Section: Dermatology

Original Research Article

CUTANEOUS MANIFESTATIONS OF EARLY NEONATES IN A TERTIARY CARE HOSPITAL

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ABSTRACT

Background: Aims: To study various cutaneous manifestations in early neonates that is within 7 days from the birth, fromAntenatal wards, dermatology outpatient department and Neonatal intensive care unit(NICU).

Materials and Methods: It is a cross-sectional study including 150 neonates from OPD of Department of Dermatology, obstetrics and gynecology ward and NICU.

Results: The percentage of consanguineous marriage and non – consanguineous marriage in the parents of neonates were seen as 16% and 84% respectively. The commonest cutaneous manifestations found in our study were that of pigmentary type i.e. Mongolian spot amounting to 22% of the cases most commonly over the lumbosacral region. The physiological desquamation was the commonest finding of papulosquamous changes that were seen in our study amounting to 18% of cases. The next commonest condition was of Erythema toxicum neonatorum amounting to 12% of the cases most frequently observed on the trunk. Acrocyanosis amounted to 8% of the cases in this study. The nasal lesions were demonstrated in all the cases of Sebaceous gland hyperplasia amounted to 6% of our case study. 5.3% of the cases were hypertrichosis lanugosa occurring over the shoulder, trunk and limbs. Miliaria accounted for 5.3% of the cases. It was more common in neonates admitted in NICU. Milia was found in 4% of the cases and most commonly occurred in neonates with birth weight >2.5kg. Of the solitary lesions Café au lait macules which were seen in our study amounted only to 2 %. The 2 % of cases wherein vernix caseosa seen were prominently observed in the axilla. Axillary hyperpigmentation amounted to 2 % of the cases. In our study two neonates demonstrated congenital melanocytic nevi amounting to 2 % of the cases. Other skin changes included amounting to 10 % of the total cases.

Conclusion: Awareness of cutaneous manifestations in neonates helps us to differentiate between the benign transient lesions from the pathological conditions, so that timely intervention and necessary follow-up may be done where needed as well as to give assurance to the anxious parents.

Keywords: Mongolian spot, papulosquamous, Erythema toxicum neonatorum, hypertrichosis lanugosa.

INTRODUCTION

The skin is a complex and dynamic organ which performs numerous vital functions. The maturation of skin starts at the birth. The transition from an aqueous atmosphere to a dry atmosphere represents a dramatic challenge to the skin of a newborn. This adaptive flexibility results in the distinctive properties of infant skin. Skin in the neonates differs from adult being thinner (40%-60%), less hairy and with weak dermo epidermal junction (the area of tissue that joins epidermal and dermal layers of skin). The neonatal period is one of rapid adaptation in which the skin plays an important role in function as a barrier and of

thermoregulation. Barrier function development increases with gestational age, as preterm neonate has less barrier function.

Skin lesions in neonatal period range from transient self-limiting conditions to serious dermatoses which requires specific therapies. The awareness of the fact that most of these conditions are benign and transient; it is important to differentiate them so that parents can be reassured.[1,2]

A similar study was done but the spectrum of dermatological manifestations in neonates varies from place-to-place and era to era. Some of the factors influencing the pattern of cutaneous changes include climate, race, nutrition, hygiene, socioeconomic status, customs, maternal factors, and heredity. Since studies on neonatal dermatoses are limited in India, this study has been planned to know the spectrum of cutaneous lesions in neonates, both physiological and pathological and to evaluate the association between age, gender, maturity, route of delivery, birth weight, maternal disease, and different skin lesion.

MATERIAL AND METHODS

It is a cross-sectional study. Permission from the Institutional Ethical Committee has taken prior to initiation of the study from November 15,2020 to November 15, 2021.

Study of 150 neonates in the Obstetrics and gynecology ward (OBG), Neonatal Intensive Care Unit(NICU) and those attending the department of dermatology at Mallareddy Narayana Multispecialty Hospital.

All live births, preterm and full-term births in OBG ward, NICU and those attending the Department of Dermatology examined at the hospital of Malla Reddy Narayana Multispecialty hospital.

Inclusion Criteria: All Live births within 7 days of life with consent taken from the mother/guardian

Exclusion Criteria: Neonates born to mother with medical illness like Epilepsy, Diabetes, Hepatitis-B, Endocrine disorders, neonates born to mothers on treatment for the above medical illness, neonates born to Mothers with Alcohol and drugs abuse.

Diagnosis of the conditions was based upon the clinical characteristics and individual findings as per standard dermatological practices using materials like hand lens, diascopy.

All neonates born in ward, those admitted in Neonatal Intensive Care Unit (NICU) and those attending the Department of Dermatology at Mallareddy Narayana Multispecialty Hospital, Hyderabad with consent being taken from the mother(or)guardian were included in the study. A detailed history was recorded in a proforma including the age of the mother, parity of mother, history of consanguinity, mode of delivery, and history of maternal illness during pregnancy. The sex, birth weight and age at the time of examination was noted in each case. Thorough examination of neonate in daylight with proper description of morphology of skin lesions was recorded. Diagnosis of disorder was based on clinical impression. Photographic records were maintained.

Variables analysed here are colour of the newborn skin at birth, no of pregnancies (primigravida/ multigravida/ elderly primi), Mode of delivery (vaginal, forceps/LSCS), Birth weight, age & sex of the newborn and H/O consanguinity.

RESULTS

In this study out of 150 neonates 66 were females and 84 were males. Most of the cutaneous lesions were seen in term neonates (75%). Babies with Average birth weight are 108 and the low-birth-weight cases are 42. Out of 150 cases 65 were primi and 85 were multipara. Out of 150 cases studied the mode of delivery of 63 cases were normal vaginal, 81 were caesarean mode of delivery. Out of 150 cases 24 babies born out of consanguineous marriage and 126 were born out of non-consanguineous marriage. 150 neonates with cutaneous manifestations were considered for the study. The observations made from this study are. [Table 1]

Mongolian spot was the commonest skin manifestation observed in 33 cases followed by Physiological desquamation seen in 27 cases. ETN was found in 18 cases involving the trunk commonly. Acrocyanosis was seen in 12 cases. [Table 2]

Most of the mothers in the study belong to the age group 20-30 yrs. [Table 3]

Erythema toxicum neonatorum was more common in neonates born by Caesarean Section (12 cases) than Normal vaginal delivery (6 cases). Acrocyanosis was more common in births born by normal vaginal delivery. [Table 4]

Table 1: Demographic distribution in present study

Sex	Cases	%
Female	66	44
Male	84	56
Gestational Age		
Preterm	21	14
Term	112	75
Post term	17	11
Birth Weight		
Average Birth Weight	108	72
Low Birth Weight	42	28
Parity		
Primi	65	43

Multipara	85	57
Mode of Delivery		
Normal Vaginal Delivery	63	42
Caesarean Section	81	54
Others (forceps delivery)	06	04
Consanguinity		
Consanguineous (C)	24	16
Non-Consanguineous (NC)	126	84

Table 2: Distribution of cases according to the percentage

Diagnosis	No. of Cases	%
Mongolian spot	33	22
Physiological desquamation	27	18
Erythema Toxicum Neonatorum	18	12
Acrocyanosis	12	8
Seborrheic hyperplasia	9	6
Hypertrichosis lanugosa	8	5
Miliaria	8	5
Milia	6	4
Café-au-lait macule	3	2
Vernix caseosa	3	2
Axillary pigmentation	3	2
Congenital melanocytic nevus	3	2
Aplasia cutis congenita	2	1.3
Others: Incontinentia Pigmenti Acropustulosis of Infancy Neonatal Alopecia Infantile Haemangioma Port Wine Stain Salmon Patch Piebaldism Accessory Tragus Dermatophytosis Scabies Collodian Baby Subcutaneous Fat Necrosis	 1 1 1 3 1 2 1 1 1 1 1 1	10%

Table 3: Distribution of skin lesions according to the age of mother, consanguinity

Skin lesions	Age of Mother			Consanguinity	
	<20yrs	20-30 yrs	>30 yrs	C	NC
Mongolian spot	6	20	7	1	32
Physiological desquamation	2	25	0	3	24
Erythema Toxicum Neonatorum	3	15	1	4	15
Acrocyanosis	3	10	2	3	12
Seborrheic hyperplasia	7	10	0	4	13
Hypertrichosis lanugosa	4	10	0	2	12
Miliaria	0	7	1	0	8
Milia	0	9	0	3	6
Café-au-lait macule	0	2	0	2	0
Vernix caseosa	0	1	0	0	1
Axillary pigmentation	0	1	0	0	1
Congenital melanocytic nevus	0	2	0	1	1
Aplasia cutis congenital	0	2	0	1	1

Table 4: Distribution of skin lesions according to the mode of delivery and parity

Skin lesions	Mode of delivery			Parity	
	NVD	CS	Others	Primi	Multi
Mongolian spot	11	22	0	22	11
Physiological desquamation	10	17	0	17	10
Erythema Toxicum Neonatorum	6	12	0	12	6
Acrocyanosis	10	2	0	2	10
Seborrheic hyperplasia	4	5	2	3	6
Hypertrichosis lanugosa	3	5	0	4	4
Miliaria	1	5	2	5	3
Milia	2	2	2	2	4
Café-au-lait macule	0	3	0	0	3
Vernix caseosa	2	1	0	0	3
Axillary pigmentation	2	1	0	0	3
Congenital melanocytic nevus	2	1	0	0	3
Aplasia cutis congenital	2	0	0	0	2
others	10	5	0	4	11

DISCUSSION

Cutaneous manifestations in neonates are not uncommon. Their prevalence has been found to be between 57% and 99.3%.in our study, all live neonates born in the Obstetrics and Gynecology ward, neonates admitted in NICU and including those who visited the Dermatology OPD were screened for cutaneous manifestations. Out of 150 neonates in the study, 56% were males and 44% were females which correlates well with a study done by Gudurpenu et al,[3] There was a male preponderance in our study contrary to Zagne et al,[4] where more incidence of females was seen. Most of the mothers were in the age group of 20 and 29 years at the time of delivery similar to the findings of Sachdeva et al,[5] 75% were term babies, 14% were preterm babies and rest 11% were post term babies . In our study 28% were low birth weight neonates while the rest 78% had a birth weight of 2.5 kg or more. In a study by Behera et al,[6] 22% and 78% had low birth weight and adequate birth weight respectively. 43% of the births were primigravida while 57% were multigravida which correlates well with the finding of Zagne et al,[4] 42% of the neonates were born by normal vaginal delivery, 54% by caesarean section and the rest 4% by other modes.

Sixteen babies were born out of consanguineous marriage. This cross-sectional study was done to assess the cutaneous manifestation in newborns. The findings of our study are as follows. Mongolian spot was the most common cutaneous manifestation observed in our study which was noted in 22% of neonates. A similar incidence was found in a study done by Gokdermir et al.[7] However this incidence of Mongolian spots in our study was quite low in comparison with other study observed in 60.2% by Sachdeva et al,[5] & 64.5% by Jain et al.[8] In our study lumbosacral region and buttocks were the commonest sites. Few lesions were found on the legs, arms and shoulders. The colour varied from light blue to bluish green with a female preponderance. There was no relation to maternal illness or mode of delivery similar to a study by Sachdeva et al.[5]

Physiological desquamation was noted in 18% of the cases which was identical to a study done by Zagne et al,[4] 18.2%. However higher incidence were reported bl,[7] 31.29%, 40% by Sachdeva et al,[5] and 83% by Baruah et al.[9] The scales mostly involved the trunk, extremities and ankle. It was more in term and post-term neonates with no sex predilection.

In this study 12% of neonates had erythema toxicum neonatorum. This was comparable to a study by Gokdemir et al,[7] (13.9%). This incidence was found to be higher as reported by Jain et al,[8] in 38%, 34.8% by Baruah et al,[9] & 27% by Dash et al.[10] The lesions were most commonly seen over the cheeks, upper trunk, thighs, and arms with sparing of the palms and soles. There was no sex predilection. But it was more common in term neonates as also reported by Baruah et al,[9] and Dash et al.[10] The lesions were more common in neonates born by caesarean section which was similarly observed by Behera et al.[6]

Acrocyanosis was observed in 6% of newborns. Jain et al,[8] reported as 10.5% of newborns and Zagne et al,[4] as 12.32% This incidence is much lower as observed by Behera et al,[6] (3%).It was more common in neonates born by vaginal delivery because a lot of pressure is exerted on the fetus inside the birth canal coupled with longer time duration for this mode of delivery, similarly observed by Zagne et al.[4]

Sebaceous gland hyperplasia was seen in 6% of the cases. This was similar to the findings of S. Gudurpenu et al (6.8%).[3] Commonly observed over the cheeks, nose, forehead and upper lips. This incidence is lower than that observations of Gokdemire et al,[7] (48.4%) and 47.78% by Zagne et al,[4] respectively. It was more commonly observed in term neonates. Our study differs to the finding of Jain et al,[8] No sex predilection as also reported by Zagne et al.[4]

Hypertrichosis lanugosa was seen in 5.3% of the cases in our study. This is complete to the incidence of Dash et al,[10] in 7% and Ferabas et al,[11] in 7.8% While Gokdemire et al,[7] reported it in 13.9% respectively. Higher incidence was noted in preterm babies which correlates with the findings of Gorur et al.[12]

The overall frequency of Miliaria in this study is 5.3%. This was similar to the findings of Gorur et al,[12] in 3.49% cases. However higher incidence was noted by Sachdeva et al,[5] in 20.6% and Baruah et al,[9] in 13.2%. Higher incidence was noted among the neonates admitted in the NICU under incubators which would be due to the warm and humid environment. This was a similar observation made by Jain et al.[8]

In this study milia was found in 4% of the neonates. This was comparable to the incidence reported by Gudurpenu et al[3] in 6.8%. The incidence of Miliaria shows wide variation from study to study. It was reported as 93.1% by Baruah et al.[9] A higher incidence was observed in term babies and in babies weighing more than 2.5 kg as similarly observed by Gorur et al.[9]

Café-au-lait macule was observed in 2% of neonates which is lower compared to a study in by Gorur et al(3%).[12] A single case had multiple lesions (<6) with no other diagnostic features of Neurofibromatosis 1.

In our study we observed vernix caseosa in 3 cases amounting to 2%. However slightly higher incidence has been reported in 2.9% of cases by Gorur et al,[12] and 4.5% by Gudurpenu et al.[3] In both cases it was seen over the axillary folds in term neonates.

Axillary pigmentation observed in our study amounted to 2%. Lower incidence was found by Gudurpenu et al,[3] (0.5%)cases. Hyperpigmentation of the skin in neonates is common and it is believed

to result from the influences of maternal and placental hormones.

In our study, congenital melanocytic nevus, brown flat was found in 2%. This correlates well with the incidence of a study done by Sadana et al,[13] and Dash et al.[10] Single lesions of melanocytic nevus was seen in our cases.

Two cases in our study had aplasia cutis which amounted to 2%. The incidence reported by Bose et al,[14] was much lower in 0.2% cases. A single atrophic patch was present on the scalp near the vertex with no secondary changes.

Mongolion spot

Physiological desquamation

Miliaria crystallina

Vernix caseosa

Aplasia cutis

Congenital melanocytic nevus

Accessory tragus

Seborrheic hyperplasia

Hypertrichosis lanuginose

CONCLUSION

In this observational study of spectrum of dermatological manifestations in neonates, the most common cutaneous manifestations observed were mostly in the spectrum of physiological changes like mongolian spot, physiological desquamation, Erythema toxicum neonatorum and acrocyanosis. A few pathological conditions like Incontinentia pigmenti, Piebaldsim were seen. The pattern of neonatal dermatoses is influenced by various factors which include racial, geographical, environmental, maternal and foetal factors. For example, in this study acrocyanosis was common in neonates born by normal vaginal delivery with history of prolonged labour. This may be due to more pressure impacted on the fetus. Although neonatal scabies and dermatophytosis are rare we have diagnosed a case of scabies and dermatophytosis in an 7 day,6 day old babies who had a positive family history. Miliaria rubra was common in neonates incubated in NICU. The warm environment of the NICU may be a contributing factor. Appropriate Antenatal care can prevent many neonatal manifestations contributed by maternal factors like scabies, dermatophytosis which were observed in this study. Awareness of cutaneous manifestations in neonates helps us to differentiate between the benign transient lesions from the pathological conditions, so that timely intervention and necessary follow-up may be done where needed as well as to give assurance to the anxious parents.

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