

## Clinical Profile of Skin Lesions in Neonatal Age

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### Abstract

**Introduction:** Beyond being little copies of adults, infants are unique. Individuals differ in terms of their illnesses, symptoms, priorities, and therapy requirements. Adolescents may not experience typical adult outcomes. Since the majority of birth disorders are self-limiting, transient, and physiological, treatment is not necessary. Parents who experience anxiety often seek advice from their child's physician regarding skin imperfections. For this reason, it's critical to recognise which skin lesions require immediate attention and to have a thorough awareness of both common and unusual newborn cutaneous lesions.

**Material and Method:** Since the lesion was discovered, ambient light from windows letting natural light into the building was used to inspect it first visually and then under a magnifying lens. For a more precise description, the maximum length and width of the lesion were measured in cm using a ruler.

**Result:** To detect skin lesions in babies admitted to a sick newborn care unit or a neonatal intensive care unit, taking into account the kind, extent, size, and relationship of the lesion to sex, gestational age, and sociodemographic variables. The purpose of this study was to examine the clinical characteristics of various skin conditions in a group of infants from India who were admitted to a level III neonatal care facility, taking into account the previously described criteria, and to analyse a few of the most noteworthy instances.

**Conclusion:** The current study was conducted at the paediatrics and skin and VD departments of the SCB MCH & SVPPGIP, Cuttack, Odisha, from May to October 2014. Over the course of the research period, 3161 neonates were admitted to hospitals; of them, 1480 developed skin lesions and spent an average of 22 days there. It was notable that the skin lesion proportion was 46.82% when compared to the newborns admitted for other causes. At birth, there are more males than females: 1063 (71.82%) compared to 417 (28.18%). The current study discovered a total of 27 distinct types of skin diseases, with an average of about 0.018 skin issues per neonate.

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### Introduction

Infants are more than simply little replicas of grownups. They have distinct diseases, distinct symptoms, distinct therapeutic needs, and distinct priorities. Results that are typical for adults could not be normal for newborns. Most birth diseases are physiological, temporary, and self-limiting, meaning they don't need to be treated. Parents who are anxious frequently ask their child's doctor for guidance on skin blemishes. It is therefore necessary to have a solid understanding of both normal and atypical newborn cutaneous lesions in

order to identify which skin lesions need to be treated right away. While evidence-based medicine has become more necessary for professional safety, clinical dermatology's significance cannot be understated or overlooked. Skin diseases in the neonatal age range are frequently seen in the dermatology and paediatrics departments, both indoor and outdoor. It is extremely difficult for paediatricians and dermatologists to act as quickly as possible after identifying the symptoms and indicators of a potentially fatal illness in order to

monitor its progression. The newborn group (ages 0-28 days) makes up around 40% of the population. At least 30% of all outpatient diseases seen by paediatricians involve dermatological issues, and 10% of dermatologist appointments involve infants. According to a hospital-based survey, the incidence of skin illness among infants in different areas of India has varied from 8.7% to 35%[7,5].

Skin disease diagnoses in infants are occasionally made using the same criteria as are used for adult diagnoses. When interacting with younger patients, two further aspects need to be taken into account: Two factors contribute to this phenomenon: (a) younger skin tends to react differently than adult skin, and (b) there is no first-hand history from the infant, who is plainly unable to respond appropriately. The second reason makes the evaluation—which is strictly objective—much more crucial in these individuals. Compared to older children and adults, newborns are far more vulnerable to some illnesses. Their recently established immune systems are insufficiently equipped to combat the bacteria, viruses, and parasites responsible for these diseases. Newborn skin disease patterns are significantly impacted by the climate, outside environment, dietary practices, and socioeconomic position.

Consequently, in order to recuperate from illness, babies may need to stay in a hospital or a neonatal intensive care unit (NICU) or special newborn care unit (SNCU). Such symptoms as poor eating, difficulties breathing, listlessness, temperature reduction or elevation, strange skin rash or skin colour change, prolonged weeping, and unusual irritability are common to many illnesses. If the kid is younger than two months old, these symptoms are considerably more concerning.

Dermatological issues are often not a major concern when a child is admitted to a neonatal intensive care unit (NICU) or SNCU since the focus of newborn intensive care is on the development and maintenance of critical functions. A good illustration of how a meningococcal illness presents traditionally is A potentially fatal disease may be diagnosed based in part on symptoms related to dermatology. On the other hand, during a routine clinical examination, skin lesions and the skin itself can be overlooked. In addition, skin complaints might appear when a patient is admitted to the NICU or SNCU. To the best of our knowledge, there are no published studies on the frequency or kind of skin lesions in NICU patients.

The skin is made up of three tissue layers: the epidermis, which is the outermost layer and is made up of keratinocytes, Merkel cells, Langerhans cells, and monocytes. The epidermis is constantly regenerating. The dermis is the second layer of tissue that lies just under the epidermis. It is made

up of thick fibroelastic stroma and contains hair follicles, adnexal organs, sweat and sebaceous glands, and nerve vascular systems. The hypodermis is the lowest layer of skin, situated underneath the reticular dermis. It varies in thickness and is mostly made up of adipose cells, collagen, and blood vessels that are greater in size than those found in the dermis.

### Materials & Methods

The present study was undertaken in the department of paediatrics, SVPPGIP & Department of Dermatology, SCB Medical College, Cuttack within a period from May 2014 to October 2014.

**Study Population:** Newborns of 0-28 days from Sishubhavan (SVPPGIP) with complaints before or during admission period, related to skin disease were included in the study.

### Exclusion Criteria

1. Newborns with age >28 days.
2. Children treated outside this referral hospital e.g. City hospital, ESI dispensary, private hospital, Nursing home was not included in the study.
3. Vast majority of cases were lost for follow up and excluded from this study.

### Method:

A tertiary hospital with one NICU and two SNCUs totalling 65 beds, the Neonatal Units of SVPPGIP and SCB MCH, conducted a prospective, quantitative, descriptive, observational study. The proforma is used by the investigator to gather data, and the parents of the subjects have consented to their inclusion in the research.

None of the NI was left out since all parents are meant to be accepted. A form was filled out that included relevant details on the lesion's identification.

Between May 2014 and October 2014, data were gathered by closely observing the babies when they underwent various treatments such as body cleanliness, nappy changes, eye cover changes, electrode placement, hydrocolloid directly applied to their skin during punctures, and more.

As a result, after the lesion was located, it was initially examined visually and then under a magnifying lens in ambient light with windows that allowed natural light to enter the building. With the use of a ruler, the lesion's maximum length and breadth were measured in centimetres for the purpose of providing a more accurate description.

### Result

The present study embodied “clinical profile of Skin Lesions in Neonatal Age group” was under taken in department of paediatric and department of

Dermatology, S.V.P.P.G.I.P & SCB MCH, Cuttack from May 2014 to Oct 2014. In present study, there was a total admission of 3161 cases. Out of which skin lesions were observed in 1480 cases which

were taken as study populations. The observation made there was depicted in following tables and charts:

**Table 1: Age Wise Distribution of Study Population among Total Patient Attending Svppgip (N=3161)**

Age Group(days)	Total number	Neonate with skin lesion	Percentage
0-7	1158	492	15.56%
8-14	692	246	7.78%
15-21	374	230	7.27%
22-28	937	512	16.19%
TOTAL	3161	1480	46.82%

Table-1 shows the age wise distribution of the study subject & their corresponding % of neonate with skin lesion among total patient attending SVPPGIP. Age group 22-28(16.19%) outnumber all other age group in respect to skin lesion. While age group 0-7 attending the most in our hospital.

**Table 2: Distribution of Study Population According To Gestation (N=1480)**

Gestation	No of newborn	Percentage
Term	1107	74.79%
Preterm	246	16.62%
Postterm	127	8.58%
Total	1480	100%

Table-2 shows the distribution of study population according to gestation. Here, term population (1107) i.e 74.79% outnumber other gestational group & postterm (127) i.e 8.58% the least.

**Table 3: Age Wise Categorization of Study Population According To Gestation (N=1480)**

Age group	Term	Preterm	Postterm	Total
0-7 day	366	61	65	492
8-14 day	181	47	18	246
15-21 day	138	56	36	230
22-28 day	422	82	8	512
Total	1107	246	127	1480
Percentage	74.79%	16.62%	8.58%	100%

Table-3 shows age wise categorization of study sample according to gestation. Here being term population occupy the maximum Number i.e 1107 out of 1480, the 22-28 age subgroup again constitutes the most i.e 422 out of 1107.

**Table 4: Sex Distribution of the Study Sample (N=1480)**

Age Group(days)	Male	Percentage of male	Female	Percentage of female	Total
0-7	328	22.16%	164	11.08%	492
8-14	183	12.36%	63	4.25%	246
15-21	138	9.32%	92	6.21%	230
22-28	414	27.97%	98	6.62%	512
TOTAL	1063	71.82%	417	28.18%	1480

Table-4 shows the sex distribution of study subjects. Males outnumber females in all the age group while it's maximum number of cases occur in the 22-28 age group (414/1480). In case of female, 0-7 age group constitutes the maximum.

**Table 5: Rural/Urban Distributions Of Study Sample (N=1480)**

Age Group(day)	Rural	urban	Total	Percentage of rural	Percentage of urban
0-7	402	90	492	27.16%	6.08%
8-14	148	98	246	10.0%	6.62%
15-21	138	92	230	9.32%	6.21%
22-28	152	360	512	10.27%	24.32%
Total	840	640	1480	56.75%	43.25%

Table -5 shows the rural and urban distribution of study sample. 56.75% of the subjects were from rural areas , 43.25% from the urban areas. There is a preponderance of referrals in age group of (0-7) days from rural area i.e 27.16%, while urban areas predominant in age group in (22-28) day's i.e 24.32%.

**Table 6: Distribution According To Type of Skin Lesions (N=1480)**

Type of lesion	No of cases	Percentage
Hematoma	14	0.94%
Erythema	30	2.02%
Excoriation	32	2.16%
Ecchymosis	1	0.06%
Abcess/Pustule	5	0.33%
Pigmentary(Birthmarks)	317	21.41%
Vesicle/Blister	12	0.81%
Scaling disorder	3	0.20%
Others	1376	92.97%

Table-6 shows the distribution of study subjects according to type of skin lesion. Here, Pigmentary lesions predominated with 317 cases (21.41%), followed by 32 cases of excoriation(2.16%), erythema (2.02%), 14 cases of hematoma (0.94%), 12 cases of blistering skin disease (0.81%), 5 cases of pustular lesions(0.33%) and 3 cases of scaling disorder (0.20%). Registers were also found of 1376 other lesions (physiological); 92.97% considering other criteria's with each variable occurring in a greater frequency. Note:-the group named 'other' contains mostly physiological skin lesions which were as per a manner of different kind of observational study.

### Discussion

The current study, "Clinical Profile of Skin lesions in Neonatal Age Group," was conducted at the SCB Medical College, SVPPGIP, Cuttack, at the paediatric and skin and VD departments. The observations made led to the following talks. The research ran from May to October of that year. There were 3161 total newborn admissions during that time, of whom 1480 had skin lesions (used as the study population). Some newborns had several lesions, and the average length of stay in the hospital was 22 days. When compared to babies hospitalised for other causes, the skin lesion's percentage of 46.82% was noteworthy. This is in contrast to the findings of a hospital-based research of dermatological disorders presented by Fontenele FC, Cardoso II MV (2007) in Fortaleza, Brazil [16]. Accounted for 15.5% of all illnesses in newborns. Furthermore, according to Moneim El A.A. and Dawela El A.A. (2009, Egypt, Sohag University hospital)[138], 40% of the research sample had skin diseases. When the distribution of skin lesions was categorised by gestation, it became clear that the population group classed as term (74.79%) outnumbered all other gestational groups, with preterm (16.62%) and postterm (8.58%) following in decreasing order. This is in contrast to a research conducted in a NICU in Northern Portugal by Peralta L, Rocha G, and Moris P (2010)[17], which revealed a 44% preterm prevalence. Our study showed that the majority of the 22–28 age group was found in both the term group and the preterm group. And the greatest

number of babies in the postterm category is 0–7 days.

In India, neonates (those under 28 days old) make up around 32% of the population overall, while 78% of people live in rural regions. 56.75% of the neonates in our research are from rural regions, and 43.25% are from urban areas. According to our data, 27.16% of referrals in the age category of 0–7 days come from rural regions, whereas 24.32% of referrals in the age group of 2–28 days come from urban areas. This correspond with the rise in village referrals and the rising need for dermatological specialty treatment. This may be related to the findings of Bhatia et al. (1997), who observed a similar pattern of dermatoses among children living in rural India. Once more, the majority of referrals among the newborns in rural areas are in the age range of (0-7) days, or 27.16%, are more common in urban areas than in other age groups (22-28) days, or 24.32%. Reducing the suffering caused by skin lesions in rural newborns in India requires improving the health hygiene of both the neonate and the carer, practicing basic cleanliness, encouraging exclusive breastfeeding, getting regular immunisations, and raising knowledge of neonatal dermatoses.

When the research sample's distribution was examined in relation to lesion size. Sizes under 1 cm account for the greatest number of instances (1,133), or 81.95%, whereas sizes above 2 cm account for the least number of cases (60), or 4.05%. Size 1-2 cm, or 207 examples, represent 13.98% of the total. However, a research conducted in 2007 in Fortaleza, Brazil by Fontenele FC and Cardoso II MV [16] revealed a prevalence of lesions 1-2 cm, with 35 cases (68%), 10 cases < 1 cm (20%), and 6 instances > 2 cm (12%). The proportion of newborns afflicted in a certain disease or disease group per 100 study participants is known as the proportional morbidity rate.

Among all skin conditions in the current investigation, the physiological group's PMR was 92.97%. The primary cause of morbidity was this group, which was followed in decreasing order by vascular malformation (0.54%), genodermatoses (0.67%), eczematous (1.68%), iatrogenic (2.02%),

infectious (1.55%), and "other." Of all the skin disorders seen in this study, the 'other' group accounts for the smallest percentage (0.20%). In the paediatric age range, this is comparable to the findings of Negi et al. (2001) and Thappa et al. (Pondicherry 2004). However, dermatitis and eczema were more prevalent in the later research than in ours. Maximum eczema cases were reported by Hon et al. (Hong Kong 2004).

Non-infectious illnesses outnumber infectious diseases in the current research. Of the instances, the former account for 98.44%, while the latter for 1.55%. The majority of instances of non-infectious illnesses are caused by milia, birth markings, erythema toxicum, and newborn acne. The physiological group makes up 92.97% (max) of the research participants when etio-pathological classification of skin diseases is examined. In that decreasing order, pigmentary, iatrogenic, eczematous, infectious, genodermatoses, vascular malformation, and "other" follow. Thirty instances in the iatrogenic category include haemorrhage [14], thrombophlebitis [10], heat burn[5], and ecchymosis[1].

### Conclusion

The current study was carried out from May to October 2014 at the SCB MCH & SVPPGIP, Cuttack, Odisha, in the departments of paediatrics and skin and VD. A total of 3161 newborns are hospitalised throughout the research period; of them, 1480 had skin lesions and an average hospital stay of 22 days.

Comparing the skin lesion proportion to the babies hospitalised for other reasons, it was noteworthy that it was 46.82%. Male newborns outweigh female neonates, with 1063 (71.82%) and 417 (28.18%) born. With an average of around 0.018 skin problems per neonate, a total of 27 different types of skin conditions were found in the current study.

Compared to single skin conditions, there was a higher percentage of overlapping skin conditions (more than one lesion). Term population group is larger than other gestational groups; in decreasing order, term (maximum) is followed by preterm and postterm (lowest). When a cutaneous lesion was categorised based on gestation & postnatal age category; it was found that the 22–28 day age subgroup predominated in both the term group and the preterm group. Additionally, the maximum number of babies in the postterm category is 0–7 days.

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