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NORMAL VARIANTS OF SKIN IN NEONATES

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2221 consecutive live births taking place between March 1994 and February 1995 were evaluated for a minimum period of 5 days to note for the occurrence of various normal anatomical variants specially those of skin. Birth weight, gestational age, maternal age, socio-economic status and consanguinity were carefully recorded in all the cases. Mongolian spots (72%), Epstein pearls (43.8%), Milia (26.2%), and Erythema toxicum (25.2%), were the common dermatological variants noted. Maturity of the babies and possibly genetic factors (consanguinity) are important factors in their causation as observed in our study.

Key Words : New born, Cutaneous manifestations, Normal anatomic variants, Erythema toxicum, Mongolian spots

Introduction

Normal variants in the new born not only cause concern for mothers but also for some ill-informed doctors as well. Various normal variants observed in the neonatal period vary depending upon ethnicity of the study population.[1] Even in the same country frequency varies from region to region.[2]

There are very few reports in the Indian literature.[2,3] Further, studies reported from India are small and have not looked into many factors like sex of the baby, consanguinity, gestational age, birth weight, socio-economic status, maternal age in relation to these variants. Therefore we conducted a study of normal anatomic variants seen in new born from this part of the country.

Materials and Methods

2221 consecutive live births taking place between March 1994 to February 1995 in Chigateri General Hospital attached to J J M Medical College, Davangere, formed the study group.

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All these babies were examined beginning from 1 to 2 hours after birth atleast 3 times a day till the discharge from the hospital. Most babies stayed 5 days in the hospital and the babies born by caesarian section stayed for 7 to 10 days. Daily follow-up records were maintained, noting various anatomical variants and their time of appearance, distribution and time of disappearance.

The socio-economic status of the parents was assessed as per Prasad's modified classification.[4] Mother's age, obstetric history, antenatal history and parental consanguinity were recorded. Gestational age in weeks was assessed as per Dubowitz scoring system,[5] birth weight was recorded using Detecto weighing scale supplied by UNICEF.

Results

Table I shows the frequency of occurrence of various anatomical variants. Mongolian spots (72%), Epstein pearls (43.8%), Milia (26.8%), Erythema toxicum (25.2%) and Jaundice (12.1%), were common variants noted in the study.

Table II shows various characteristics of study population like consanguinity, birth weight, gestational age, socio-economic status and sex.

Table I. Anatomical variants noted in the study

Sl. No.	Skin Changes	No. of cases	Percentages (%)
1.	Jaundice	268	12.1
2.	Mongolian spots	1600	72.0
3.	Erythema toxicum	559	25.2
4.	Milia	582	26.2
5.	Epstein pearls	972	43.8
6.	Breast engorgement	148	06.7
7.	Haemangioma	3	0.1
8.	Subconjunctival haemorrhage	34	1.5
9.	Salmon patch	16	0.72
10.	Peeling of skin	161	7.2
11.	Transient neonatal superficial pustules	58	2.6
12.	Pustular melanosis-ruptured pustule	18	0.8
13.	Hyperpigmented macules	12	0.5

Table II. Study population characteristics

Consanguinity		Birth weight		Gastational age		Socio-economic status		Sex of the baby	
Non-con.	1563	>2.5 kg	1269	Preterm	255	Class I	20	Male	1193
Consan.	658	< 2.5 kg	952	Term	1966	Class II	395	Female	1028
Total	2221	Total	2221	Total	2221	Class III	1069	Total	2221
						Class IV	688		
						Class V	49		
						Total	2221		

1. Anatomical variants in relation to sex of the baby: 1188 boys and 949 girls in the study showed various variants and this difference was not significant statistically.

2. Anatomical variants in relation to gestational age: 85.4% of term babies and 11.11% of preterm babies (<28 weeks) showed various cutaneous anatomical variants. This difference was statistically highly significant (P<0.001).

3. Anatomical variants in relation to birth weight: 90.9% of babies weighing less than 2.5 kg showed various cutaneous skin changes where as 94.9% babies weighing more than 2.5 kg showed various skin changes. This difference was highly significant (P<0.001).

4. Anatomical variants in relation to consanguinity: 67.6% of babies born to nonconsanguineous couples and 28.2% of babies born to consanguineous couples showed various cutaneous variants. This differnce was highly significant. When individual entities were studied, it was evident that Mongolian spots, Millia, Epstein pearls, and Erythema toxicum were significantly higher in babies born to consanguineous couples.

5. Anatomical variants in relation to maternal age: 97.5% of babies born to mothers younger than 20 years showed various skin lesions and 97.4% of babies born to the mothers older than 30 years showed various cutaneous lesions. In contrast to these groups the babies born to mothers in the age group 20 to 30 years showed the skin changes less frequently (89.9%). This difference was statistically highly significant (P<0.001) indicating that very young mothers and old mothers tend to give birth to babies with skin lesions more often.

Discussion

The literature on the normal anatomical variants in the newborn especially from India is very scant.[2,3] Many standard western books mention studies reported decades ago.

1.Transient neonatal pustular melanosis:

Transient neonatal pustular melanosis was seen in 2.6% of the new born in the present study. Ramamurthy et al found a total incidence of 2.2% and an incidence of 4.4% in black babies in USA.[6] Merlob et al from Israel noted an incidence of 0.24%.[7] Other studies from India have quoted a very low incidence of pustular melanosis.[2,3] The difference observed may be due to difficulties in differentiating pustular melanosis from erythema toxicum. We observed that 2.7% of the babies born to nonconsanguineous couples as against the 2.4% of the babies born to consanguineous couples had pustular melanosis and difference was not statistically significant, indicating that genetic factors are less important in causation of pusutlar melanosis. A similar suggestion has been made by Merlob et al[7] after noting that only one of the identical twins had developed pustular melanosis.

2. Mongolian spots:

Mongolian spots have a frequent occurrence in mongolian and negroid children but are relatively rare in white.[1] Detailed studies on mongolian spots in Chinese children[8] are available. In the present study mongolian spots were present in 72% of the babies. Similar frequencies are quoted by other Indian workers.[2,3] A multiracial study in USA reported an incidence of 95.5% in blacks, 81% in Asiatic, 9.6% in whites.[1] A unique feature of the mongolian spots is its racial variations in incidence and its pattern of regression and disappearance in childhood.[1,8] Significantly higher frequency was noted in term babies and babies weighing >2.5 kg in our study. It was observed that 93% of babies born to consanguineous mothers had mongolian spots, where as only 63.1% of babies born to nonconsanquineous mothers had mongolian spots. This difference was highly significant ($P<0.001$) indicating that genetic factors are more important in the causation of mongolian spots.

3. Erythema toxicum:

In the present study 25.2% of the newborns developed erythema toxicum. Jacob et al reported an incidence of 30.3% in multiracial neonatal population study from USA[1] and from India the reported incidence was from 13.6%[2] to 15.7%.[3] 51.99% of babies weighing >2.5 kg and only 16.4% of babies weighing <2.5 kg had erythema toxicum.26.6% of term babies developed erythema toxicum where as only 13.72% of preterm babies developed it, thus indicating that gestational age and birth weight were directly related to the frequency of occurrence of erythema toxicum. Carr et al reported that the incidence of erythema toxicum parallels the maturity of infants as judged by birth weight, gestational age and breast development.[3] The frequency of occurrence of erythema toxicum in consanguineous and nonconsanguineous groups showed an interesting finding. 34.04% of babies in the consanguineous group developed erythema toxicum where as only 21.4% of babies in nonconsanguineous group developed it, indicating that genetic factors may also be responsible for the occurrence of the erythema toxicum.

4. Epstein pearls:

Epstein pearls tend to cluster along the junction of the hard and soft palate. 43.8% of all patients had Epstein pearls in our study.

Mishra et al[3] quoted a very high incidence of 90.05% where as Nobbay et al[2] reported 57.6% similar to our study. These differences are due to varying length of time the neonates were followed. Mishra et al followed their new born for 10 days whereas we followed for only 5 days. 36.10% babies born to nonconsanguineous couples and 62.0% babies born to consanguineous couples had Epstein pearls. 55% of babies weighing >2.5 kg and only 28.99% babies weighing <2.5 kg had Epstein pearls, indicating that larger babies are more likely to have Epstein pearls.41.17% of preterm and 44.2% of term babies had Epstein pearls indicating that gestational age was not as important contributing factor.

5. Milia:

Approximately 40% of full term infants have multiple yellow or pearly white 1-2mm papules scattered over the cheeks, forehead, nose, nasolabial folds and rarely on the penis. Overall frequency of milia in our study was 26.2%. The frequency of milia has varied considerably in different studies, 44.2% in a study by Nobbay et al[2] and 94.8% in a study by Mishra et al.[3] 16.7% of preterm and 27.5% of term babies and 33.41% of low birth weight babies and 16.59% of babies weighing more than 2.5 kg had milia. Thus larger babies and term babies tended to have high frequency. 38.29% of babies born to consanguineous couples and 21.1% of babies born to nonconsanguineous couples had milia indicating possible contribution of genetic factor in their occurrence.

We conclude that congenital cutaneous abnormalities are under reported. Most of the time the follow up has been very short and there is a need for detailed studies on these variants for a whole neonatal period. A controlled prospective study of congenital and subsequently developing pigmented lesions is needed in order to resolve uncertainities regarding the contribution of genetic and environmental factors in their causation, prognosis and significance of such lesions. Genetic factors and maturity of babies seem to influence the occurrence of various cutaenous changes as noted in our study.

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