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Original Article

Pattern of Dermatosis Among the Admitted Neonates in A Tertiary Care Hospital

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Abstract

Background: *Neonatal dermatosis are common in neonatal period of first twenty eight days. Most of which are physiological, transient and require no therapy, as well as pathological lesions in the skin of neonates. This study was done to see the pattern of dermatosis in neonates and to establish the correlation between various neonatal factors, maternal factors and the occurance of dermatosis and to identify them correctly to avoid concerns of parents, Gynaecologist and Pediatricians.*

Materials and methods: *A total of 1000 admitted neonates in a 4 month period in neonatal ward of a tertiary care hospital were included in this study and a detailed history and dermatological examination including hair , nail and mucous membrane of each neonate was carried out. Laboratory procedures were performed as required.*

Results: *We found 300 (30%) newborns had one or more skin lesions out of 1000 newborns examined. Male to female ratio was 1.14:1. Most common skin changes observed was physiological scaling (50%), Acne neonatorum (13%), Erythema toxicum neonatorum (11%), Xerosis (10%), Milia (9%), Cutis marmorata (7%), Infantile seborrhoic dermatitis (7%). Among congenital skin lesions, congenital melanocytic nevus (1%) portwine stain (1%). Genodermatosis are Epidermolysis bullosa (0.3%), Congenital icthyosiform erythroderma (0.3%). Acquired skin manifestation seen in 17% of cases.*

Conclusions: *Neonates are prone to suffer from a different varieties of dermatosis both physiological and pathological which are unique to neonates. It is important to differentiate them from other serious skin conditions which shows the importance of a dermatologist in the neonatal unit of a hospital.*

Key words: Neonate; Dermatosis; Transient; Acquired; Congenital.

INTRODUCTION

Skin conditions encountered in newborns that tend to resolve by 30 days of age are considered to be transient[1]. They are very common and many are expected in newborns. Transient neonatal disorders characterized by a variety of clinical features and a benign course[2]. A thorough knowledge of these condition is mandatory in order to properly differentiate between benign disorders and other important conditions such as infections or autoimmune disorders or genodermatosis[3].

Skin of neonate plays an important role in transition from an aqueous to an air-dominant environment by providing mechanical protection, assisting thermo regulation, immune-surveillance and fluid balance[4].The skin of the infant differs from that of an adult by being thinner, delicate, weaker intercellular attachments and fewer sweat and sebaceous gland secretions, weaker temperature regulation. So neonatal skin is more susceptible to severe infections[5].

Majority of physiological neonatal dermatosis disappear without any treatment while only few are pathological[6].

Neonatal dermatosis are classified as follows:

- Transient skin disorders
- Congenital disorders- birthmarks (Nevus) Genodermatosis
- Acquired skin disorders specific to the neonatal period
- Iatrogenic dermatological complications[7].

Skin changes are affected by hereditary,race,gestational age and maternal health in addition to other external factors such as hygiene, socioeconomic status, customs, mode of delivery etc[8]. Neonatal dermatosis are a very common cause of parental anxiety and concern pressing the need for appropriate diagnosis and counseling of parents.This avoids unnecessary diagnostic and therapeutic interventions[9]. A number of studies have been reported on neonatal dermatosis but none from this region of Bangladesh. So, our study is to assess the incidence and profile of neonatal dermatoses and its association with various perinatal risk factors in a neonatal ward of a Tertiary Care Teaching Hospital of Chattogram.

MATERIALS AND METHODS

A cross-sectional descriptive study was carried out in a Tertiary Care Teaching Hospital of Chattogram. All admitted neonates <28 days of life in neonatal ward between august 2017 to November 2017 with or without skin lesion were included in the study and neonate >28 days of life, neonates with gross congenital malformations and critically sick neonate on ventilator were excluded. A total of 1000 admitted neonates in a four month period in neonatal ward of a tertiary care hospital were examined. A detailed history, general, systemic and dermatological examination including hair, nail and mucous membrane of each neonate was carried out. Birth history and relevant maternal history including age parity, mode of delivery, history of consanguinity and any illness during pregnancy, any maternal history of dermatological diseases were recorded in a proforma. Adequate light, proper hand washing and sterilization procedure were done before examination of neonate. Photographic records were maintained with consent from parents. Simple laboratory procedures were performed as required, like skin scraping or gram staining. Data was analyzed and inferences were drawn using tables and statistical analysis was done by chi- square test and t-test (One sample).

RESULTS

A total of 300(30%) newborns had one or more skin lesions out of 1000 newborns examined. The profile and frequency of skin lesions has been detailed in table I .

Table I : Showing incidence of the common dermatosis in the present study

Neonatal Dermatosis	Number	Percentage
Physiological scaling	50	16%
Acne neonatorum	38	12.66%
Erythema toxicum neonatorum	35	11%
Milia	26	8.66%
Miliaria	24	8%
Cutis murmorata talangectasia	21	7%
Cradle cap	20	6%
Vernix caseosa	15	5%
Icthyosis	12	4%
Transient pustular melanosis	7	2%
Neonatal cephalic pustulosis	7	2.33%
Mongolian spot	9	3%
Acquired skin disease		
Candidiasis	8	2.66%
Diaper dermatitis	6	2%
Neonatal varicella syndrome	1	0.9%
Neonatal purpurafulminants	1	0.9%
Iatrogenic		
Bruise	2	1.8%
Erosion	2	1.8%
Congenital disorder and genodermatosis		
Congenital melanocytic nevus	3	1%
Epidermolysis bullosa	1	0.9%
Congenital		
Icthyosiform erythroderma	1	0.9%
Haemangiomas	9	3%
Infectious disease		
Herpes simplex	1	0.9%
SSSS	1	0.9%
Bacterial conjunctivities	1	0.9%

Out of 300 neonates with skin lesions, 45% (135) were female and 55% (165) were male. Male: Female ratio was 1.14:1. 162(54%) neonates delivered vaginally and 138(46%) were delivered by caesarean section. 252(84%) were delivered in hospital and 48(16%) were delivered in home. Among the 300 neonates, 12(4%) were preterm, 279(93%) were term, 9(3%) were post-dated.

About birth weight of neonates 21(7%) neonate had a birth weight of less than 2kg, 99(33%) weighted 2-2.5kg, 27(9%) weighted 2.6-2.9kg, 113(37%) weighted 3kg and 40(13%) weighted 3.5kg. Among the mothers of neonates-mothers of 30(10%) neonates were less than 20years old, 105(35%) were 20-24 years old, 130(43%) were 25-30 years old and 35(11%) were older than 30 years. About parity of mothers-114(38%) were primigravida, 186(62%) were multipara.

Table II : Relationship of skin lesion with neonatal factors

Neonatal factors	Number	(%)	p-value
Sex			
Male	165	55%	0.000
Female	135	45%	
Maturity			
Preterm	12	4%	
Term	279	93%	0.000
Post dated	9	3%	
Birth weight			
<2 Kg	21	7%	
2-2.5 Kg	99	33%	0.000
2.6-2.9 Kg	27	9%	
3 Kg	113	37%	
3.5 Kg	40	13%	

Table III : Relationship of skin lesions with maternal factors

Maternal factors	number	(%)	p-value
Parity			
Primigravida	114	38%	0.000
Multipara	186	62%	
Maternal age			
<20yrs	30	10%	0.000
20-24yrs	105	35%	
25-30yrs	130	43%	
>30yrs	35	11%	
Mode of delivery			
NVD	162	54%	0.000
LSCS	138	46%	

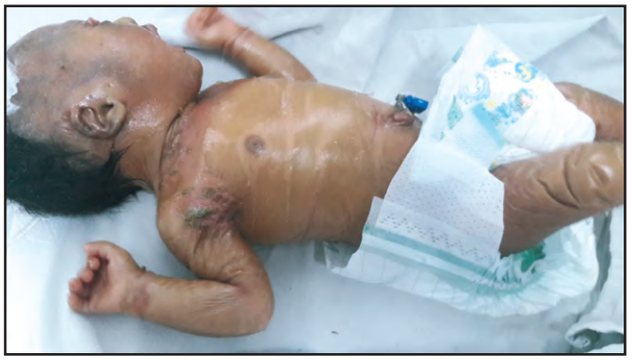

Figure 1: Harlequin Icthyosis

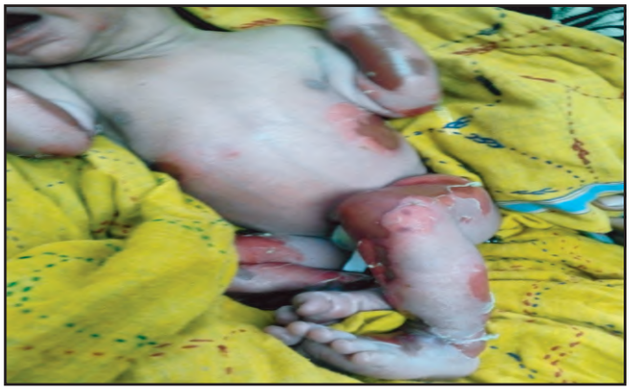

Figure 2 : Epidermolysis bullosa

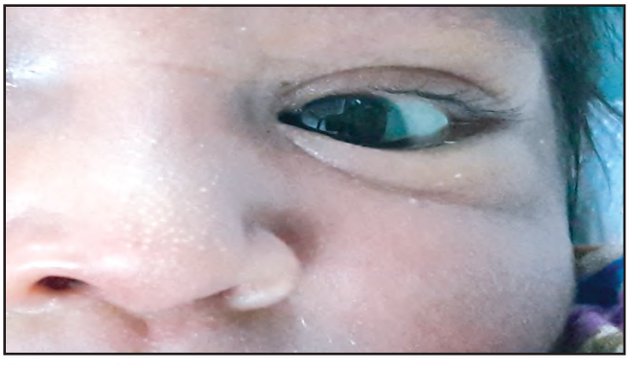

Figure 3 : Milia

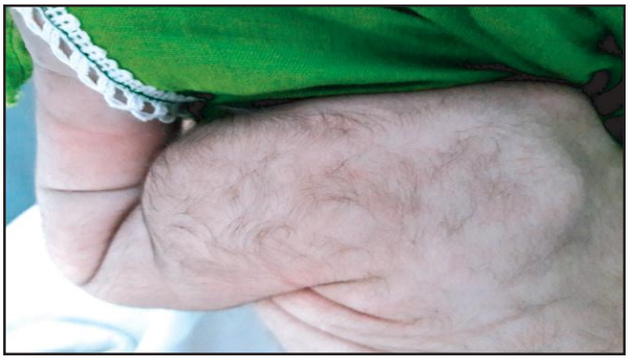

Figure 4 : Lanugo hair

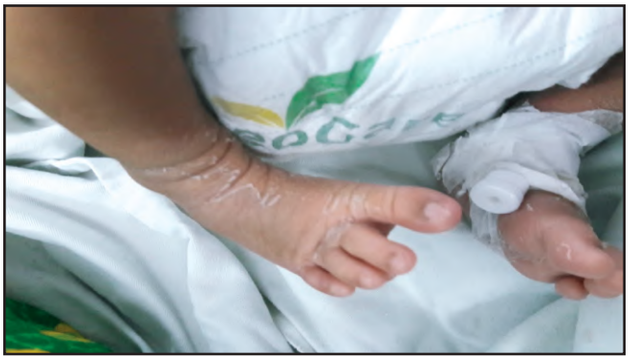

Figure 5 : Dysquamation

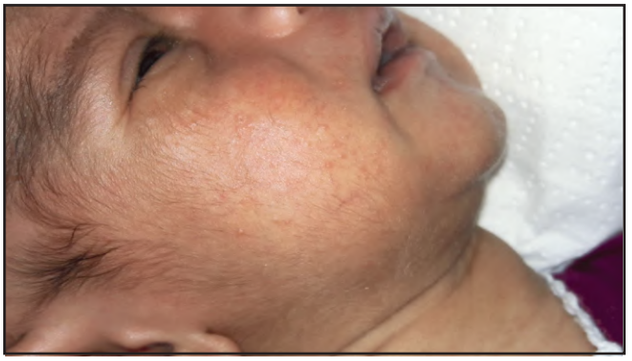

Figure 6 : Acne neonatorum

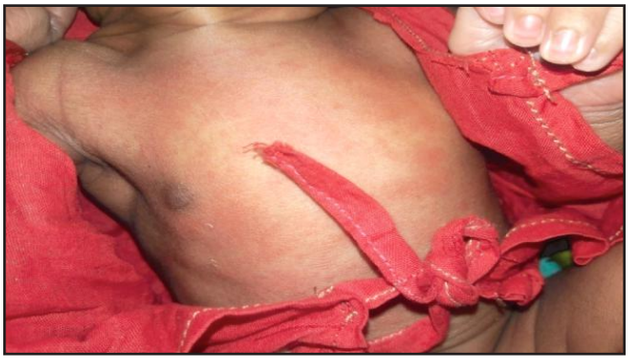

Figure 7 : Erythema toxicum neonatorum

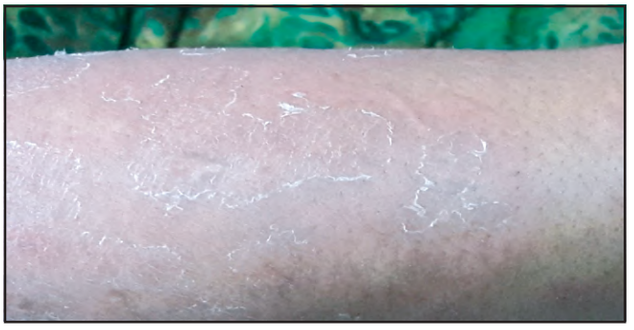

Figure 8 : Physiological scaling

DISCUSSION

The spectrum of neonatal dermatosis and their differentiation from the more significant cutaneous disorders of the neonates is critical.

Transient skin lesions in some neonates were overlapped with other infectious diseases. By careful examinations and expert dermatological opinion will help to distinguish.

In our observation most common dermatosis were transient skin lesions. Among the transient skin disorders that required no treatment, Physiological scaling was significantly higher (16%) among neonates delivered by caesarean sections.

Acne neonatorum was seen in 39 neonates (13%) most commonly in term neonates. Sebum secretion is high in neonates due to sebaceous gland activity reflects the stimulation by placentally transferred maternal androgen, particularly by dehydroepiandrosterone[10].

Erythema toxicum neonatorum is an idiopathic common condition seen in 11% term neonates in our study which should be distinguished from other infective and non infective pustular disorders. Lesions are papulovesicular or vesiculopustular surrounded by an erythematous area giving it a flea-bitten appearance. Erosions started within 2-3 days of birth and last for 15 days, resolve spontaneousIy without treatment[11].

Marchini et al suggested that ETN may be considered as an innate immune response to commensal microbes penetrated into the newborn skin[12]. Smellie stated that some features of ETN - 'the red gum' - are a common process linked to a too long exposure with the meconium[13] . Our study were similar to the observations of Jain et al and Sandep et al[7,14] .

Physiological scaIing is one of the most common findings. It was seen in 50(16%) neonates in our study, compared to a study by Nobby et al where the frequency of occurrence was 72.4%, wheres Sachdeva et al report a simiar finding[15,6]. We also observed that physiologicaI scaIing was significantly higher among neonates delivered by caesarean sections which was previously reported by Zagne et al[4] .

Milia are superficial epidermal inclusion cysts, mostly found in forehead, cheeks and nose as whitish papules. These resolve spontaneously. In our study milia were observed in 9% neonates which is similar to the observation of Aggarwal et al[16].

Miliaria is a group of transient eccrine disorders due to occlusion of sweat ducts at various levels, resulting in leakage of sweat in the epidermis or papillary dermis[17]. Miliaria in our study seen in 24(8%) neonates similar to the study of AgarwaI et al in North India that showed Miliaria in 40% neonates[16].

Vernix caseosa is a protective biofilm forms a mechanical 'sheild' against maceration by amniotic fluid and bacterial infection composed of water, protein and lipid[18,19]. It was seen in12(4%) neonates. It was seen most commonly on 1st day of life.

Transient neonatal pustulosis is a self limited,benign dermatosis of the neonates and occurs in approximately 0.2%-4% of all term neonates.The eruption is always present at birth. Lesions are pigmented macules coexist with flaccid vesiculopustules with no surrounding erythema located on the chin, neck, nape, upper chest, lower back and buttock[20]. We found 6 cases of this dermatosis in our study.

Cradle cap or milk crust means common congenital scaling observed on the vertex,generally believe to represent persisting vernix affecting scalp, eyebrows, forehead, retro-auricular area and folds of the neck and groin with the influence of maternal hormones on sebum production[21]. We found 20(6%) cases of cradle cap.

Mongolian spot observed in our study located over the lumbosacral region,ankle and thigh but are few in number, 9(3%) cases in comparison with other study such as Nanda et al 62.2%, Sachdeva et al (60.2%)[22, 6].

Diaper dermatitis is a generic term applied to rashes by various skin disorders and/or irritants (Usually feces) in the diaper area with secondary bacterial or fungal infection[23]. 6(2%) neonates had diaper dermatitis in our study.

Congenital melanocytic nevi in neonates showed a prevalence of 0.4 to 15.6% [24]. It was seen in 3 neonates in this study.

Iatrogenic bruises were exclusively obserbed in the neonates who were admitted in the NICU, with an incidence of 2% in the present study,mainly because of the insertion of an intravenous cannula and needle puncture for various diagnostic and therapeutic procedure in the NICU.The most common sites were dorsm of hands and feets. Fontanele and Cardoso, in their study on hospitalized neonates, observed hematoma in 46%, erythema in 18%, echymosis in 10%[25]. Bruises were more common among preterm neonates and those with low birth weight.

Cutis Marmorata is a physiologic red–blue reticulated mottling of the skin of newborn infants. It is seen as an immature physiologic response to cold with resultant dilatation of capillaries and small venules. Skin findings usually disappear with rewarming and the phenomenon resolves as the child gets older[26]. We found 21(7%) neonates with this change in our study.

There were one (0.9%) clinically diagnosed case of Epidermolysis bullosa, a Genodermatosis, one (0.9%) case of Congenital icthyosiform erythroderma, one (0.9%) case of Neonatal purpura fulminants, 9 (3%) cases of benign neonatal hemangiomas and one case of Congenital varicella syndrome which are rare disease were observed in our study.

CONCLUSION

The hospital based incidence of neonatal dermatoses was 30% in our study. Genetic, environmental, maternal and neonatal factors may influence the occurrence of certain skin lesions. As most of the lesions are transient and self- limiting, appropriate knowledge about these might go a long way in differentiating these from pathological lesions to avoid unnecessary or inappropriate management which shows the importance of a dermatologist in the neonatal unit of a hospital. Also, timely parental counseling should be done explaining them about the benign nature of these lesions to relieve anxiety of parents.

DISCLOSURE

All the authors declared no competing interest.

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