DOI: https://doi.org/10.53350/pjmhs22161122

ORIGINAL ARTICLE

Diagnostic Value of Skin Manifestations in Neonates in First 72 Hours of Birth

SOMAYYA SIDDIQA[1], AQSA NAHEED[2], SABA MUSHTAQ[3], SOHAIL ASHRAF[4], SUNDUS KHAN[5], SOBIA NOOR[6], NASSER RASHID DAR[7]

[1]Assistant Professor of Paediatrics, HITEC-IMS Taxila, [2]Associate Professor of Dermatology HITEC-IMS Taxila
[3]Assistant Professor, [4]Associate Professor, [5,6]Senior Registrars, Department of Paediatrics, Wah Medical College Rawalpindi
[7]Professor, Department of Dermatology, Heavy Industry Taxila Institute of Medical and Health Sciences, Taxila
Correspondence to: Somaya Siddiqa, Cell: 0300-5309590

ABSTRACT

Background: Newborn skin undergo various stages of developmental changes after birth in order to adapt to challenging conditions of extrauterine life. Many dermatoses though appearing challenging could actually be momentary or physiological undergoing rapid involution, therefore, a vital knowledge of neonatal skin biology is essential for all dermatologists.
Aim: To study the clinical pattern of various dermatoses in neonates and their diagnostic value.
Study design: Descriptive cross sectional study
Place and duration of study: Department of Paediatrics, HIT Hospital Taxila from 1st April 2021 to 30th September 2021.
Methodology: One hundred neonates within first 72 hours of life regardless of gestational age, sex and mode of delivery were selected. Neonates kept in intensive care unit were not included, as the chances of infection and sepsis are more in them. A detailed history was taken. Dermatological examination of all the neonates was done thoroughly in broad day light to accurately define the morphology of skin lesions. In all instances, the diagnosis of skin lesion was exclusively based upon the clinical impression.
Results: There were 42 (42%) males and 58 (58%) females. 74% were full term and 26% were preterm,79% had normal birth weight (2.5-3.5 kg) and 21% had low birth weight (<2.5kg). Cutaneous findings were positive in 87 (87%). 79% had normal physiological cutaneous manifestations and transient skin changes and only 8% had pathological skin changes.
Conclusion: Majority of the skin manifestation within 72 hours after birth are either physiological or benign that last for sometimes.
Key words: Neonate, Skin manifestations, Prevalence

INTRODUCTION

Newborn skin undergo various stages of developmental changes even after birth in order to adapt to challenging conditions of extrauterine life. These physiological and functional changes are required to perform multiple functions like protection, absorption, secretion and thermoregulation[1].

Skin comprises of three layer: epidermis, dermis and subcutaneous tissue. Top most layer of epidermis is the stratum corneum, vital for skin barrier function and serve as first line of defence for skin. Functional and structural skin maturation is a dynamic process, which starts at the moment of and ends in the first year of life[2]. In full term newborns, barrier maturation begins immediately after birth and completed in 2-4 weeks, while in preterm it is usually delayed by 2–3 weeks after birth.[3] As the skin is structurally immature, a wide spectrum of atypical and vague sign and symptoms can be observed. Cutaneous finding ranging from colour to texture, these variations are exceptionally common in newborns. Likewise, functional development also goes side by side including perspiration, pH and skin immune system. Moreover, volume/weight ratio of neonate's body is greater than that of adult which increase skin liability to substances applied and to sun exposure[3,4].

The prevalence of dermatoses in the newborn varies between 79.4% and 100%.[4] During the first four weeks of life, the newborn period includes various dermatologic skin problems. Most of them are innocent and short-lived. However, serious infectious, congenital skin dermatosis and sometimes malignant tumors should be taken into consideration.[5] As neonatal skin lesions are common, differentiation of the non-significant conditions from more serious clinical entities is important. Dermatoses of the newborn can be classified as: transient skin disorders, congenital disorders, birthmarks, Geno-dermatoses, acquired skin disorders and iatrogenic skin lesions[6].

Many dermatoses though appearing challenging could actually be momentary or physiological undergoing rapid involution, therefore, a vital knowledge of neonatal skin biology is essential for all dermatologists.[7] This would not only help in relieving undue anxiety for the parents and avoiding unnecessary disbursement on treatments which is not otherwise required. However, there are a few disorders that could also be serious, needing appropriate therapy along with genetic counselling and psychologic support, the management of which is generally multi-disciplinary which the treating dermatologist should be aware about so that timely intervention could facilitate a better therapeutic outcome.[8] Hence, it is essential to know the various lesions with regard to their clinical features and etio-pathogenesis in order to arrive at a suitable diagnosis and to plan the mode of management whenever it is required.

The main purpose of this study was to identify neonatal dermatoses and estimate the prevalence of physiologic and pathologic lesions in neonates after studying their various patterns.

MATERIALS AND METHODS

This is a descriptive cross sectional study done at HIT Hospital Taxila, a tertiary care hospital over a period of 6 months from 1st April 2021 to 30th September 2021. After ethical approval, 100 Neonates within first 72 hours of life regardless of gestational age, sex and mode of delivery were enrolled through convenience sampling. Those neonates kept in intensive care unit were not included, as the chances of infection and sepsis are more in them. A detailed history relating to the mother's age, history of consanguinity, mode of delivery, and any maternal illness during pregnancy was taken. General physical, systemic and dermatological examination of all the neonates was done thoroughly in broad day light to accurately define the morphology of skin lesions. Other parameters including sex, birth weight, and age at the time of examination were recorded. In all instances, the diagnosis of skin lesion was exclusively based upon the clinical impression. Data was analyzed using SPSS version 20. Frequency will be calculated for prevalence of physiological and pathological cutaneous manifestations in neonates within 72 hours of birth.

Received on 10-10-2021
Accepted on 05-02-2022

RESULTS

Forty two (42%) were males and 58 (58%) were female (Fig. 1). 74% were full term and 26% were preterm, 79% had normal birth weight (2.5-3.5 kg) and 21% had low birth weight (<2.5kg). 41% were delivered through vaginal route while 59% were delivered through caesarean section. History of consanguinity was positive in 45% of the cases and the mother age was between 21-40 years. Maternal illness was positive in 24% cases (Table 1). Cutaneous findings were positive in 87 (87%) [Table 2]. 79% had normal physiological cutaneous manifestations and transient skin changes and only 8% had pathological skin changes (Fig. 2).

Table 1: General characteristics of patients with and without skin manifestations (n=100)

Characteristics	Skin manifestation	
	Present (n=87)	Absent (n=13)
Physiological skin finding (n=87)	79	13
Pathological finding (n=8)	8	
Gender		
Male (n=42)	36	6
Female (n=58)	51	7
Mode of delivery		
SVD (n=41)	32	9
C/section (n=59)	55	4
Birth weight		
Normal 2.5-3.5 kg (n=79)	71	8
Low <2.5 kg (n=11)	16	5

Table 2: Frequency of types of skin manifestations

Type of skin manifestation	No.	%
Physiological & transient skin lesions		
Milia	10	11.4
Mongolian spot	12	13.7
Vernix caseosa	8	9.1
Epstein pearl	11	12.6
Harlequin color change	10	11.4
Sebaceous hyperplasia	27	31.0
Physiological scaling	19	21.8
Salmon patch	11	12.6
Physiological hypertrichosis lanuginosa	4	4.5
Café au lait macules	6	6.8
Seborrheic dermatitis	3	3.4
Physiological cutis marmorata	8	9.1
Acrocynosis	12	13.7
Erythema toxincum neonatorum	9	10.3
Pathological		
Port wine stain	1	1.14
Meningomylocoel	1	1.14
Hemangioma	1	1.14
Cephalic hematoma	1	1.14
Staphylococcal scalded syndrome	1	1.14
Pathological jaundice	3	3.44

Fig. 1: Frequency of physiological and pathological skin lesions

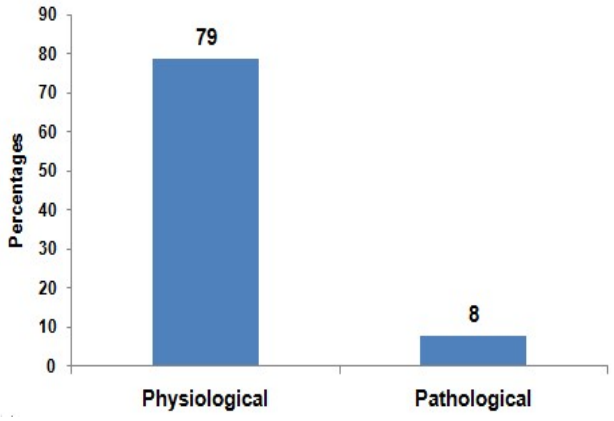
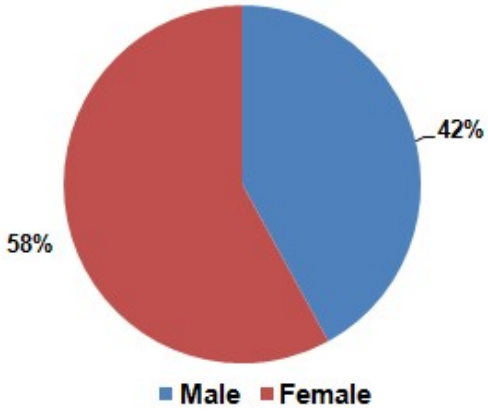


Fig. 2: Gender distribution



DISCUSSION

In my study 100 neonates within 72 hours after birth were examined, 87% had cutaneous manifestations out of which 79% had physiological and transient skin lesion while 8% of the babies had medically significant lesions. Prevalence of cutaneous changes vary greatly from 57%to 99.3%.[9,10] In this study 42% were male and females were 58%. Similar female preponderance was seen in a study done by Hogade.[10] 71% have birth weight in normal range while 16% fall in the category of low birth weight same results were seen in a study by Avdhut et al.[11] Literature review of skin manifestation in neonate revealed a wide spectrum of result. Hence, it's difficult to identify a common environmental, ethical and racial factor to explain this variation.

The most common skin finding noted in our study was sebaceous hyperplasia 31.0%, in another study done in Pakistan 44.8% newborns had sebaceous hyperplasia.[9] However study done by Vaneesa[12] report 97% while Shilpa et al[13] noted 6.8% of neonates had sebaceous hyperplasia.

The second most common finding noted in our study was physiological scaling mainly on hand, feet and to some extent on trunk, with a thin and fine scale. it was seen in 21.8% of newborn which is same when compare to a study done in Iran.[14] In a study done in Saudi Arabia 18% of the babies had physiological scaling[15] but according to Zaman et al[9], it was report in 8.9% in neonates.

Mongolian spot was found in 13.7% of cases in our study. It's a blue grey patch mostly seen in lumbosacral area. A study done in Chennai identified Mongolian spot in 10.2% of babies[13]. Disparity is seen in different studies in this regard probably because of the ethical and racial differences. Shrestha et al[16] found 66% of neonates to have Mongolian spot.

Milia were seen in 11.4% of cases similar to the study in India[11,13]. Milia are keratin filled superficial cysts that arise in pilosebaceous unit. In our cases they were present mainly on cheeks forehead and chin.

Acrocynosis was found in 13.7% of neonates, however a cross sectional study comprising of 220 neonates, conducted in India revealed 0.5% of neonates with acrocynosis[13]. But in contrast to this 30% of babies had acrocynosis in a study by Zaman et al[9].

Erythema toxicum neonatorum was seen in 10.3% of babies in our study and results were parallel to those found in a study done on 1000 neonates in Lahore[9]. Erythema toxicum neonatorum is a benign condition, red blotches appear mainly on face and trunk. It usually cures without treatment.

Hypertrichosis lanuginose was stated in 4.5% of the cases which correlated well to a study conducted by Shilpa et al.[13] It appeared as fine lanugo hair mainly on forehead, eyebrow, ear and face.

Vernix caseosa was perceived in 9.1% of the babies and results were identical to those proposed by Farhan et al[17] It is a

naturally occurring biofilm covering the skin of newborn at birth and facilitate in adaptation to external environment.

As far as the pathological skin lesion are concerned 8% of cases had medically significant lesions. Hemangioma was reported in 1% of the cases comparable to the case reported in a survey done in Saudi Arabia.[15]

CONCLUSION

Majority of the skin manifestation within 72 hours after birth are either physiological and benign that last for sometimes, early identification of these lesion helps to minimize anxiety in parents and reduce the over enthusiastic diagnostic and therapeutic intervention. However, timely identification of pathological skin lesion leads to early diagnosis of Geno dermatosis and congenital malformations. Studies with a larger sample size must be carried out to better outline skin manifestations.

Conflict of interest: Nil

REFERENCES

1. Hosseinabad MAS. A review of cutaneous manifestations in newborn infants. Der Pharmacia 2017;9(3):1–8.
2. Kutlubay Z. Newborn skin: common skin problems. Maedica (Bucur) 2017;12(1):42–7.
3. Deshpande AB, Tolat SN. A clinical study of physiological skin manifestations in neonates. IJHRS 2019;4:43–6.
4. Sandeep B, Susheela C, Keerthi S. Cutaneous lesions in newborn babies : a hospital-based study. IJSS 2016;4(5):43–9.
5. Shrestha A, Shrestha S. Variations of dermatological findings in newborns of a community hospital in Nepal. 2017;37(3):261–6.
6. Visscher MO, Carr AN, Winget J, Huggins T, Bascom CC, Isfort R, et al. Biomarkers of neonatal skin barrier adaptation reveal substantial differences compared to adult skin. Pediatr Res 2020;
7. Reginatto FP, Silva ISB. The main neonatal dermatological findings : a review. EMJ 2016; 11:111–8.
8. Shehab MM, Youssef DM, Khalil MM. Prevalence of cutaneous skin lesions in neonatal intensive care unit : a single center study.J Clin Neonatol 2015; 4(3): 10–3.
9. Ahsan U, Zaman T, Rashid T, Jahangir M. Cutaneous manifestations in 1000 Pakistani newborns. JPAD 2010; 20(4): 199-205.
10. Hogade AS, Saranya D, As H, Res IJ, Mar D. A clinical study of cutaneous manifestations in neonates. IJORD 2017;3(1):130–3.
11. Deshpande AB, Tolat SN. A clinical study of physiological skin manifestations in neonates. IJHSR 2019;9:43–6.
12. Zagne V, Fernandes NC. Dermatoses in the first 72 h of life : a clinical and statistical survey. Indian J Dermatol Venereol Leprol 2011;77(4):470–6.
13. Gudurpenu S, Bubna AK, Rangarajan S, Veeraraghavan M. A clinical study of cutaneous lesions in neonates at a tertiary health care center in Chennai. IJPD 2017;18(1): 18-23.
14. Firouzi H, Jalalimehr I, Ostadi Z, Rahimi S. Cutaneous lesions in Iranian neonates and their relationships with maternal-neonatal factors : a prospective cross-sectional study. Dermatol Res Prac 2020;2020.
15. Budair F, Aljabre S, Alquorain N, Alnafea N, Aljabre A. Survey of cutaneous findings in newborns in Saudi Arabia. J Dermatol Dermatol Surg 2017;21(2):53–7.
16. Shrestha A, Shrestha S. Variations of dermatological findings in newborns of a community hospital in Nepal. J Nepal Paediatr Soc 2017;37(3):261–6.
17. Tahseen F, Sameer T, Inamadar AC. A cross-sectional prospective study of cutaneous lesions in newborn. OSRN Dermatol 2014;2014:360590.