

A Study Of Palmar Dermatoglyphics of Pulmonary Tuberculosis Patients in Bhavnagar District

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Abstract : Dermatoglyphics, the ridged skin covering our palms and sole, are not only found on human beings. All primates have ridged skin, and it can also be found on the paws of certain mammals and on the tails of some monkey species. Palmar creases develop during the 2nd and 3rd month of intrauterine life and are not influenced by movement of hand in utero. They are of considerable clinical interest because they are affected by certain abnormalities of early development including genetic disorders. In the present study 100 patients of pulmonary tuberculosis (sputum smear positive) were collected from the department of TB & Chest diseases, Government Medical College, Bhavnagar (Gujarat) and from DOT centers of Bhavnagar. Out of 100 cases, (77 males and 23 females) are of pulmonary tuberculosis (sputum smear positive). There was no statistically significant difference observed in finger print pattern in between male & female and total cases and control in this study.

Key-words: Palmar Dermatoglyphics, Pulmonary Tuberculosis, genetic

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INTRODUCTION: Dermatoglyphics, the ridged skin covering our palms and sole, are not only found on human beings. All primates have ridged skin, and it can also be found on the paws of certain mammals and on the tails of some monkey species. The drag against the ridges when feeling the texture of a surface heightens the intensity of stimulation of the nerve endings.

Palmar creases develop during the 2nd and 3rd month of intrauterine life and are not influenced by movement of hand in utero¹. Abnormal Dermatoglyphic patterns have been observed in several non chromosomal genetic disorders and other diseases whose etiology may be influenced directly or indirectly, by genetic inheritance^{2,3}.

A significant link has been established by pioneer workers between ridge pattern in Leprosy^{4,5} and Bronchial Asthma and Lung Tuberculosis⁶.

The genetic contribution is one of the causes of pulmonary tuberculosis. Susceptibility to pulmonary

tuberculosis in India has been linked to Mannose Binding Protein Gene⁷. Significant association has been found between IL – 1 Gene clusters and host susceptibility to tuberculosis⁸

The study of dermatoglyphics pattern in patients of Pulmonary tuberculosis has been done with aim to determine whether the dermatoglyphics in patients of pulmonary tuberculosis and of control differ or not and to determine whether the dermatoglyphics in patients of pulmonary tuberculosis male and female differ or not

MATERIAL AND METHODS: The sample consists of 100 cases of pulmonary tuberculosis in the age group of 18 to 70 years. All cases are Indian belonging to Bhavnagar Region, Gujarat.

In the present study 100 patients of pulmonary tuberculosis (sputum smear positive) were collected from the department of TB & Chest diseases, Government Medical College, Bhavnagar (Gujarat) and from DOT centers of Bhavnagar. Out of 100

cases, (77 males and 23 females) are of pulmonary tuberculosis (sputum smear positive) .The cases were diagnosed by TB & Chest diseases physician, department of TB & Chest diseases, Government Medical College, Bhavnagar (Gujarat) of Sir.T. Hospital, Bhavnagar.

Diagnosis of the patients were based on their detailed history, clinical examination, chest X-ray and confirmed by sputum test. They were matched with 100 healthy subjects (75 Male & 25 Female), those who are residing in the same locality and having no family history of tuberculosis or any other inheritable disease. Fingerprints and palm prints were taken, using the Ink and Pad method, described by Harold Cummins And Midlo⁹.

RESULTS: Fingerprint patterns were noted in pulmonary tuberculosis and Control group.

Four basic type of fingerprint pattern were noted. Whorl, Ulnar loop, Radial loop, and Arch. A comparison of fingerprint pattern in percentage was done in pulmonary tuberculosis and control group (Table no 1-3).

Data was statistically evaluated for significance using Microsoft excel software (p Value >0.05 is non significant).

Table : 1 : Comparison of fingerprint pattern in total case and control.

Fingerprint pattern	Total case =100	Control n=100	P value
Whorl	34.4	32.8	>0.05
Ulnar loop	59.3	60.5	>0.05
Radial loop	2.2	2.1	>0.05
Arch	4.1	4.6	>0.05

Table : 2 : Comparison of fingerprint pattern in Cases Male and control Male

Fingerprint pattern	Cases Male n=77	Control Male n=75	P value
Whorl	37.27	36.26	>0.05

Ulnar loop	57.14	56.93	>0.05
Radial loop	1.55	2.26	>0.05
Arch	4.02	4.53	>0.05

Table : 3 : Comparison of fingerprint pattern in Cases Female and control Female

Fingerprint pattern	Cases Female n= 23	Control Female n=25	P value
Whorl	24.78	22.4	>0.05
Ulnar loop	66.52	71.2	>0.05
Radial loop	4.34	1.6	>0.05
Arch	4.34	4.8	>0.05

DISCUSSION: Out of 100 cases, (77 males and 23 females) are of pulmonary tuberculosis (sputum smear positive) Were compared with 100 healthy subjects (75 Male & 25 Female) in present study.

Sangita S Babu et al¹⁰ in 2005, was observed that the whorl pattern (56.6%) were pre-dominant with a decrease in loop pattern (32.1%) when compared those of controls and the difference was highly significant (P< 0.01).

Sidhu LS et al^{11,12} in 1977, observed no statistical significant differences in finger print patterns in pulmonary tuberculosis patients compared with controls. .

Nechaeva et al⁶ observe significant differences in finger print patterns in pulmonary tuberculosis patients compared with controls.

The fingerprint pattern in present study are supported by Sidhu LS et al^{11,12} and contrarary to finding of Sangita et al & Nechaeva et al as there was no statistically significant differancaen was observed in Sputum positive pulmonary tuberculosis patients with control group.

CONCLUSION: There was no statistically significant difference observed in finger print pattern in between male & female and total cases and control in this study.

Following conclusions can be drawn out of present study:-

1) Dermatoglyphics analysis can be useful diagnostically to differentiate sputum smear positive pulmonary tuberculosis and control.

2) Knowing that the finger print and palm print have a genetic bases, it seems logical to suspect that the fraction of pulmonary tuberculosis whose dermatoglyphic pattern differ substantially from normal pattern represent the genetically determined fraction of patient.

3) Dermatoglyphic analysis can be extended to established correlation between dermatoglyphics and other congenital disease.

REFERENCES:

1. Achs, R, Harper, RG, Siegel, M: Unusual dermatoglyphic findings associated with embryopathy. *New Eng J Med* 1966 274: 148,
2. Gupta CM, Tutakne MA, Bhanu BV. absence of triradius "d" on palm of leprosy patients, *Indian J Lepr.* 1984 Oct-Dec;56(4):852-4.
3. Schauman B, Alter M (1976) *Dermatoglyphics in medical disorders* 1st ed p7 New York Springer – Verlag.
4. Nagar KS, Laha NN, Sethi NC, Mehta RS. A study of palmar dermatoglyphics in leprosy patients, *J Assoc Physicians India.* 1981 Oct; 29(10):841-7.
5. Natekar PE and Desouza FM. Digital dermatoglyphics in leprosy. Department of anatomy, Goa medical college, Bambolim 403202 Goa India.
6. Nechaeva OB, Polzik EV, Iakusheva MI, Kazantsev VS. The dermatoglyphics of patients with different forms of tuberculosis of the respiratory organs. *Tsitol Genet.* 1996 Nov-Dec;30(6):65-9.
7. Lavebratt C, Apt A.S, Nikonenko BV, Schalling M and Schurr E 1999. Severity of tuberculosis in mice linked to distal chromosome 3 and proximal chromosome 12. *J. Infectious Disease.* 180(1):150 – 5
8. Bellamy R, Ruwende C, Corrah T, Mc Adam K.P, Whittle H.C and Hill A.V. 1998 *Tuberculosis Lung Disease* 79 (2):83-9.
9. Cummins, H, Midlo, C: *Finger Prints Palms and Soles, an Introduction to Dermatoglyphics* 1961 Dover Publications, Inc., New York.
10. Sangita S Babu, B.P. Powar, O.N. Khare. Palmar Dermatoglyphics In Pulmonary Tuberculosis. *J.Anat.Soc. India* 54 (2) 1-9 (2005)
11. Sidhu LS, Bhatnagar DP, Malhotra R, Sodhi HS. Association of finger ball dermatoglyphics with pulmonary tuberculosis. *Anthropol Anz.* 1977 Aug;36(1):36-42.
12. Sidhu LS, Sharma A, Singal P, Bhatnagar DP. A study of relationship between pulmonary tuberculosis and palmar dermatoglyphic traits. *Anthropol Anz.* 1978 Mar;36(3):219-23