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Original Research Article

To Study the Palmar Dermatoglyphic Pattern from Different Ethnic Group in Order to Establish the Normal Pattern in Children

Rashmi Ekka Dehariya[1], Neha Jaiswal[2]

[1,2]Senior Resident, Dept. of Paediatrics, ESIC Hospital, Indore, M.P.

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Corresponding author: Dr. Neha Jaiswal
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Abstract:

Background & Method: The aim of this study is to study the palmar dermatoglyphic pattern from different ethnic group in order to establish the normal pattern in children. The palms of the individuals were washed with soap and water and dried thoroughly. A roller was rolled over the ink pad by to and fro movements and then gently over the palm, taking care to cover with ink upto the ulnar border and the wrist crease. The hands were then gently placed on a special, fixed with a sponge pad on a woolen board and even pressure was applied over the dorsum of the hand.

Result: The table depicts the caste wise distribution of cases studied. "Sindhi" was the predominant group comprising 33.33% of the total cases. There was no significant difference between the overall incidence (Right and Left Palm) of true patterns in the thenar area between study group and control group.

Conclusion: Dermatoglyphic features are not individually diagnostic of such cases, the above constellation of features appears to be significantly related to the homozygous thalassemia major state. In the thalassemia minor group the difference from the control group was found to be statistically insignificant.

Keywords: Palmar, Dermatoglyphic & Children.

Introduction

Dermatoglyphics, the study of patterned traceries of fine epidermal ridges of fingers, toes, palms and soles, has proved its worth in atleast 3 fields - medicolegal, anthropological & clinical [1].

Ridged skin occurs on the palms and scales of all primates, including man. It is also found on the naked distal part of the tail in some New World monkeys. The function of ridged skin of 'friction' skin is apparently associated with the prehensile use of hands, feet and tails. Corrugations of the skin tend to prevent slipping both in locomotion and in grasping [2].

There are no hairs or sebaceous glands in these areas but there are abundant nerve endings and sweat glands, the pores of, which are situated along the crests of these ridges [3]. The dermal ridge patterning not directly determined by genes, but is the indirect consequence of the total firm of the hand at the time the ridges are developing [4].

Dermal ridges develop In relation to volar pads, which are fetal mounds, situated on

tips of all digits, in the 4 interdigital areas, in thenar and hypothenar areas of the palm and in the calcar areas of the sole.

The single, unifying principle in the genesis of dermatoglyphics, is that the parallel epidermal ridges develop transversely to the ·line of growth stress [5]. Consequently, the ridge directions tend to take the shortest routes on the ridge directions tend to take the embryonic surface, encircling the fingers and also the pads which arc present in the limb buds. e.g. In proximal and middle phalanges, whose major growth is longitudinal, the ridges typically cover the area transversely cover the area transversely.

Material & Method

A total of 160 cases of β thalassemia were studied, which included 60 cases of β thalassemia major and their parents comprising of 100 cases of β thalassemia minor. The dermatoglyphic findings in these cases were compared with a control series of 30 normal children belonging to the same ethnic groups as the cases of β thalassemia major.

Procedure

A small amount of special printing ink was squeezed on the ink pad from the tube, and spread evenly over the same.

The palms of the individuals were washed with soap and water and dried thoroughly. A roller was rolled over the ink pad by to and fro movements and then gently over the palm, taking care to cover with ink upto the ulnar border and the wrist crease. The hands were then gently placed on a special, fixed with a sponge pad on a woolen board and even pressure was applied over the dorsum of the hand. The hand was then removed. Finger prints were taken by rolling them side to side from one nail edge to other to ensure recording of the complete pattern.

Results

Table 1: Age and sex distribution of study group and control group

AGE (Yrs.)	CASES			CONTROL GROUP		
	M	F	TOTAL	M	F	TOTAL
0 - 3	20	04	24 (40%)	18	04	22 (36.67%)
4 - 6	20	02	22 (36.67%)	18	04	22 (36.67%)
7 - 9	10	02	12 (20%)	10	02	12 (20%)
10 - 12	02	00	02 (3.33%)	04	00	06 (2.67%)

Age and sex distribution of cases studied, Majority of cases were below the age of 6 years.

Table 2: Caste-wise distribution of cases in study group and control group

CASTE	THAL. MAJOR	CONTROL GROUP
SINDHI	20 (33.33%)	20 (33.33%)
MULSIM	10 (16.67%)	10 (16.67%)
BRAHMIN	06 (10%)	06 (10%)
AGARWAL	08 (13.33%)	10 (16.67%)
JAIN	08 (13.33%)	10 (16.67%)
SCHEDULED CASTE	04 (6.67%)	04 (6.67%)
PUNJABI	02 (3.33%)	00 (0%)
RAJPUT	02 (3.33%)	00 (0%)

The table depicts the caste wise distribution of cases studied. "Sindhi" was the predominant group comprising 33.33% of the total cases.

Table 3: Overall incidence and percentage frequencies of true patterns in the thenar area (right and left) in study group and control group

	MALES (M)	FEMALES (F)	COMBINED (M+F)	P Value
TH. MAJOR	04	00	02	P >> 0.10
TH. MINOR	14	04	20	
CONTROL GROUP	06	02	08	

CONTROL VS TH. MAJOR
$x^2 = 0.1963$
d.f. = 1

CONTROL VS. TH. MINOR
$x^2 = 0.632$
d.f. = 1

As is evident from the above table, there was no significant difference between the overall incidence (Right and Left Palm) of true patterns in the thenar area between study group and control group. P value is highly insignificant in both comparison.

Discussion

The dermatoglyphic studies were carried out is all three groups and various parameters were the study groups and the control group in the right and left palms separately.

The finding in our control group were comparable carried out in this with those in the other studies carried out in this institution by Pawar R. (1978) who had studied 40 children and Verma D. (1990) who had analysed 25 normal children [2,6].

There were a predominance of male children in both Thalassemia major and control groups and majority of the cases were below 6 years of age. Caste wise, it was more common in Sindhis. [7]

In the present study, there was no significant difference in the incidence of true patterns in the thenar area in either sex or right and left palm between the study group and control group [6]. In all three groups, "males had a higher percentage frequency of thenar patterns as compared to females and the incidence was similarly higher in the left palm as compared to right. [8]

The results were comparable with those had found a significantly higher incidence of thenar patterns in female thalassemia major patients. The difference could be attributed to the small sample size in the two studies. [9]

Conclusion

Though these dermatoglyphic features are not individually diagnostic of such cases, the above constellation of features appears to be significantly related to the homozygous thalassemia major state. In the thalassemia minor group the difference from the control group was found to be statistically insignificant.

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