

Dermatoglyphic patterns in psoriasis, vitiligo and alopecia areata

Sir,

Dermatoglyphics is the study of dermal ridges and the patterns formed by them.^[1] Epidermal ridges have been useful in the diagnosis of hereditary diseases.^[2] Fingerprint studies in psoriasis, vitiligo and alopecia areata will help in genetic counseling in relation to these diseases.^[3] It is assumed that genes take place in the development of dermal ridges and any gene predisposition to a familial disorder will alter dermatoglyphic patterns.^[4]

Thirty five clinically diagnosed cases each of psoriasis, vitiligo and alopecia areata were taken along with 35 sex matched controls between August 2006 and 2008. Fingerprints were recorded using the Ink method of Purvis and Smith.^[5] After explaining the aims and objectives of the study to the patients they were asked to wash their hands clean. A glass plate, 12 by 12 inches, was cleaned and smeared with printers ink with the help of a roller. Fingerprints were recorded by pressing each fingertip against the glass slab spread with ink and applied to clean white paper. Rolled fingertip prints as well as palm prints were taken and studied using a hand lens. Statistical method used was t test. *P* value < 0.05 was taken significant.

Parameters studied were:

- Pattern types- loops, arches and whorls [Figure 1]
- Intertriradial interval a-b (a-b ridge count). The a-b ridge count was obtained by counting the number of ridges between “a” and “b” triradius points [Figure 2]. Triradius is formed by confluence of three ridge systems. Digital triradii a, b, c, d. They are located at the base of each finger except the thumb. Other ridge counts b-c, c-d, a-d can be used but a-b ridge count is of value in dermatoglyphics.

- The atd angle: Angle formed by joining lines from digital triradii “a” and “d” to axial triradius “t”. The more distal the position of “t”, larger the atd angle.

Dermatoglyphic patterns revealed loop to be the predominant pattern in both males and females in psoriasis, vitiligo and alopecia areata [Table 1]. Mean a-b ridge count in males and females of psoriasis, vitiligo and alopecia areata did not show any statistical difference when compared to controls [Table 2]. Mean “atd” angle in patients of psoriasis and alopecia areata did not show any difference when compared

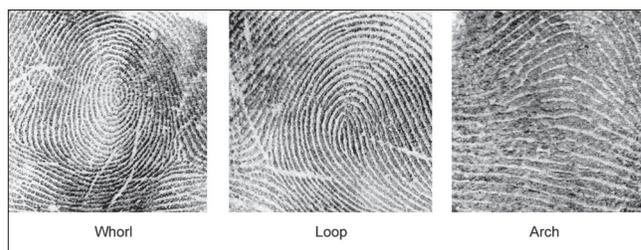


Figure 1: Pictorial depiction of finger prints

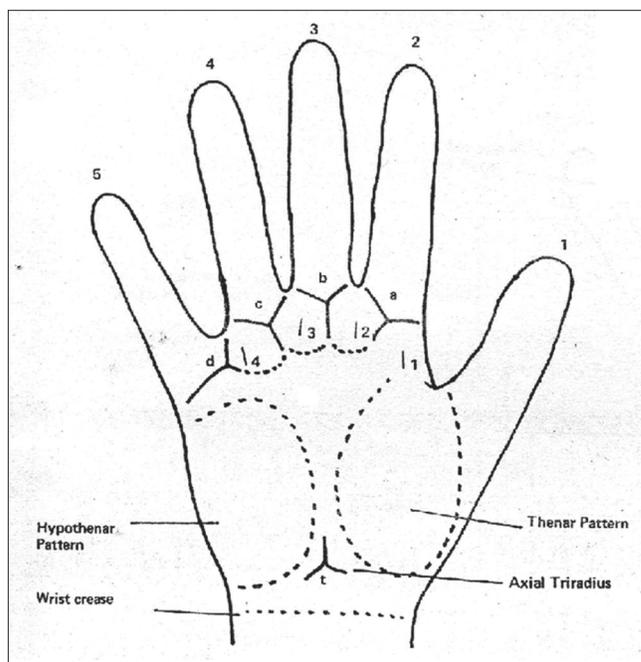


Figure 2: Dermatoglyphic areas of the hand

Table 1: Pattern analysis of cases and controls

	Loop (%)		Whorl (%)		Arch (%)	
	Male	Female	Male	Female	Male	Female
Psoriasis	45.14	12.89	32.57	6.29	2.29	1.14
Vitiligo	42.57	17.14	26.86	10.29	2.00	1.14
Alopecia areata	38.29	18.29	28.29	8.29	4.57	2.00
Controls	24.40	26.80	20.40	24.80	3.20	0.40

Table 2: Mean a-b ridge count in cases and controls

	Male	Female
Psoriasis	40.30	39.35
Vitiligo	41.35	40.50
Alopecia areata	42.02	44.00
Controls	41.33	40.00

Table 3: Mean 'atd' angle in cases and controls (in degrees)

	Male	Female
Psoriasis	39.20	39.14
Vitiligo	39.00	37.97
Alopecia areata	41.18	43.00
Controls	38.95	42.20

with controls [Table 3]. However, mean "atd" angle in females of vitiligo (37.7°) showed a statistically significant decrease (p value < 0.05) when compared with control females (42.2°)

In psoriasis, there was a statistically significant increase (p value < 0.05) in the percentage of loops in males (45.14%) as compared to control males (24.40%), which was in accordance with the study done by Sharma *et al.* (which showed an increase in loop pattern in both sexes).^[3] Among the quantitative parameters no significant change was seen in the mean a-b ridge count and atd angle.

In vitiligo there was an increased incidence of ulnar loops on the 5th digit as compared to controls, which is in agreement with the study done by Sahasrabudhe *et al.*^[6] In our study, no significant difference was found in the mean a-b ridge count between cases and controls. However, a statistically significant decrease was noted in the mean atd angle in females of vitiligo (37.97) when compared with control females (42.20).

In alopecia areata, increase in incidence of loop was seen in both sexes which are in agreement with the study done by Sharma *et al.*^[3] Our study showed no statistically significant difference in the mean a-b ridge count and "atd" angle between cases and controls.

Dermatoglyphic studies have been conducted on various dermatoses such as Darier's disease, ichthyosis, atopic dermatitis, anhidrotic ectodermal dysplasia and eczemas. In a study conducted on dermatoglyphics in malignant acanthosis nigricans^[7] and in patients with psoriasis, eczema and alopecia areata^[8] it was concluded that various patterns of skin ridges showed significant differences from the control population.

It can thus be concluded that dermatoglyphics is perhaps the most advantageous field for biological and medical investigations. Dermatoglyphics in dermatoses will help in genetic counseling in relation to the disease.

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