PALMAR CREASES AND DISEASES: CANCER AND TUBERCULOSIS

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The palmar flexion creases of fully diagnosed patients of throat cancer ($n = 120$) and tuberculosis ($n = 80$) have been compared with a control group ($n = 150$) of the same stock. The palmar flexion creases of cancer and tuberculosis patients are significantly different from those of the control population.

INTRODUCTION

Palmar flexion creases are a genetically controlled morphological variable, and stand a chance of being greatly enriched by future researches. Besides this, the variable can also be employed as an aid for clinical diagnosis.

Certain medical syndrome palmar creases, especially the Simian crease, have been associated with several diseases. Langdon-Down (1909) studied Simian crease in relation to mongoloid idiocy. Similar findings of Rittmeister (1936), and Biswas and Bardhan (1966) on Simian crease and diseases are of special importance.

The newly evolved method of crease classification by Bali and Chaube (1971) has certain advantages over the existing classifications of Portius (1937), Weninger and Nauratil (1957), Büchi (1954), Kimura (1968), Lestrange (1969), and Gyenis and Gyorgy (1971).

Based on the present classification, Bali (1971*a*, 1971*b*, 1973) studied creases in relation to several diseases and found significant results. A similar finding of Chaube (1971) on schizophrenic patients confirmed the validity of earlier results.

The present investigation aims at showing association between creases and diseases such as cancer and tuberculosis.

MATERIAL AND METHOD

The bilateral palmar prints of 120 diagnosed patients of throat cancer were selectd from the Department of Radiology, Medical College Hospital, Trivandrum, and 80 tuberculosis patients were selected from the T.B. Sanitorium, Trivandrum. The control group (= 150) belongs to the ethnic stock of the patients. Care has been taken to select nonrelated individuals.

In analysing the prints, the method proposed by Bali and Chaube (1971) has been followed, whereby the main flexion creases are classified into three main types on the basis of a common point of distinction, i.e., their point of origin (Fig. 1).

(S) Single radial base crease (SRBC)
(D) Double radial base crease (DRBC)
(T) Triple radial base crease (TRBC)

The double radial base creases are again classified into two groups on the basis of distal (Fig. 3a) and proximal (Fig. 3b) position.

The finer classification of these principal types is based upon the initial split or bifurcation of the transverse crease (Figs. 2, 3 and 4).

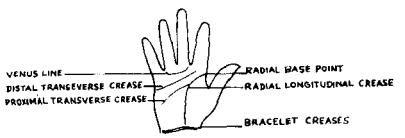
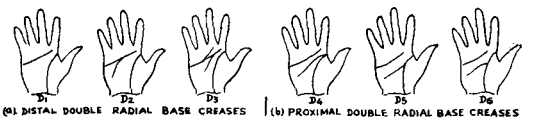


FIG. 1. PALMAR CREASES

FIG. 2. SINGLE RADIAL BASE CREASES (SRBC)



(a) DISTAL DOUBLE RADIAL BASE CREASES | (b) PROXIMAL DOUBLE RADIAL BASE CREASES

FIG. 3. DOUBLE RADIAL BASE CREASES (DRBC)

FIG. 4. TRIPLE RADIAL BASE CREASE (TRBC)

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RESULTS AND DISCUSSIONS

Table 1 shows the frequency of the three main types of palmar creases in cancer patients, tuberculosis patients and controls. The frequency of SRBC is very high in cancer patients as compared to controls; the DRBC type also exhibits marked difference between patients and controls, and a similar trend is exhibited by TRBC ($\chi^2_2 = 62.51$, $C = 0.32$, $p \leq 0.001$). In tuberculosis patients, the chi-square values also support crease association with disease ($\chi^2_2 = 91.48$, $C = 0.40$, $p \leq 0.001$).

Considering the bimanual difference a dextral dominance of SRBC is noticed among patients as well as among controls, while DRBC and TRBC show the reverse trend. The chi-square values are significant. The bimanual distribution of SRBC and DRBC types among tuberculosis patients in relation to controls appears to be more prominent than in cancer patients. The chi-square values are also significantly high.

Table 2 shows the percentile frequencies of the subtypes of creases among patients and controls.

Table 1. *Types of palmar creases in patients of cancer and of tuberculosis*

Types of creases	Cancer patients (n=240 hands)					Tuberculosis patients (n = 160 hands)					Control (n = 300 hands)				
	Right hand		Left hand		R+L	Right hand		Left hand		R+L	Right hand		Left hand		R+L
	n	%	n	%	%	n	%	n	%	%	n	%	n	%	%
SRBC	44	36.67	40	33.33	35.00	41	51.25	33	41.25	46.25	16	10.67	9	6.00	8.33
DRBC	73	60.82	74	61.66	61.25	36	45.00	44	55.00	50.01	119	79.33	126	84.00	91.67
TRBC	3	2.50	6	5.00	3.75	3	3.75	3	3.75	3.74	15	10.00	15	10.00	10.00
Total	120	99.99	120	99.99	100.00	80	100.00	80	100.00	100.00	150	100.00	150	100.00	100.00

Cancer, Right: $\chi^2_2 = 26.49$, $C = 0.29$, $p \leq 0.001$; Left: $\chi^2_2 = 42.93$, $C = 0.37$, $p \leq 0.001$; Total: $\chi^2_2 = 62.51$, $C = 0.32$, $p \leq 0.001$.

Tuberculosis, Right: $\chi^2_2 = 47.17$, $C = 0.41$, $p \leq 0.001$; Left: $\chi^2_2 = 40.04$, $C = 0.38$, $p \leq 0.001$; Total: $\chi^2_2 = 91.48$, $C = 0.40$, $p \leq 0.001$.

Table 2. *Subtypes of palmar creases in patients of cancer and of tuberculosis (% frequencies)*

Subtypes	Cancer patients			Tuberculosis patients			Control group		
	Right	Left	Total	Right	Left	Total	Right	Left	Total
SRBC									
S_1	0.83	—	0.41	1.25	1.25	1.25	—	1.33	0.67
S_2	3.34	8.33	5.83	—	6.25	3.13	2.67	2.00	2.33
S_3	15.83	10.00	12.91	23.75	15.00	19.37	4.00	0.67	2.33
S_4	16.67	15.00	15.84	26.25	18.75	22.50	4.00	2.00	3.00
S_5	—	—	—	—	—	—	—	—	—
DRBC									
D_1	0.83	0.83	0.83	—	—	—	0.67	—	0.33
D_2	0.83	—	0.42	—	—	—	0.66	—	0.33
D_3	0.83	—	0.41	—	1.25	0.63	—	1.33	0.67
D_4	24.16	32.50	28.34	8.75	13.75	11.25	41.33	48.67	45.00
D_5	33.34	27.50	30.42	36.25	38.75	37.50	36.00	33.33	34.67
D_6	0.83	0.83	0.83	—	1.25	0.62	0.67	0.67	0.67
TRBC									
T_1	2.50	5.00	3.75	3.75	3.75	3.75	10.00	10.00	10.00

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Considering the subtypes of SRBC, the frequency of S_4 is strikingly higher in both cancer (15.84%) and tuberculosis (22.50%) patients than in controls (3.00%). The same applies to subtype S_3 (cancer 12.91%, tuberculosis 19.37%, and controls 2.33%). Subtypes S_4 and S_3 also indicate high frequencies on the right palm among patients and controls.

Among the subtypes of DRBC, D_4 is less frequent in cancer (28.34%) and tuberculosis (11.25%) patients than in controls (45.00%). Some difference is also noticed for D_5. A bimanual difference has also been observed in these subtypes.

TRBC is also markedly different in patients controls (cancer 3.75%, tuberculosis 3.75%, and controls 10.00%). A bimanual difference has been observed in cancer patients, but not in tuberculosis patients and controls.

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