A prevalence survey of pigmented and vascular birthmarks in 1000 newborns from the Northeast of Iran

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INTRODUCTION

Cutaneous findings are commonly observed in the neonatal period and include cutaneous rash and birthmarks. Birthmark is a common cause for concern among parents and some birthmarks may need further investigation to find the underlying defects and the potential for malignant transformation. Birthmarks are of three types: pigmented, vascular and those resulting from abnormal development. Pigmented birthmarks include congenital melanocytic nevi and dermal melanoses (the Mongolian spot). Vascular birthmarks include hemangiomas, nevus flammeus (the port-wine stain) and the salmon patch. Birthmarks caused by abnormal development consist of accessory nipple and cutaneous signs of dysraphism. Several studies have assessed cutaneous findings in infants of different ethnic groups. The aim of this study was to evaluate

Background: Birthmarks are common reasons for parents’ concern. Some of them may need further investigation to find out the underlying systemic disorders or their potential for malignant transformation. The purpose of this study was to determine the frequency of vascular and pigmented birthmarks in infants from the Northeast of Iran.

Method: This descriptive study was conducted on 1000 healthy infants born in a University Hospital in the Northeast of Iran from 2003 to 2005. The cutaneous lesions of neonates were examined by a dermatologist.

Result: The salmon patch was reported as the most common birthmark (233 cases). The most common site of involvement was the eyelid. A case of congenital hemangioma and a case of the port-wine stain were also observed both in the fifth nerve path. The most common pigmented birthmark was the Mongolian spot (171 cases). The congenital melanocytic nevus was seen in 50 cases. The lumbosacral area and trunk were reported as the most common sites of involvement for the Mongolian spot and congenital melanocytic nevus, respectively.

Conclusion: Fortunately, the most common birthmark is the salmon patch that is evanescent. The congenital melanocytic nevus had a relatively high prevalence rate (5%) in comparison with other studies. Since the appearance of these lesions can concern parents and there is an increased risk of melanoma in the cases of congenital melanocytic nevi, follow up is needed in some cases; we recommend careful examination of the infant’s skin and training of physicians working in neonatal wards.

Keywords: birthmarks, hemangioma, Mongolian spot, newborn, Salmon patch
Iranian neonates born in a university hospital in Mashhad for vascular and pigmented birthmarks.

PATIENTS AND METHODS

This prospective study was performed to determine the frequency of vascular and pigmented birthmarks among newborns in the Northeast Iran. One thousand infants born in the Obstetrics and Gynecology Ward of Imam Reza Hospital from April 2003 to January 2005 were enrolled in this study. We examined all neonates born in Imam Reza Hospital every other day during this period until our sample size was completed. Still births and those hospitalized in the NICU were excluded. Pigmented birthmarks include congenital melanocytic nevi and Mongolian spots. Vascular birthmarks include salmon patches, port wine stains, and infantile hemangiomas.

Before the study, informed consent was signed by all parents. All neonates were examined during the hospital stay mostly within the first four days of life by one dermatologist for the presence of vascular and pigmented birthmarks. The oral cavity was not examined. Lesions were diagnosed based on clinical findings, and no skin biopsy was done. Neonates were also examined by one neonatologist for other systemic findings. Maternal data including the gestational age and type of delivery, and infant related data including sex, birth weight, maturity, and lesion site were recorded in a questionnaire. Infants were categorized by gestational age as term (37-42 weeks), preterm (less than or equal to 36 weeks) and post-term (more than 42 weeks). In the end, the data were analyzed using descriptive statistics and Chi-square test to statistically compare qualitative indicators using SPSS (11.5). P-values <0.05 were considered significant.

RESULTS

One thousand newborns were studied between days 0-4 of their lives including 480 females (48%) and 520 (52%) males. Of them, 898 (89.8%) infants were term and 102 (10.2%) were preterm. Moreover, 677 infants (67.7%) were born by normal vaginal delivery and 323 infants (32.3%) were born by cesarean section. Based on physical examination, we did not find any systemic disorder in newborns with birthmarks.

This study included a case of congenital hemangioma with the involvement of all three branches of the trigeminal nerve; 1 case of the port-wine stain in the path of all three branches of the trigeminal nerve and 233 cases of the salmon patch. Isolated salmon patch was mostly observed on the eyelids (156 cases), followed by the nape (17 cases), glabella (9 cases), upper lip (two cases), lumbosacral region (two cases), and nose (one case). Salmon patches were often seen simultaneously in several parts of the infant’s body including the eyelid in 44, glabella in 38, nape in 14, and nose in 4 cases together with other regions.

Pigmented birthmarks included 50 cases of congenital melanocytic nevi and 171 cases of Mongolian spots. Small congenital melanocytic nevi (less than 1.5 cm) were seen in 49 infants, medium-sized nevi (1.5-20 cm) in 3 cases and simultaneous small and medium-sized nevi in 2 infants. No cases of giant congenital melanocytic nevi (over 20 cm) were seen. Nevi were observed mostly on the trunk (n=25), followed by the head and neck (n=20) and extremities (n=9). On the other hand, of 171 Mongolian spots, 167 were located on the back, 4 were on lower extremities, and 2 were disseminated.

Vascular and pigmented birthmark profiles of infants are summarized in Table 1. The relationship of the lesions with pregnancy and newborn variables was studied. The prevalence rate of the salmon patch was significantly higher in females than males (P=0.034) and Mongolian spots were more prevalent in neonates delivered by natural vaginal delivery; for other birthmarks, no significant relationship was found. (Table 1)

DISCUSSION

Birthmarks are among the most common abnormalities observed by pediatricians, and are an obvious source of concern for parents regardless of their association with an underlying systemic disorder. During the examination of a newborn, it is important to identify birthmarks requiring additional evaluation or those associated with a potential risk with which physicians should be familiar. Vascular and pigmented birthmarks are common. Fortunately, the evanescent form of vascular birthmarks (the salmon patch) is the most common among vascular types but for the
pigmented birthmarks, there is concern about potential malignant transformation or association with neurocutaneous diseases 11. The frequency of birthmarks has been reported different in various ethnic groups 4,7,9,10,12,13; as for the Aryan race (Iranian), only one study has been conducted in the Southwest of Iran 6. In our study, the salmon patch was defined as the most common vascular birthmark in 233 neonates (23.3%). In a study by Shih, the salmon patch was also reported the most common vascular birthmark 4. Previous studies have reported a frequency rate of 40-70% for the salmon patch in the white population 4, 22.3% in Japan 7, 28.4% in India 14, 22.6% and 27.8% in Taiwan 4,10, 19.2% in Turkey 3, 26.2% in Ahvaz (south of Iran) 6 and 23.1% in Italy 15. In this study, most of the isolated salmon patches were on the eyelids followed by the neck, glabella, upper lip, and lumbosacral area, respectively. Shih also reported eyelids as the most common site for the salmon patch followed by the nape and forehead 4. In contrast, in another study, the salmon patch was commonly observed on the nape and then the head and the face 12. Our findings showed that the salmon patch was significantly more frequent among female newborns (P= 0.03). Similarly, Kahana 9, Shih 4 and Hidano 7 reported higher incidence of the salmon patch in females although the difference was not significant. The salmon patch in our study was found in 89.3% of the term and 10.7% of the preterm infants, and the difference was not significant (P=0.76). Shih also showed the higher incidence of the salmon patch among term versus preterm infants (P=0.96) 4. This finding may be due to exclusion of some of preterm infants hospitalized in the NICU from our study while in the Ferahbas study in which all infants including healthy ones and those in the NICU were evaluated, the salmon patch was frequently seen in term and post term infants (P< 0.001) 3. A case of congenital hemangioma (0.1%) and a port-wine stain (0.1%) were also seen in two male infants in our study. In a study by Moosavi, the frequency rate of hemangiomas was found to be 4% 6 and in the study conducted by Shih, the frequency of hemangiomas and port-wine stains was reported 0.2% and 0.6%, respectively 4. It seems that in most studies conducted on the infant population like ours, the frequency rate of hemangiomas is less than the expected, because most hemangiomas become apparent two weeks after birth which is usually after discharge from the hospital 16.

According to our findings, the Mongolian spot

<table>
<thead>
<tr>
<th>Neonatal variables</th>
<th>Vascular birthmarks</th>
<th>Pigmented birthmarks</th>
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<td></td>
<td>Infantile hemangioma</td>
<td>Port-wine stain</td>
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<td>Neonate sex</td>
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<tr>
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Table 1. The prevalence of vascular and pigmented birthmarks in 1000 newborns born in the Obstetrics and Gynecology Ward of Imam Reza Hospital, Mashad, from 4.4.2003 to 19.1.2005 and evaluation of their relationship with maternal and neonatal variables
was observed mostly in the sacrococcygeal region (17.1%). The Mongolian spot represents a good case of a clear difference between the races as its frequency ranges from 0.1% in Finland to 87.7% in Taiwan and Asians 1,2,4,5,7,10,12,13,17,18. In the study of Moosavi in the Southwest of Iran, the prevalence of the Mongolian spot (71.3%) was detected much higher than what we found in the northeast of the country 6, maybe due to the higher frequency of the Arab race in the southwest of Iran. Similarly, 61.5% of the infants in the study performed by Shih had Mongolian spots, mostly in the sacrococcygeal region 4. There was no association between the Mongolian spot and the infant’s age and gender, gestational age, and route of delivery. A study by Gokdemir also confirmed no correlation with the mentioned variables 5, but Sachdeva showed that the Mongolian spot was more frequent in males and term infants 13. The congenital melanocytic nevus was seen in 5% of our infants. The incidence rate of the congenital melanocytic nevus has been reported between 0.5 and 6% in studies in various races 3,6,8,19-21. In the current study, the incidence rate of the congenital melanocytic nevus was significantly higher than the study conducted by Moosavi in the Southwest of the country (5% vs 0.5%). This may be due to racial differences between the residents of the north and south of the country. The majority of the nevi in our study were small sized like Shih 4, Moosavi 6, Karvonen 8 and Rivers 20 studies. The most common site for these nevi in our infants was the trunk similar to the study conducted by Moosavi 6.

In conclusion, the salmon patch is defined as the most common birthmark that is fortunately evanescent. The salmon patch was more frequent in female and term infants. In this study, congenital melanocytic nevi had a relatively high prevalence when compared with other studies. Since the appearance of these lesions may concern parents and the risk of melanoma may be increased in cases of congenital melanocytic nevi, follow up is required. The need for careful examination of the skin and education of the general practitioners who work in the neonatal wards is stressed in this regard.

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REFERENCES


