



Comparative Study of Cutaneous manifestations in Neonates delivered by Labor Naturalis and Other modes of Delivery

Dermatology

**Dr.G.Balaji MD
DVL**

Associate Professor of Dermatology Department of Dermato-Venereo-Leprosy
Govt Thiruvavur Medical College Thiruvavur 610004

**Dr.R.Suresh
Kumar MD DVL**

Assistant Professor of Dermatology Department of Dermato-Venereo-Leprosy
Govt Thiruvavur Medical College Thiruvavur 610004

ABSTRACT

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Background: Neonatal period constitutes first 4 weeks of extra uterine life. Mucocutaneous manifestation of neonates ranges from mild self limiting conditions to life threatening dermatoses. Though most of the skin lesions are harmless, cutaneous lesions in a neonate will cause significant stress and anxiety to the parents leading to consult various specialists. **Aim of the Study:** To compare different dermatological manifestations in babies delivered by normal labour and other modes of delivery. **Materials and Methods:** It was a cross sectional study conducted in Department of Dermatology in a tertiary centre, Chengalpattu for the period of one year. Babies delivered in Obstetrics Department by various modes of delivery and neonates attending the outpatient department for skin manifestations were taken into study. A total of 231 babies delivered by normal vaginal delivery having skin manifestations were compared with 229 babies delivered by other modes with skin manifestations. From the collected information we looked for any statistical difference between the two groups. After getting the informed consent from the parents babies were examined for any skin manifestations and the findings were recorded. Diagnosis was arrived by clinical features and investigations like 10 % potassium hydroxide mount, Wright's stain, Gram's stain, bacterial culture and ultrasound. The statistical analysis was carried out using statistical software SPSS 19.0. **Observation and Results:** Following observations were found in our study. Total number of neonates with skin manifestations was 460. Among 460 neonates 231 (50.2%) neonates were delivered vaginally, 220 (47.8%) delivered by caesarean section and 9 (2%) neonates delivered by forceps. In our study 255 (55.4%) neonates were male and 205 (44.6%) neonates were females. The most common dermatoses observed were Mongolian spots, Sebaceous hyperplasia and Erythema Toxicum Neonatarum. Rare cases such as aplasia cutis, collodion baby and giant melanocytic nevus were also documented in our study. Most common lesions seen in neonates delivered by labor naturalis were sebaceous hyperplasia, milia, scrotal hyperpigmentation, irritant contact dermatitis and miliaria.. Most frequent lesions seen in other modes of delivery were Erythema Toxicum Neonatarum, Mongolian spot and physiological desquamation. **Conclusion:** Neonatal cutaneous manifestations are influenced by environmental factor, maternal and neonatal factors. Most of the skin lesions in newborn do not need any treatment and it is self limiting. Reassuring the parents in case of physiological lesion relieves the anxiety and prevents the parents from visiting various doctors.

KEYWORDS:

neonate, normal vaginal delivery, other modes of delivery.

Introduction

Neonatal period constitutes first 4 weeks of extra uterine life. Mucocutaneous manifestation of neonates ranges from mild self limiting conditions to life threatening dermatoses which require specific therapy and early intervention. Cutaneous barrier function and temperature regulation depends on the maturity of the neonates. Cutaneous manifestation of neonate can be classified into physiological, transient eruptions, infections and birth marks. Most of the mucocutaneous manifestations in newborn are benign and self limiting. Commonly seen benign and transient cutaneous lesions in newborn period are erythema toxicum neonatorum, milia and physiological desquamation. Some of the cutaneous lesions serve as the external marker of the internal disorders. Lipoma, tuft of hair and hemangiomas over the spine denotes the spinal dysraphism. Though most of the skin lesions are harmless, cutaneous lesions in a neonate will cause significant stress and anxiety to the parents that lead to consult various specialists. So thorough knowledge of the neonatal skin manifestations are needed for differentiating the physiological lesions that requires reassurance and pathological lesions that require an early intervention. Here, we have decided to compare different dermatological manifestations in babies delivered by normal labour and other modes of delivery. MATERIALS AND

METHODS

It was a cross sectional study. It was conducted in Department of Dermatology in a tertiary centre for the period of one year. Babies delivered in Obstetrics department in tertiary centre by various modes of delivery and neonates attending the outpatient department for skin manifestations were included into our study. A

total of 231 babies delivered by vaginal delivery having skin manifestations were compared with 229 babies delivered by other modes with skin manifestations. From the collected information we looked for any statistical difference between the two groups.

Inclusion criteria

1) All live births delivered in tertiary centre. 2) Neonates attending the Dermatology outpatient department with skin manifestations.

Exclusion Criteria

1) All sick neonates in ventilators and very low birth weight babies were excluded from our study. 2) Babies without skin manifestations.

Procedure

After getting the informed consent from the parents, babies were examined for any skin manifestations and the findings were recorded. History related to parity, consanguinity, illness in mother and modes of delivery were obtained. Day of examination, birth weight, sex, and systemic illness were recorded. Diagnosis was arrived by clinical features, and investigations like 10% potassium hydroxide mount, Wright's stain, Gram's stain, bacterial culture and ultrasound.

Statistical Method

All variables were examined for outliers and non-normal distributions. The Categorical variables were expressed as frequency and percentage. Descriptive statistics were used to evaluate baseline characteristics. The group comparison for the categorical variables was analyzed using Chi square test. Simple proportions and percentages were used for calculating incidence, and comparison of

variables like age, sex etc. The relationship between skin lesions and various maternal-neonatal aspects were calculated using Z test. The p value of less than 0.05 was considered as statistically significant. The statistical analysis was carried out using statistical software SPSS 19.0

Observation and Results

Following observations were found in our study. Total number of neonates with skin manifestations was 460. Among 460 neonates, 231 (50.2%) neonates were delivered vaginally, 220 (47.8%) delivered by caesarean section and 9 (2%) neonates delivered by forceps (Table 1). In our study 255 (55.4%) neonates were male and 205 (44.6%) were females. 366 (79.6%) neonates were weighing greater than 2.5 kilograms and 94 (20.4%) were weighing less than 2.5 kilograms. Among those, term babies were 445 (96.7%) and preterm babies were 15 (3.3%). History of consanguinity was seen in 101 mothers (22%) and other 359 (78%) were without consanguinity. Most of the mother belongs to primi gravida 268 (58.3%) followed by 2nd gravida in 138 (30%), 3rd gravida in 44 (9.6%), 4th gravida in 9 (2%) and 5th gravida 1(0.2%). The comparison of dermatoses with respect to different modes of delivery was shown in Chart 1. Cutaneous manifestations among male and female neonates were compared and depicted in Table 2. Various dermatoses in relation to birth weight were shown in Chart 2 and,3.

Table 1: Showing the percentage of modes of delivery.

	Number of neonates	Percentage
Normal labor	231	50.2
LSCS	220	47.8
Forceps	9	2.0
Total	460	100.0

Most of the mothers are primi which constitute around 58.3% followed by others. Consanguinity is seen in 22% of mothers. 79.6% babies having birth weight greater than 2.5 kilograms and 20.4% babies were weighing less than 2.5 kilograms.

Table 2: Comparison of cutaneous manifestations among male and female neonates

Diagnosis	Male		Female	
	Normal labor	Other modes	Normal labor	Other modes
Erythema toxicum neonatorum	21 (17.21%)	35 (26.32%)	14 (12.84%)	17 (17.71%)
Milia	16 (13.11%)	19 (14.29%)	15 (13.76%)	10 (10.42%)
Sebaceous Hyperplasia	32 (26.23%)	32 (24.06%)	20 (18.35%)	15 (15.63%)
Mongolian spot	83 (68.03%)	93 (54.89%)	76 (69.72%)	69 (71.88%)
Miliaria	5 (4.10%)	3 (2.26%)	4 (3.67%)	4 (4.17%)
Café au lait macule	3 (2.46%)	2 (1.50%)	1 (0.92%)	1 (1.04%)
Epstein's pearls	10 (8.20%)	7 (5.26%)	11 (10.09%)	4 (4.17%)
Physiological desquamation	13 (10.66%)	14 (10.53%)	13 (11.93%)	15 (15.63%)
Lanugo hair	5 (4.10%)	3 (2.26%)	3 (2.75%)	4 (4.17%)
Sub conjunctival haemorrhage	4 (3.28%)	2 (1.50%)	3 (2.75%)	6 (6.25%)
Scrotal				

Scrotal hyperpigmentation	18 (14.75%)	14 (12.84%)	0	0
Irritant contact dermatitis	3 (2.46%)	2 (1.50%)	3 (2.75%)	1 (1.04%)
Withdrawal bleeding	0	0	5 (4.59%)	12 (12.50%)
Contusion	0	2 (1.50%)	0	2 (1.04%)
Port wine stain	1 (0.8%)	0	2 (1.8%)	1 (1.0%)
Collodion baby	0	1 (0.8%)	1 (0.9%)	0
Subcutaneous fat necrosis	0	1 (0.8%)	1 (0.9%)	0
Cephalhematoma	3 (2.5%)	2 (1.5%)	1 (0.9%)	0
Congenital melanocytic nevus	1 (0.8%)	0	2 (1.8%)	1 (1.0%)
Impetigo neonatorum	3 (2.5%)	0	1 (0.9%)	1 (0.84%)
Syndactyly	2 (1.6%)	0	0	0
Caput succedaneum	0	1 (0.8%)	0	1 (1.0%)
Others	5 (2.13%)	1 (0.8%)	2 (1.8%)	1 (1.0%)

Erythema toxicum neonatorum and milia are most commonly seen in babies greater than 2.5 kilograms. Lanugo hair is more in babies less than 2.5kgs due to preterm. Erythema toxicum neonatorum and milia are more common in term infants. Milia are most common in babies weighing greater than 2.5 kilograms. Physiological desquamation is seen in the term babies. Lanugo hair occurs in all preterm babies. 64.5 % babies having more than single dermatoses and 35.4% babies were having single dermatoses.

Chart 1: Comparing the various dermatoses seen between neonates delivered by normal labour and other modes of delivery.

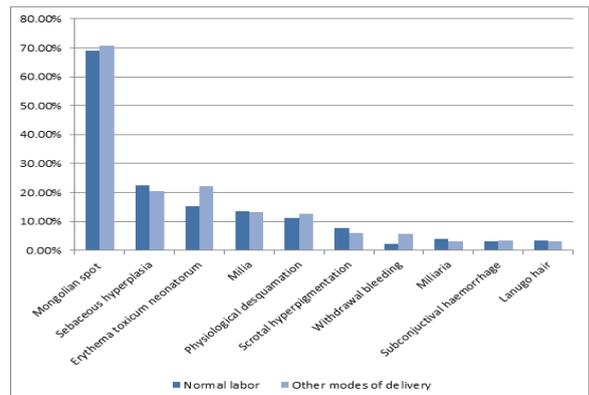


Chart 2: Dermatoses seen in preterm neonates

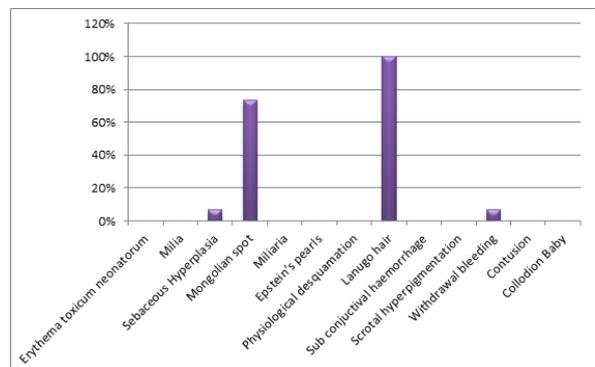
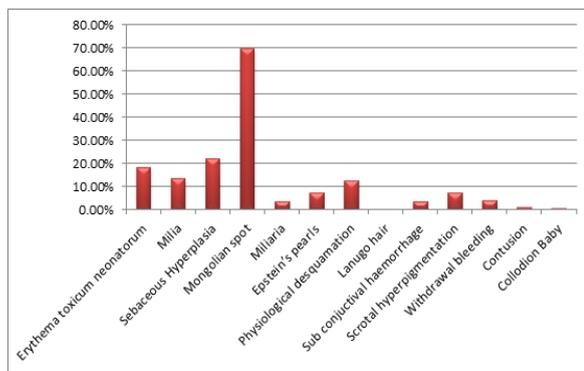


Chart 3: Dermatoses seen in term neonates

DISCUSSION

Cutaneous lesions are common in newborns. Prevalence of neonatal dermatoses varies from 57% to 99.3% in different studies [1]. Broad range of prevalence of various dermatoses in neonates is due to the difference in the study methods and racial factors.

Most common lesions seen in neonates delivered by labor naturalis were sebaceous hyperplasia, milia, scrotal hyperpigmentation, irritant contact dermatitis and miliaria. Equal prevalence was seen in lanugo hair, sub-conjunctival hemorrhage, collodion baby and subcutaneous fat necrosis. Most frequent lesions seen in other modes of delivery were erythema toxicum neonatorum, mongolian spot and physiological desquamation. Based on birth weight cutaneous manifestations were more common in neonates weighing greater than 2.5 kilograms are erythema toxicum neonatorum, milia, sebaceous hyperplasia, Epstein's pearls and physiological desquamation. Cutaneous manifestations that were common in neonates less than 2.5 kilograms are lanugo hair due to preterm babies. Certain cutaneous manifestations were more common in term neonates; they were erythema toxicum neonatorum, milia, sebaceous hyperplasia, scrotal hyperpigmentation and physiological desquamation.

Cutaneous manifestations common in preterm neonates were lanugo hair. Higher prevalence of cutaneous lesions seen in male neonates was erythema toxicum neonatorum, sebaceous hyperplasia, Epstein's pearls and cephalhematoma. Scrotal pigmentation was seen in 12.5% of male neonates and withdrawal bleeding was seen in 8.2% of the female neonates.

Most common dermatosis seen in our study was mongolian spot similar to various Indian studies ranging from 45% to 89% [2], [3], [4], [5], [6], and [7]. It was seen in 159 neonates (68.83%) delivered by vaginal delivery and 162 neonates (70.74%) delivered by other modes of delivery. Its size ranged from 0.5 centimeters to 30 centimeters. Mongolian spot was most commonly seen over the lumbosacral region, but rarely presented over the right dorsum of hand. Mongolian spot was seen slightly more in neonates delivered by other modes of delivery which was different from other Indian studies where there was no relationship to the mode of delivery [1], [4]. Erythema toxicum neonatorum was seen in 35 (15.15%) neonate's delivered vaginally and 52 (22.7%) neonates delivered by other modes of delivery. Erythema toxicum neonatorum was seen on the 2nd day as macular erythema, papules and pustules. It was more common seen in babies delivered by caesarean section as seen in previous studies.[8],[13],[14] There was no sexual difference in occurrence of Erythema toxicum neonatorum and more common in term babies with birth weight greater than 2.5 kilograms which was very well correlating with various studies. [9], [10], [11], [12]. Milia were seen in 31 neonates delivered vaginally and 29 neonates delivered by other modes of delivery. Most common site of milia was chin followed by cheek and forehead. It was more in term neonates and babies weighing greater than 2.5 kilograms (50 neonates) [15]. In our study only term babies showed physiological desquamation.[16] It was seen in 55 (12.36%) of neonates. Physiological desquamation was

seen in 3rd to 5th day of life. Most common site that underwent physiological desquamation was flexural area of abdomen, followed by deltoid region and extremities. Miniature puberty was more in males neonates than female. In male, scrotal hyperpigmentation was seen in 6.9% of neonates. In females, withdrawal bleeding [16] and clitoral hypertrophy were seen only in 3.9% of neonates. There was no difference in skin manifestations found between baby born to consanguineous parents and non-consanguineous parents. Lanugo hair was seen in all of our preterm neonates [17]. Common sites were over the cheek, shoulder and arms. One neonate had aplasia cutis congenita over the parietal region, and its father also had similar asymptomatic lesion since birth. Café au lait macule was seen in 7 neonates. Two of the neonates had multiple café au lait macules and they were born to a neurofibromatosis mother. Other babies with café au lait macule did not have family history of neurofibromatosis. Subcutaneous fat necrosis was seen in 2 of the neonates and they were associated with birth asphyxia and meconium aspiration syndrome [18], [19], [20], [21]. Of the 2 cases seen, one case presented with erythematous plaques on 13th day of life and in other neonate, tender erythematous nodules [22], [23] were seen on 21st day.

Birth injuries like caput succedaneum and cephalhematoma were seen in 8 neonates. Among 8 neonates, 7 babies were born to primiparous mother. As in previous studies birth injuries were more common in neonates born to primiparous mother. [24] Caput succedaneum was seen in 2 neonates delivered by caesarean section. Cephalhematoma was seen in 4 babies delivered by labor naturalis and in 2 neonates delivered by caesarean section. Nine babies were delivered by forceps, in that four neonates had contusions and erosions over the temporal and malar region. Sebaceous hyperplasia was the next common dermatoses seen in our study, it was seen in 52 neonates delivered by labor naturalis and 47 neonates delivered by other modes of delivery. It was seen in 64 (25%) male neonates and 35 (17%) female neonates showing male preponderance which is contrast to studies common in female babies [25]

Statistically significant difference occurred in erythema toxicum neonatorum between babies delivered by labor naturalis and caesarean section. It was more common in neonates delivered by caesarean section with p value 0.038 which was significant. Contusions and erosions over the temporal region following forceps delivery were seen in 4 neonates. Regarding other cutaneous manifestations even though there was an increased occurrence in one of the two groups, they are statically insignificant. We have also encountered rare cutaneous lesions like collodion baby (Figure 1), giant congenital melanocytic nevus (Figure 2), constriction ring (Figure 3) and gangrenous accessory toe (Figure 4).



Figure 1. Collodion Baby**CONCLUSION**

Most common neonatal dermatoses were mongolian spot, sebaceous hyperplasia, erythema toxicum neonatorum, milia and physiological desquamation. Some of the rare cases seen in our study were aplasia cutis, collodion baby and giant melanocytic nevus. Neonatal cutaneous manifestations were influenced by environmental factor, maternal and neonatal factors. Salient features in our study were (1) Male: female ratio was 1.24:1 (2) Consanguineous marriage was present in 22% of parents (3) Milia and erythema toxicum neonatorum were more commonly found in babies weighing greater than 2.5 kilograms (4) Erythema toxicum neonatorum was more in babies delivered by caesarean section which was statically significant (5) Mongolian spot was the most common neonatal dermatoses seen in 69% of neonates (6) Contusion was seen in 40% of babies delivered by forceps (7) Lanugo hair was more common in preterm babies. Most of the skin lesions in newborn did not need any treatment because of its self limiting nature.

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