Frequency and characteristics of mongolian spots among Turkish children in Aegean region

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SUMMARY: Egemen A, İkizoğlu T, Ergör S, Mete Asar G, Yılmaz Ö. Frequency and characteristics of mongolian spots among Turkish children in Aegean region. Turk J Pediatr 2006; 48: 232-236.

Mongolian spots, which are benign congenital lesions observed in the first years of life, can cause distress for parents due to aberrant localization as well as unexpected number and size. Therefore, efficient differential diagnosis is necessary.

The aim of this study was to determine the frequency and characteristics of mongolian spots in 1-12-month-old children in a west Anatolian city and to evaluate parental approach to these lesions.

The study included 924 children who presented to Ege University Hospital Healthy Child Outpatient Department between January and August 2003. A questionnaire was applied to the families while all children were examined scrupulously for the presence of mongolian spots.

The frequency of these lesions in the study population was determined to be 26%; this rate was 20% and 31% in boys and girls, respectively. No lesion was detected in blond-haired children; however, it was detected in 47% of brunettes. Most common localizations were lumbosacral, gluteal, and back, though knee, scalp and feet were also encountered. Upon questioning, most parents stated it was a birth mark; however, 10% accepted to consult a doctor about the issue.

In conclusion, identifying mongolian spots and informing parents are essential to strengthen the family-doctor relationship.

Key words: mongolian spots.

Congenital hyperpigmented macular lesions of varying sizes, most commonly located on lumbosacral, back and hip regions, are termed as congenital dermal melanosis, or more often as mongolian spots. These skin lesions, mostly but not exclusively seen in Asian children, are usually 1-2 cm or smaller in size[1,2].

Mongolian spots observed in the first years of life can be a cause of significant distress for both the parents and the doctors in case of unusual appearance, and unexpected location and number, although they are usually congenital and benign in character[1,3]. Knowledge about the etiology and prognosis of these spots aids not only in diagnosis but also in follow-up. Distinguishing from bleeding diathesis and child abuse is challenging, especially when clinical presentation is more extensive in number and location[4-6].

Since the prevalence and characteristics of mongolian spots differ among populations, lack of a research about the prevalence, localizations or characteristics among Turkish children makes the diagnosis challenging for doctors involved in healthy child care in Turkey. Therefore, the aim of the study was to determine the frequency and characteristics of mongolian spots in 1-12-month-old children in İzmir city center, and to evaluate parental approach to this condition.

Material and Methods

The study was carried out on 924 children between 1-12 months of age who were examined in the Ege University Hospital Healthy Child Outpatient Department during January-August 2003. A questionnaire, which was completed by the responsible doctor while the parents were in the examination room, included information about the education, age, and hair color of the parents, as well as number, age, and sex of the siblings. History of mongolian spots was questioned for each of these individuals. Finally, the mother's attitude towards the spot was evaluated by asking her opinion regarding the cause of the spot and whether or not it represented a disease. Consultations, if any, with a doctor about the issue were also recorded.

Children were carefully examined for the presence of mongolian spots, including the hairy skin, during the systematic physical examination. If a spot was observed, localization, size, color and shape were recorded.

Statistical analysis was done using chi-square test, and p values <0.05 were evaluated as statistically significant.

Results

The frequency of mongolian spots among all children in the present study was found to be 26.0% (in 20.0% of boys and 31.0% of girls, but this difference was not statistically significant, p=0.024). In contrast, it differed significantly between brunettes (47%) and blondes (0%) (p=0.00). Birth weight, gestational week and type of delivery did not have a significant effect (p=0.473, p=0.475, p=0.644, respectively) (Table I).

Mongolian spots were detected in 57.1% of children who had a sibling with a history of this lesion. This rate was significantly higher than that in children without an affected sibling (p=0.00). On the contrary, this spot was present in 40% of children with a parental history of mongolian spot, and this rate was not significantly higher than that of children without a parental history (p=0.304) (Table II).

Mongolian spots were most commonly observed on lumbosacral (80%), gluteal (35%), and back (18.7%) regions. Less common localizations encountered were hairy skin, knees and feet. Size of the spots ranged between 0.2-12 x

Table I. The Relationship of Mongolian Spot Frequency with Type of Delivery, Sex and Hair Color of 1-12-Month-Old Children in Izmir Area

		Mongolian spot					
		Present		Absent		Total	
Characteristics of baby		n	%*	n	%*	n	p
Gender	Male	87	20.0	348	80.0	435	
	Female	153	31.3	336	68.7	489	p=0.024
Term	Term	216	27.0	579	73.0	795	
	Preterm	18	17.6	84	82.4	102	
	Postterm	6	22.2	21	77.8	27	p:0.475
Delivery	C/S	135	25.0	405	75.0	540	
	Vaginal	105	27.3	279	72.7	384	p=0.644
Birth weight	<2500 g	24	32.0	51	68.0	75	
	>2500 g	216	25.4	633	75.6	849	p=0.473
Hair color	Blond			81	100.0	81	
	Brunette	129	47.3	144	52.7	273	
	Brown	111	19.5	459	80.5	570	p=0.00
Total		240	26.0	684	74.0	924	

*: percentage is taken within the row.

Table II. Effect of Presence of Mongolian Spot in Parents and Siblings on Spot Frequency in 1-12-Month-Old Children in İzmir Area

		Mongolian spot					
		Present		Absent		Total	
Characteristic		n	%	n	%	n	p
Mongolian spot in sibling	Present	48	57.1	36	42.9	84	
	Absent	57	19.4	237	80.6	294	p=0.00
Mongolian spot in parent	Present	12	40.0	18	60.0	30	
	Absent	228	25.0	666	75.0	894	p=0.304

0.3-12 cm (Table III). Most common color of the lesions was observed to be blue-purple followed by blue-gray (Table IV). Moreover, shape did not vary according to the localization (Table IV).

Evaluation of parental approach revealed that mothers believed the spots to be stigma existing from birth (45%). In actuality it is not incorrect to consider the spots as congenital and present from birth. However, 12.5% of the mothers attributed the spots to birth trauma, while 25% had no idea. Interestingly, 10% of the families were distressed enough to visit a doctor about this issue (Table V).

Discussion

"Mongolian spot" is a term used to define the irregular macular areas of blue-to-gray discoloration located on the sacrum of more that 90% of Asian, Hispanic and black children, which tend to regress spontaneously and disappear during childhood[1,7]. Histologically, the lesions are characterized by spindle-shaped melanocytes in the lower layers of the dermis[3]. Ectopic localizations such as dorsal aspects of the hands and feet are encountered especially in Native Americans and these tend to be more permanent[1]. Moreover, there are cases reported to have aberrant lesions; some involving the

Table III. Size of the Mongolian Spots According to Localization

	Mongolian spots			
Localization	n	%	Width X ± SD	Length X ± SD
Lumbosacral	192	80.0	3.6 ± 3.1	3.7 ± 4.8
Gluteal	84	35.0	3.0 ± 1.8	2.9 ± 2.1
Back	45	18.7	2.4 ± 1.8	3.9 ± 3.5
Other	21	8.8	2.4 ± 1.5	3.1 ± 1.5
Total	240*	146.7**	3.3 ± 2.6	3.5 ± 3.9

* Total is less than the total of the rows because some cases had more than one spot.
** Total is above 100% because there were cases which had more than one spot in different localizations.

Table IV. Color Characteristics of the Mongolian Spots According to Localization

		Lumbosacral		Gluteal		Back		Other		Total	
Characteristic		n	%β	n	%β	n	%β	n	%β	n	%*
Shape*	Elliptical	123	64.0	48	57.1	36	80.0	6	28.6	213	62.2
	Irregular	27	14.0	12	14.3	3	6.7	3	14.3	45	13.2
	Circular	42	22.0	24	28.6	6	13.3	12	57.1	84	24.6
Color*	Blue-gray	48	25.0	39	46.4	24	53.3	6	28.6	117	34.2
	Blue-purple	126	65.6	42	50	21	46.7	12	57.1	201	58.8
	Other	18	9.4	3	3.6		0.0	3	14.3	24	7.0
Total		192		84		45		21		240α	

α: Number of patients with a mongolian spot is less than the total of the rows because some patients had more than one lesion.
*: Percentage is taken among the values in the column.
β: Percentages are taken among the values of each row.

Table V. Mothers' Responses to Questions about Mongolian Spots*

Questions	Responses	n	%
	Stigma	108	45.0
	Trauma during or after labor	30	12.5
	Familial	12	5.0
	Due to the diet of the mother or drugs	15	6.25
	Due to the position of the baby	15	6.25
♦What is the etiology of mongolian spots?	No knowledge	60	25.0
	Treatable	2	0.8
	Not treatable	211	87.9
♦Does a treatment exist?	No knowledge	27	11.3
	Yes	38	15.8
♦Have you taken any action about the spot?	No	202	84.2
	Yes	24	10
♦Did you go to the doctor for this spot?	No	216	90

*Only the mothers of children with a mongolian spot were questioned.

scalp, others involving the temporal area[2,3]. There are also extensive clinical presentations over most of the body, sparing scalp, face, neck, palms, soles, periumbilical area, genital area and nipples[8]. Although these lesions are usually encountered alone, Igawa et al.[9] has reported that mongolian spot in the cleft lip area has been found in some Japanese children. They concluded that this appears in high incidence when the cleft goes beyond the vermillion border. Considering the significant distress associated with misdiagnosis, it becomes essential for health professionals to learn the characteristics of these lesions and guide the parents.

Prevalence has been reported to vary among different populations. In a study done by Onayemi et al.[10] in 2001, mongolian spots were reported to be present in 44.7% of 0-14- month-old Nigerian children. This rate decreased with advancing age till none was seen at the age of six years. The frequency among children in the Aegean region, which lies between the values for Hispanic and Caucasian children of 46% and 96%, respectively, is most similar to that of Australian newborns[11,12]. This diversity illustrates the role of ethnic origin on the prevalence of mongolian spots.

The lumbosacral area was the most common localization in the population of the present study carried out in a west Anatolian city (80%). Most common localizations of the spots reported in previous studies were gluteal, sacrococcygeal and lumbar[10]. Similarly, mongolian spots were localized to the sacrococcygeal area in 92.3% of children examined by Tsai et al.[13]. Among Chinese children, these lesions were reported to be present in 58% of boys and 53.3% of girls, while the most common localizations were sacrococcygeal, gluteal and lumbar, in order of frequency. Colors were observed to vary from gray-blue to gray-black[14]. In the present study, most commonly encountered colors of mongolian spots were blue-purple (58.8%) followed by blue-gray (34.2%). Distribution of colors might be attributed to the difference in skin color between Chinese and Turkish children.

Impact of skin and hair color on mongolian spots revealed that spots were present in 47% of brunettes and in none of the blondes. This finding is expected since the histopathology of these spots are related to dendritic cells carrying melanin located in the lower half or two-thirds of dermis[15].

A unique result of this study was the familial character of this lesion since a significantly higher percentage of children whose sibling had this lesion were positive for a mongolian spot compared to the children whose siblings were unaffected. However, the history of this dermatologic lesion in a parent did not cause a significant change. This can be attributed to the factor of memory and time; the parents may not be aware if they had a mongolian spot themselves, but they remember in the case of their children.

Atypical localization and shape and presence of many mongolian spots necessitate the differential diagnosis from dermatologic diseases as well as from child abuse and

bleeding diathesis[5,6,16]. For example, Oates[4] reported a case in 1984 in whom mongolian spots were misdiagnosed as child abuse, and emphasized the difficulty in diagnosing child abuse and the importance of differential diagnosis.

In summary, mongolian spots, which are commonly observed congenital dermal macular lesions, may worry families because of the difficulty in differential diagnosis in cases where clinical presentation is atypical. Therefore, it is essential to gain knowledge about the various shapes and localizations as well as the frequency in society both to facilitate the diagnosis and to eliminate parental distress. Although this study evaluated the frequency of mongolian spots in 1-12-month-old Turkish children in a western Anatolian city, further studies are required throughout Turkey.

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