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Dermatoglyphic Findings in Familial Coxa Vara with Dominant Inheritance*

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Introduction

Blotevogel,[1] Barbeau et al,[2] Weninger,[3] Basan[4] and Gall et al[5] have pointed out the unusual dermatoglyphics in certain disorders which are determined by an autosomal dominant gene.

Although familial forms of coxa vara have been reported by Francke[6], Jones and Lovett,[7] Martin[8] and Almond[9] the inheritance pattern of this disorder was not clear until Say et al.[10-11] were able to show a dominant mode of inheritance in this disorder in an isolated Turkish Cypriot population.

In this article the dermatoglyphic findings of this particular population are presented.

Material and Methods

Finger-tip and palm prints were obtained from 6 male and 6 female individuals affected with familial coxa vara who were living in a Turkish village called Gönyeli near Nicosia, Cyprus. 45 male and 35 female, unrelated, healthy individuals who were born in the same geographic area constitute the control population. Prints were obtained by Faurot Inkless material and statistical analyses were done by Chi-square and Student's t test.

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TABLE I

FINGER-TIP PATTERNS OF PATIENTS WITH COXA VARA AND CONTROLS (%)

Pattern Types	Left V		Left IV		Left III		Left II		Left I		Right I		Right II		Right III		Right IV		Right V	
	CV	C	CV	C	CV	C	ÇV	C	CV	C	CV	C	CV	C	CV	C	CV	C	CV	C
W	52.6	15.0	52.6	43.7	21.0	21.2	57.9	42.5	47.4	53.7	57.9	62.5	42.1	50.0	26.2	25.0	42.1	51.2	31.5	21.2
U	47.4	83.7	31.6	55.0	68.4	71.2	31.5	30.0	52.6	43.7	42.1	37.5	47.3	31.2	63.2	71.2	36.8	47.5	68.5	78.8
R	0.0	0.0	10.5	0.0	5.3	1.3	5.3	15.0	0.0	0.0	0.0	0.0	5.3	15.0	5.3	0.0	21.1	0.0	0.0	0.0
A	0.0	1.3	5.3	1.3	5.3	6.3	5.3	12.5	0.0	2.6	0.0	0.0	5.3	3.8	5.3	3.8	0.0	1.3	0.0	0.0
X^2		10.614		0.213		0.0004		0.96		0.066		0.011		0.128		0.041		0.211		0.443
P	<	0.01	>	0.05	>	0.05	>	0.05	>	05.	>	0.05	>	0.05	>	0.05	>	0.05	>	0.05

Key: W: Whorl, U: Ulnar loop, R: Radial loop, A: Arch, CV: Coxa vara, C: Control

Results

The frequencies of finger-tip patterns showed no significant difference between affected individuals and control subjects except that the former group had increased numbers of whorls and decreased numbers of ulnar loops on their left finger-tips (Table I). There was no significant difference between the mean values of the total ridge-counts of the affected and the control groups (Table II). The a-b ridge-count and maximal atd angle analyses also showed no differences (Table III and IV). In addition the frequencies of the hypothenar patterns of the unaffected individuals and the control subjects were the same (Table V).

TABLE II

TOTAL RIDGE-COUNTS OF THE PATIENTS WITH COXA VARA AND CONTROLS

	Females		Males	
	CV	C	CV	C
n	6	35	11	45
X	125.167	125.943	154.818	133.888
S	± 43.2	± 39.3	± 37.1	± 30.2
SX	± 17.639	± 6.666	± 11.184	± 4.502
D		0.776		20.93
SD		± 17.97		± 10.792
t		± 0.043		± 1.939
P		> 0.05		> 0.05

Key: CV: Coxa vara
C: Controls

Discussion

Although the finger-tip pattern frequencies showed a minor deviation only on the left fifth fingers of the affected subjects, all other parametrs revealed no significant differences between the cases affected with familial coxa vara and the control subjects. However this result might be due to the relatively small size of the sample and it may be that further studies with a larger sample would reveal results different from those found in this study.

TABLE III

a-b RIDGE COUNTS OF THE PATIENTS WITH COXA VARA AND CONTROLS

	Females				Males			
	Left		Right		Left		Right	
	CV	C	CV	C	CV	C	CV	C
n	6	34	6	34	13	43	13	40
x	39.333	40.088	39.167	39.088	37.307	38.163	35.153	37.125
S	± 2.721	± 4.876	± 3.32	± 5.098	± 5.188	± 6.987	± 4.021	± 5.579
Sx	± 1.111	± 0.836	± 1.335	± 0.874	± 1.438	± 1.065	± 1.115	± 0.882
D	0.775		0.079		0.856		1.972	
SD	± 2.06		± 2.167		± 2.098		± 1.677	
t	± 0.366		± 0.036		± 0.408		± 1.176	
P	> 0.05		> 0.05		> 0.05		> 0.05	

Key: CV: Coxa vara, C: Controls

TABLE IV

MAXIMAL atd ANGLES OF THE PATIENTS AND CONTROLS

	Females				Males			
	Left		Right		Left		Right	
	CV	C	CV	C	CV	C	CV	C
n	6	34	6	34	13	45	13	41
x	50.333	46.911	45.5	47.5	43.307	43.755	44.462	39.585
S	± 10.6	± 9.9	± 6.698	9.7	± 5.965	± 7.023	± 6.158	± 8.53
Sx	± 4.328	± 1.698	± 2.995	± 1.663	± 1.579	± 1.047	± 1.707	± 1.332
D	3.422		2.0		0.448		0.448	
SD	± 4.486		± 4.251		± 2.143		± 2.143	
t	± 0.762		± 0.47		± 0.209		± 0.209	
P	> 0.05		> 0.05		> 0.05		> 0.05	

Ecy: CV: Coxa vara, C: Controls

TABLE V
HYPOTHENAR PATTERNS OF THE PATIENTS AND CONTROLS
(%)

	Left		Right	
	CV	C	CV	C
A^u/A^c	66.3	38.9	60.0	41.2
L^r	26.2	33.3	22.5	35.3
L^u	6.2	11.1	12.5	5.9
L^c	1.3	0.0	1.3	11.7
W-S	0.0	5.6	1.3	0.0
TA	0.0	11.1	0.0	5.9
X^2	4.525		2.03	
P	> 0.05		> 0.05	

Key: CV: Coxa vara, C: Controls

Summary

The dermatoglyphic findings in dominantly inherited familial coxa vara were investigated. No major dermatoglyphic peculiarities in this condition were found.

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