others	2 (0.8)

Table 5: Frequency of various neonatal dermatoses

Skin lesions (%)	Sachdeva, <i>et al.</i> ¹	Dash, <i>et al.</i> ³	Baruah, <i>et al.</i> ⁴	Present study
Mongolian spot	60.2	89	-	61.6
Erythema toxicum neonatorum	21	27	34.8	36.4
Milia	23.8	13	93	32.4
Physiological scaling	40	18	40	9.6
Miliaria	20.6	24	13.2	6.4%

Table 6: Frequency of neonatal dermatoses in various foreign studies

Skin lesions (%)	Al-Dahiyat, <i>et al.</i> ⁵	Gokdemir, <i>et al.</i> ⁶	Zagne and Fernandes ⁷	El-Moneim <i>et al.</i> ⁸	Present study
Mongolian spot	78	20.1	50.74	11.7	61.6
Milia	57	27.1	13.79	3	32.4
Erythema toxicum	68	39.29	36.95	1.3	36.4
Physiological scaling	21	13.3	18.23	13.1	9.6

**Figure 12: Acrocyanosis****Figure 13: Stork bite**

Therefore, racial factors and skin type may be important factors in determining genital pigmentation.⁶

Cafe-au-lait macules (CALMs) were seen in 2.2% of neonates. A study done in Arab and Israel showed the prevalence of CALMs in 0.48% and 0.11% neonates, respectively.⁸ When multiple CALMs are present, babies have to be followed up for the development of neurofibroma, in conjunction with family history.

Prenatal teeth were seen in 0.4% neonate. A normal mouth may rarely have precocious dentition, with natal (present at birth) or neonatal (eruption after birth) teeth in the lower incisor position or aberrantly placed; these teeth are shed before the deciduous ones erupt. A study done by Baruah *et al.* also showed similar results.⁴

In the present study, 0.1% of congenital melanocytic nevi were observed. A giant congenital melanocytic nevus was present in a baby, involving the entire back with multiple satellite lesions distributed all over the body. Congenital melanocytic nevi in newborns showed a prevalence of 0.4-15.6%, with the highest percentage among non-FAIR babies.¹⁰

CONCLUSION

The hospital-based incidence of neonatal dermatoses was 96.1% with no sexual predilection. Mongolian spot, milia,

vernix caseosa, erythema toxicum, and physiological scaling were the common physiological and transient dermatoses seen.

Genetic, environmental, racial, and various maternal and neonatal factors (maternal age, maternal blood group, consanguinity, regular antenatal checkup, and maturity of the baby) may influence the occurrence of certain skin lesions. Patterns of neonatal dermatoses may vary depending on racial and geographical factors also.

Thus, the study of neonatal skin helps to differentiate benign transient lesions from pathological conditions. Most of the skin lesions in newborn are self-limiting requiring no treatment. Correct diagnosis and counseling the parents may relieve the anxiety and mental trauma.

REFERENCES

1. Sachdeva M, Kaur S, Nagpal M, Dewan SP. Cutaneous lesions in new born. *Indian J Dermatol Venereol Leprol* 2002;68:334-7.
2. Kahana M, Feldman M, Abudi Z, Yurman S. The incidence of birthmarks in Israeli neonates. *Int J Dermatol* 1995;34:704-6.
3. Dash K, Grover S, Radhakrishnan S, Vani M. Clinico epidemiological study of cutaneous manifestations in the neonate. *Indian J Dermatol Venereol Leprol* 2000;66:26-8.
4. Baruah MC, Bhat V, Bhargava R. Prevalence of dermatoses in the neonates in Pondicherry. *Indian J Dermatol Venereol Leprol* 1991;57:25-8.
5. Al-Dahiyat KA. Neonatal skin lesions in Jordan, Study of Consecutive 500 neonates at King Hussein Medical Centre. *Calicut Med J* 2006;4:e1.
6. Gokdemir G, Erdogan HK, Köslü A, Baksu B. Cutaneous lesions in Turkish neonates born in a teaching hospital. *Indian J Dermatol Venereol Leprol*

- 2009;75:638.
7. Zagne V, Fernandes NC. Dermatoses in the first 72 h of life: A clinical and statistical survey. *Indian J Dermatol Venereol Leprol* 2011;77:470-6.
 8. El-Moneim AA, El-Dawela RE. Survey of skin disorders in newborns: Clinical observation in an Egyptian medical centre nursery. *East Mediterr Health J* 2012;18:49-55.
 9. Nanda A, Kaur S, Bhakoo ON, Dhall K. Survey of cutaneous lesions in Indian newborns. *Pediatr Dermatol* 1989;6:39-42.
 10. Conlon JD, Drolet BA. Skin lesions in the neonate. *Pediatr Clin North Am* 2004;51:863-88.

How to cite this article: Sandeep B, Susheela C, Keerthi S. Cutaneous Lesions in Newborn Babies: A Hospital Based Study. *Int J Sci Stud* 2016;4(5):43-49.

Source of Support: Nil, **Conflict of Interest:** None declared.