Original Article

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FREQUENCY OF PIGMENTED BIRTHMARKS IN NEWBORNS OF VARIOUS ETHNIC GROUPS OF PAKISTAN

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ABSRTACT

Objective: To determine the frequency of various types of pigmented birthmarks in neonates of different ethnic background born at PNS Shifa, with in 48 hours of birth.

Design: Descriptive Cross sectional study

Place and Duration of Study: Department of Dermatology and Department of Obstetrics, PNS Shifa, Karachi. The study was conducted for six months, from 1st March 2008 till 31st September 2008.

Patients and Methods: Two hundred newborn children of both sexes, born by any mode of delivery and belonging to different social classes and ethnic groups, in their first 48 hours of life were recruited. Each baby was physically examined, after taking consent from the mother, so as to assess the type, colour and distribution of the pigmented birthmark. All demographic features were recorded in a proforma and a digital photograph of each baby with a pigmented birthmark was also taken.

Results: Pigmented birthmarks observed included Mongolian blue spot, café-au-lait macules and congenital melanocytic nevi. Among the ethnic groups these nevi were more prevalent among groups with darker skin colour and black hair.

Conclusion: Mongolian blue spot are the commonest pigmented birthmarks observed followed by café-au-lait macules and congenital melanocytic nevi.

Keywords: Ethnic groups, Pigmented birthmarks, newborns.

INTRODUCTION

Birthmarks represent circumscribed, non malignant lesions over skin or mucosal surfaces, at or soon after birth[1]. They are classified according to the component cell, tissue or organ e.g. connective tissue nevi, vascular nevi or pigment nevi[1]. Almost all of the pigmented nevi arise from a clone of genetically altered cells arising from genetic mosaicism in early embryonic life[2].

Most birthmarks are transient while some may last as permanent cutaneous lesions with significant systemic complications or diseases[3,4]. The presence of large nevi on exposed parts can cause significant psychosocial stigma to the parents as well as the patient. Also to distinguish large nevi from bleeding diathesis or child abuse can become challenging[5].

There are significant associations between some of the sociodemographic features and the birthmarks observed in neonates. The prevalence of congenital melanocytic nevi in Asians and the Mongolian spots in non-European newborns highlights this positive association with geographical area of origin.[6] Congenital melanocytic nevi are also more common in darker races living in the west.[7] Café-au-lait spots are seen more frequently in blacks and if numerous they may be an early sign of diseases like neurofibromatosis.[8]

So far the studies conducted in this respect, were specific for a group of population.[7,9,10] However, this was study aimed to include neonates of almost all ethnic backgrounds of our country so that a database is available for further analysis in this respect as to why certain pigmented nevi are more common in a specific group.

SUBJECTS AND METHODS

This was a descriptive cross sectional study conducted in the Department of Dermatology and Department of Obstetrics, PNS Shifa Karachi, from 1st March 2008 to 31st September 2008. The babies were sampled through non probability, purposive type of

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technique. Two hundred newborn children of both sexes, all social classes and born by any mode of delivery, in their first 48 hours of life were recruited in the study. Babies with lesions due to instrumental trauma and nevi other than pigmented birthmarks were excluded. Each baby was physically examined after taking consent from the mother, so as to assess the site, colour and number of each lesion. All demographic features were recorded in a proforma and a digital photograph of each baby with a pigmented birthmark was taken, after consent.

The data was analyzed by using SPSS version 11. Frequency along with percentage of pigmented birthmarks in the whole study group, for gender, ethnic groups and different sites of the body were noted. Chi-square test was applied to compare proportions of the pigmented birthmarks among ethnic groups at $p<0.05$ level of significance.

RESULTS

Out of 200 newborns there were 92 baby girls (46%) and 108 baby boys (54%) with a male to female ratio of 1.2:1. The pigmented birthmarks were observed in 130(65%) neonates. Among these mongolian spots were noted in 125(62.5%) newborns, among which 57(45.6%) were in girls and 68(54.5%) were in boys; followed by 4 (2%) newborns with café-au-lait macules, 2 (1%) were observed in girls and two (1%) in boys, while congenital melanocytic nevus was seen in only one newborn (0.5%) who was male, as shown in table 1. The most common site for mongolian spots was lower back (58.4%) and gluteal region (35.2%) (Fig. 1) while in the rest of the 8 neonates (6.4%) these were at aberrant sites including shins, shoulders, hand and face. Café-au-lait spots were located on trunk in three (75%) neonates and on lower limb in one (25%) (Table 2). Congenital melanocytic nevus was located on the forehead as a single lesion of a baby boy (Fig. 2). It was 1.3 cm in maximum diameter. Other types of pigmented birthmarks including nevus of Ota, nevus of Ito and lentigines were not observed in any newborn during this study period.

The various ethnic groups observed in the sample size of 200 were; punjabis 68(34%), Pathans 78(39%), Sindhis 38(19%), Baluchis 13(4.5%), Gilgiti/Balti 4 (2%). Various pigmented birthmarks noted in each ethnic group were as depicted in table 3.

Out of a total of 68 Punjabis, different pigmented birthmarks were observed in 58 (85.2%). Among 78 Pathans 35(44.8%) had mongolian spots. Twenty seven (71%) out of 38 Sindhis had pigmented birth marks including Mongolian spots in 25 and café-au-lait spots in two of them. These spots were similarly observed in 8 (66.6%) out of 12 Baluchis and two out of 4(50%) Gilgiti newborns (Table 4).

The data regarding presence or absence of Mongolian blue spots in different ethnic groups of Pakistan was analyzed and crosstabulation is shown in Table 4. The Chi-Square test was applied. Hence the difference of results between the different ethnic groups was statistically significant ($p=0.001$).

DISCUSSION

Pigmented and vascular birthmarks are the most commonly observed nevi. Their frequency along with their ethnic variation has been highlighted by several authors[10]. Mongolian blue spot hold one such example of interethnic variation.[10] The meager number of studies conducted in this respect in our country lack the aspect of ethnic variability observed in these birthmarks[11].

The results of our study indicate that pigmented birthmarks were present in 65 % of our population. In 62.5%, birthmarks were Mongolian blue spots, which is comparable to a study conducted by I-Hsin et al that confirmed the prevalence of Mongolian blue spots in 61.6% of the newborns. The prevalence of these spots has been reported to be as high as 80-90% in neonates of mongoloid race. These spots have been observed in 3-10% of Caucasoids[10]. Among the ethnic groups in our study these marks were more common among the darker complexions which is consistent with

Figure 1: Mongolian blue spots involving lower back and gluteal region

Figure 2: Congenital melanocytic nevus on forehead

Table-1: Gender of the patient & type of lesion

Gender of the Patient	Type of lesion				
	Mongolian blue spot	Cafe au lait macules	Congenital melanocytic nevus	No lesion	Total
Male	68	2	1	37	108
Female	57	2		33	92
Total	125	4	1	70	200

Table-2: Site of the lesion & type of lesion

SITE OF LESION	Mongolian blue spot	Cafe au lait macules	Congenital melanocytic nevus	Total
Back	73			73
Groin and gluteal region	44			44
Misc sites	8	4	1	13
Total	125	4	1	130

Table-3: Ethnic groups & type of lesion

Ethnic groups	Type of lesion				
	Mongolian blue spot	Cafe au lait macules	Congenital melanocytic nevus	No lesion	Total
Punjabi	55	2	1	10	68
Pathan	35			43	78
Balochi	8			4	12
Sindhi	25	2		11	38
Gilgiti/Balti	2			2	4
Total	125	4	1	70	200

observations made by Egemen et al who observed that among the Turkish ethnic groups mongolian blue spots were seen only among brunettes while no spot was observed in blond haired children of the same province. [12]

Further more, the gender variation showed that mongolian blue spots were more common among boys (54.5%) than girls (45.6%) in our study. This is consistent with an Iranian study by Shajari et al[13] who concluded a slightly higher prevalence in boys (52%) than girls (48%) and in another study conducted by Leung AK on Chinese newborns showing 58% boys and 53.3% girls with mongolian spots.[14] However, this gender variation is not statistically significant.

The location of Mongolian spots in our study was lower back followed by gluteal region, while in 6.4% of babies the sites were shins, shoulders, hand and face, those

conducted by Cordova and I Hsin et al. on Chinese and Taiwanian neonates, respectively.[12,15] Interestingly, the aberrant marks in our study and in other studies were all located on the extensor surfaces of limbs and none has been observed on the flexor aspects.

The prevalence of café-au-lait spots was 2% in our study with an equal gender distribution. They were seen only in Punjabi and Sindhi neonates. This is comparable to the study by Alper et al. in which 1.8% of babies were found to have café-au-lait spots[8]. In his study these spots were observed only in the black (negroid) neonates, while none was observed in the white babies included in the study group. However this percentage is higher than studies conducted on Chinese and Taiwanian newborns (mongoloid race) by Tsai and I Hsin et al. respectively where it was found in 0.4% of neonates. [9,10] In Iranian babies its frequency was again low (0.3%)[16].

Congenital melanocytic nevus was observed in 0.5% newborns of the study group, which is close to 0.6% in the studies by I Hsin et al. A few studies have shown the prevalence to be 0.7-1.5%, with the small lesion (<2cm) being the commonest type observed[5, 9].

Pigmented birthmarks like nevus of Ota, Ito or congenital forms of lentigines were not observed in any neonate in this study. They were also not observed in any of the Taiwanian studies conducted by I Hsin et al and Tsai et al on pigmented birthmarks[9,10]. In Japanese studies, however, nevus of Ota was found in 0.5-1% of the general population[17]. In a Hong Kong study nevus of Ota was reported to occur in 0.014-0.034% of Asian population[18]. However based upon our study, the prevalence of these three lesions in our population could not be speculated.

CONCLUSION

Mongolian blue spots are the most common pigmented birthmarks observed in early neonatal period. Among the ethnic groups of Pakistan these pigmented birthmarks are more prevalent in those with darker skin colour and black hair than those with fair complexion and blonde hair.

REFERENCES

1. Atherton DJ, Moss C, Naevi and other developmental defects. Burns T, Breathnach S, Cox N, Griffiths C. Rook's Textbook of Dermatology Seventh ed. Blackwell Science Ltd 2004;15.1-114.
2. Paller AS. Expanding our concepts of mosaic disorders of the skin. ArchDermatol 2001; 137: 1236–8.
3. Jean-Paul O, Philippe B, Thomas BF, David BM, Yoshiaki H. Hypomelanosis and Hypermelanosis. Irwin MF, Arthur ZE, Klaus W, K Frank A, Lowell AG, Stephen IK. Fitzpatrick's Dermatology in General medicine Seventh ed. The McGraw Hill Companies 2008; 623-40.
4. Dohil MA, Baugh WP, Eichenfield LF. Vascular and pigmented birthmarks. Pediatr Clin North Am. 2000 Aug;47:783-812.
5. Tannous ZS, Mihm MC Jr, Sober AJ, Duncan LM. Congenital melanocytic nevi: clinical and histopathologic features, risk of melanoma, and clinical management. J Am Acad Dermatol. 2005 Feb; 52:197-203
6. Boccardi D, Menni S, Ferraroni M, Stival G, Bernardo L, La Vecchia C, Decarli A. Birthmarks and transient skin lesions in newborns and their relationship to maternal factors: a preliminary report from northern Italy. Dermatology. 2007;215:53-8.
7. Sigg C, Pelloni F, Schnyder UW. Frequency of congenital nevi, nevi spili and cafe-au-lait spots and their relation to nevus count and skin complexion in 939 children. Dermatologica. 1990;180:118-23.
8. Alper J, Holmes LB, Mihm MC Jr. Birthmarks with serious medical significance: nevocellular nevi, sebaceous nevi, and multiple café au lait spots. J Pediatr. 1979;95(5 Pt 1):696-700.
9. Tsai FJ, Tsai CH. Birthmarks and congenital skin lesions in Chinese newborns. J Formos Med Assoc. 1993; 92:838-41
10. I-Hsin S, Jing YL, Chien HC, Hong SH. A Birthmark Survey in 500 Newborns: Clinical Observation in Two Northern Taiwan Medical Center Nurseries. Chang Gung Med J 2007; 30:220-5.
11. Irfan A. Birthmarks in infancy. (Dissertation Dermatology), Karachi: College of Physicians and Surgeons, 2005.
12. Egemen A, Ikizoğlu T, Ergör S, Mete Asar G, Yilmaz O. Frequency and characteristics of Mongolian spots among Turkish children in Aegean region. Turk J Pediatr. 2006 Jul-Sep;48:232-6.
13. Shajari H, Shajari A, Sajadian M, Habiby M. The incidence of birthmarks in Iranian neonates. Acta Medica Iranica 2007; 45: 424-426.
14. Leung AK, Kao CP. Extensive mongolian spots with involvement of the scalp. Pediatr Dermatol 1999; 16:371.
15. Cordova A. The Mongolian spot: a study of ethnic differences literature review. Clin Pediatr 1981; 20: 714–9.
16. Moosavi Z, Hosseini T. One-year survey of cutaneous lesions in 1000 consecutive Iranian newborns. Pediatr Dermatol 2006 Jan-Feb;23:61-3.
17. Freedberg IM, Eisen AZ, Wolff K. Dermatology in general medicine. 6th edition. McGraw-Hill Publishing Co.2003;836-81.
18. Chan HH, Kono T. Nevus of Ota: clinical aspects and management. Skinmed 2003;2: 89-96.