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Original Research Article

Clinical Examination of Skin Manifestations in Newborns

Arwinder Kaur Brar[1], Siddhartha Saikia[2], Vaishali Saradava[3], Soham Buch[4]

[1]MD (Skin & VD), Consultant Dermatologist, Shri Hatkesh Hospital, Junagadh, Gujarat, India
[2]MD (Skin & VD), Consultant Dermatologist Saikia Skin Care, Gandhinagar, Gujarat, India
[3]MD (Skin & VD), Consultant Dermatologist, Venus skin clinic, Morbi
[4]Consultant Psychiatrist, National Mental Health Program, GMERS Medical College and Hospital, Junagadh, Gujarat, India

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Corresponding author: Dr. Soham Buch
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Abstract:

Background and Aim: While many skin lesions seen during the neonatal period are typically physiological and temporary, there are significant dermatological conditions that require appropriate management. This study aims to examine the clinical characteristics of skin lesions observed during the neonatal period.

Material and Methods: An observational study examining cutaneous manifestations in neonates was carried out in the Department of Dermatology, in partnership with the Department of Paediatrics, at a Tertiary Care Teaching Institute in Gujarat, India, over the course of one year. A total of 150 neonates participated in the study. An in-depth evaluation of the patient's history, clinical examination, and investigations was conducted and analysed.

Results In a study involving 150 neonates, the gender distribution revealed that 80 (53.3%) were male, while 70 (46.6%) were female. In a recent analysis of various cutaneous manifestations, physiological cutaneous lesions emerged as the most prevalent, observed in 100 cases, accounting for 66.6%. This was followed by birthmarks or congenital lesions in 61 cases, representing 40.6%. Transient noninfective lesions were noted in 40 cases, making up 26.6%, while eczematous eruptions were identified in 11 cases, or 7.3%. Lastly, infectious lesions were the least common, appearing in just 2 cases, which is 1.3% of the total.

Conclusion: The findings of the current study indicate that newborn cutaneous manifestations present in a variety of forms. In our observations, physiological skin manifestations occurred with notable frequency, in addition to birthmarks and congenital skin conditions. Grasping these manifestations is crucial for effective management and determining the suitable approach. The current research did not identify a significant prevalence of infectious or malignant skin conditions.

Keywords: Cross Sectional, Cutaneous Manifestations, Eczematous Eruptions, Transient Noninfective Lesions.

Introduction

The neonatal period encompasses the initial four weeks following birth, marking the beginning of life outside the womb. The skin of a newborn presents distinct characteristics when compared to that of an adult. The skin of newborns is notably thinner, measuring only 40% to 60% of the thickness found in adult skin. The tissue exhibits diminished intercellular connections and generates a reduced quantity of sweat. The skin of neonates presents a range of manifestations, from the benign physiological Mongolian spot and transient eruptions to the more concerning pathological condition known as neonatal lupus erythematosus. The majority of neonatal cutaneous lesions are physiological and do not require any therapy. [1] These changes raise concerns not only for parents but also for physicians who may not be familiar with such skin alterations in newborns. Distinguishing between benign and clinically significant skin lesions in newborns is essential. The skin of neonates serves crucial functions, offering physical protection while aiding in fluid balance, immune defence, and temperature regulation. This makes it essential for the newborn's adjustment from a water-based to an air-based environment. [2] The skin of a newborn presents distinct characteristics when compared to that of an adult. Notably, there is a greater skin surface area relative to weight, a weaker connection between the dermis and epidermis, and the skin itself is thinner and less elastic. Additionally, the stratum corneum exhibits higher permeability, the epidermal barrier is not fully developed, sweat glands are dense yet less active, and the skin surface has a higher pH. [3,4] Pigmented lesions present at birth, like Mongolian spots, are generally harmless and typically fade away within a few years. In contrast, congenital melanocytic nevi hold clinical importance due to their potential association with an increased risk of malignant melanoma in the future. [5] It is crucial to recognize the temporary skin lesions that can appear in newborns and to distinguish them from more serious conditions. This awareness can help prevent unnecessary treatments for the infants, providing reassurance to parents about the favourable outlook of these skin manifestations. [6] Dermatoses are a common occurrence in neonates, with incidence rates ranging from 96% to 99.3% among all newborns. These conditions can span a spectrum from benign to potentially life-threatening diseases. [7,8] Several factors contribute to the elevated occurrence of dermatoses in newborns. Factors such as heredity, race, gestational age, maternal health, hygiene, socioeconomic status, climate, customs, and mode of delivery play significant roles in the cutaneous changes observed in newborn skin. [9] The skin conditions observed in newborns can be categorized into four distinct groups: transient skin disorders, congenital disorders, acquired skin disorders specific to the neonatal period, and iatrogenic dermatologic complications.

Material and Methods

An observational study examining cutaneous manifestations in neonates was carried out in the Department of Dermatology, in collaboration with the Department of Paediatrics, at a Tertiary Care Teaching Institute in Gujarat, India, over the course of one year. Following approval from the Institutional Ethics Committee, a comprehensive examination was conducted on 500 consecutive neonates, revealing that 150 of them exhibited cutaneous manifestations. All parents of the neonates were invited to take part in the assessment. Parents who did not provide consent were excluded from the study. Information pertaining to the neonatal age, sex, and gestational age at birth was recorded. In the aftermath of this, each neonate underwent a comprehensive examination in ample daylight, with pertinent clinical details concerning the morphology, distribution, colour, and configuration of lesions meticulously recorded. A provisional clinical diagnosis was suggested and subsequently validated through appropriate investigations, including Gramme staining, KOH smear, and Tzanck smear, as necessary. Neonates diagnosed with transient skin lesions were monitored over time to verify the temporary nature of these conditions.

The classification of neonatal dermatoses has been organized into four distinct groups:

- Temporary skin conditions.
- Birth defects.
- Skin disorders that develop during the neonatal period, often due to infections. • Dermatologic complications resulting from medical interventions.

The information was gathered using a semi-structured questionnaire. The collected data was organized and input into a spreadsheet application (Microsoft Excel 2019) before being exported to the data editor interface of SPSS version 19 (SPSS Inc., Chicago, Illinois, USA). Quantitative variables were characterized using means and standard deviations or medians and interquartile ranges, depending on their distribution. Qualitative variables were reported in terms of counts and percentages. The confidence level for all tests was established at 95%, while the level of significance was set at 5%.

Results

In a comprehensive examination involving 500 neonates, it was found that 150 exhibited cutaneous manifestations. Among a cohort of 150 neonates, the gender distribution revealed that 80 (53.3%) were male, while 70 (46.6%) were female. Table 1 in a recent analysis of various cutaneous manifestations, physiological cutaneous lesions emerged as the most prevalent, observed in 100 cases, accounting for 66.6%. This was followed by birthmarks or congenital lesions in 61 cases, representing 40.6%. Transient noninfective lesions were noted in 40 cases, making up 26.6%, while eczematous eruptions appeared in 11 cases, or 7.3%. Lastly, infectious lesions were recorded in just 2 cases, which is 1.3% (Table 2).

The study identified various congenital cutaneous manifestations, with 56 cases (37.3%) presenting with Mongolian spots, 4 cases (1.6%) exhibiting strawberry haemangiomas, and 3 cases (2%) showing aplasia cutis. In the realm of physiological cutaneous manifestations, the most prevalent was physiological desquamation, observed in 180 cases (53.3%).

This was followed by milia, noted in 30 cases (20%), Epstein pearls in 15 cases (10%), hypertrichosis lanugosa in 7 cases (4.6%), and cutis marmorata in 3 cases (2%). In the category of transient non-infective lesions, miliaria emerged as the most prevalent, accounting for 16% of cases (n=24), followed by erythema toxicum neonatorum at 8% (n=12), and neonatal acne, which represented 1.3% (n=2). Only two cases were reported involving infectious lesions: one case of neonatal herpes and one case of neonatal candidiasis. In the realm of eczematous conditions, nappy rash was observed in 6 cases, accounting for 4% of the occurrences, while cradle cap was noted in 5 cases, representing 3.3%.

Table 1: Gender wise Distribution of Study Participants

Gender	Number	Percentage (%)
Male	80	53.3
Female	70	46.6
Total	150	100

Table 2: Pattern of various skin disorders

Variables	Number	Percentage (%)
Birthmarks/congenital	**61**	**40.6**
Mongolian spot	56	37.3
Aplasia cutis	2	1.3
Strawberry hemangioma	3	2
Physiological cutaneous lesions/changes	**100**	**66.6**
Epstein pearls	15	10
Milia	30	20
Physiological desquamation (peeling)	80	53.3
Cutis marmorata	3	2
Hypertrichosis lanugosa	7	4.6
Transient noninfective lesions	**40**	**26.6**
Erythema toxicum neonatorum	12	8
Neonatal acne	2	1.3
Miliaria	24	16
Infectious lesions	**2**	**1.3**
Neonatal candidiasis	1	0.6
Neonatal herpes	1	0.5
Eczematous eruptions	**11**	**7.3**
Nappy rash	6	4
Cradle cap	5	3.33

Discussion

The skin changes observed during the neonatal period can range from temporary physiological alterations to more serious pathological lesions. While most skin changes observed in the first month of life are benign adaptations to the external environment following birth and typically resolve on their own over time, they can understandably lead to unnecessary concern among parents. The occurrence of skin lesions aligns closely with the findings from earlier studies. [9-11]

A total of 150 newborns under the age of 5 days were examined, with 26% of them classified as preterm in the study. [12] This highlights that as the percentage of term neonates without complications rises, there is a significant decrease in the proportion of those older than 7 days. The current study evaluates various skin conditions, including birthmarks and congenital cutaneous manifestations, physiological cutaneous mani festations, transient non-infectious skin issues, infectious lesions, and eczematous eruptions. The current study reveals that physiological cutaneous lesions were the most prevalent type of skin manifestation, observed in 100 cases, accounting for 66.6%. This was followed by birthmarks or congenital lesions in 61 cases (40.6%), transient noninfective lesions in 40 cases (26.6%), eczematous eruptions in 11 cases (7.3%), and infectious lesions in just 2 cases (1.3%). The occurrence of various skin manifestations has demonstrated significant variability across studies, influenced by assessment criteria, inclusion parameters, and exposure to diverse risk factors. Nevertheless, a majority of the research indicates that the figures exceed 90%, with specific studies showing Ferahbas et al at 95.7%, Sachdeva et al at 94.8%, Ahsan et al at 94%, Agarwal et al at 95.2%, Sandeep et al at 96.1%, and Asha et al at 92.1%. Some studies have indicated a significantly lower incidence, such as the findings by El-Moneim et al., who noted that skin disorders were present in only 40% of newborns. [13-19] In their study, Javed reported an incidence of 34.75%, yet the inclusion criteria were not specified. Shehab et al. reported this incidence at 74.6%, noting that their study included newborns up to the first seven days of life. [20,21] The findings suggest that early assessment could play a significant role in reducing the incidence of cutaneous manifestations, potentially due to a decreased exposure to environmental and other risk factors.

Conclusion

The results of the current study indicate that newborn skin manifestations exhibit a wide range of variations. In our observations, physiological skin manifestations were notably common, in addition to birthmarks and congenital skin features.

Grasping these manifestations is crucial for effective management and determining the suitable approach. The current research did not identify a significant prevalence of infectious or malignant skin conditions.

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