

Ridge Dissociation, a new dermatoglyphic parameter in Schizophrenia

Ramesh Vaidya

Professor, Department of Anatomy, Bharati Vidyapeeth Deemed university Medical College and Hospital, Wanlesswadi, Sangli -416414 Maharashtra, INDIA.

Email: vaidyas11@gmail.com

Abstract

“Palmar dermatoglyphics of 111 male and 39 female Schizophrenic from South-west Maharashtra, (India), showed a very high incidence of Ridge-Dissociation, particularly on left index finger. This fact can serve as simple and additional parameter to determine proclivity for Schizophrenia.”

Keywords: Dermatoglyphics, Schizophrenia, Ridge dissociation, left index finger.

Address for Correspondence

Dr. Ramesh Vaidya, Professor, Anatomy Department, Bharati Vidyapeeth Deemed university Medical College and Hospital, Wanlesswadi, Sangli -416414 Maharashtra, INDIA.

Email: vaidyas11@gmail.com

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INTRODUCTION

Dermatoglyphics is the study of epidermal ridges and flexion creases over palms and soles including digits and toes. That it has got strong genetic basis, is a widely accepted fact; although there are differences in the exact mode of transmission. Schizophrenia is severe type of psychiatric disorder with a high frequency of 1% in general population¹ (Verghese and Abraham, 2006) Genetic basis of Schizophrenia has been proven by a) Family Studies, b) Studies in twins, c) Adoption studies. Since both dermatoglyphics and Schizophrenia have got strong genetic basis, it is obvious that particular dermatoglyphics features will characterize Schizophrenia. Dermatoglyphics in Schizophrenia were studied for the first time by² Poll H. in 1935, in general population. Since then numerous workers have studied dermatoglyphics in Schizophrenia. Several qualitative and quantitative parameters have been analyzed, by workers all over the

world in different populations. Since dermatoglyphics studies in Schizophrenia, in South Western Maharashtra (India) are scanty, the present study was undertaken.

MATERIAL AND METHODS

One hundred and fifty patients admitted in ‘Kripamayi Institute for Mental Health, Miraj, was selected for the present study. Patients were from the age groups 18 – 40 yrs. 111 males and 39 females were chosen. They were all from south western Maharashtra and had not suffered from any other major illness in the past. They were examined by Psychiatrist, Dr. Deb-sikdar and diagnosed as cases of Schizophrenia. The palmar dermatoglyphics of the patients were recorded by standard ink method. The prints obtained were immediately examined with hand lens and care was taken to include all the essential details. As control, palmar dermatoglyphics of 111 normal healthy males and 39 normal healthy females from the same age group were recorded.

Following parameters (Traits) were analyzed

A. Qualitative traits :

- Finger ridge pattern – Arch, Loop, or Whorl.
- Ridge hypoplasia.
- Ridge Dissociation.
- Simian crease.
- Sydney line.

B. Quantitative traits :

- Total finger ridge count

b. "atd" Angle.

The dermatoglyphic traits mentioned above were recorded and analyzed

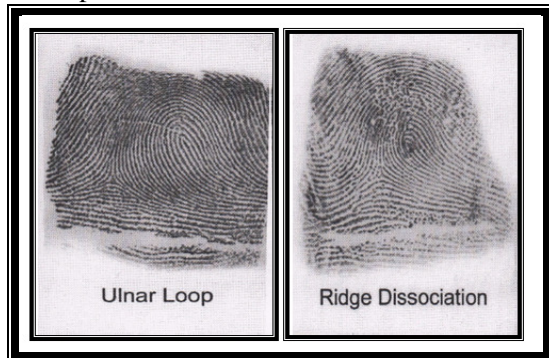
1. Separately for right and left hand.
2. Separately for males and females.

"t" and X² tests were applied to test statistical significance of the observations.

3. R1, R5, and L5
4. R4 and L4.
5. R2, L1, L3 showed no dissociation

OBSERVATION

Ridge dissociation emerged as a single fore-runner and significant parameter



Ridge Dissociation

1. 5 out of 111 normal males showed ridge dissociation (04.50%) while 52 out of 111 Schizophrenic males showed ridge dissociation (46.85%). This is highly significant. (t = 08.25, p < 0.001).
2. None of the 39 normal females showed ridge dissociation, where as 11 out of 39 Schizophrenic females showed ridge dissociation 28.21 % (t = 03.91, p < 0.001). This finding is also highly significant.

Table 1: Order of fingers showing dissociation

Normal Males (5 / 111)	R1, R2, L3 involved. R3, R4, L4, L5 did not show dissociation.
	The order of involvement is as follows :-
Schizophrenic Males (52 / 111)	<ol style="list-style-type: none"> 1. L2 all cases. 2. R1, R2, R5. 3. R2 and L1. 4. R3. 5. L3. 6. R4 and L4 7. L5
Normal Females (0 / 39)	Dissociation is absent.
Schizophrenic Females (11 / 39)	The order of involvement is as follows :-
	<ol style="list-style-type: none"> 1. L2 all cases. 2. R3

Left hand index finger is involved in all cases in ridge dissociation in male and female Schizophrenics. Ridge Dissociation was observed only on terminal phalanx and not on other areas of palm.

DISCUSSION

Ridge Dissociation (Distortion)

Ridge dissociation is a phenomenon in which ridges become broken into small fragments. The process may involve whole pattern or a part of pattern. Ridge dissociation is not common in the general population. It was observed in German Criminals for the first time by Abel³ (1936), He felt that it was inborn because of symmetrical distribution and not due to injuries. He found dissociation in albinism, oxycephaly, and malformations of extremities, spina bifida and deaf mutism. Schade⁴ (1937), found it in congenital malformations. Brown and Paskind⁵ (1940) found it in epileptics. Matsukura⁶ (1957), found it unspecified mental retardation. Dissociation has also been found in Trisomy – 13, 18, and 21. Verbov⁷ (1970), David⁸ (1973), found it in hypo-hidrotic ectodermal dysplasia. Rott⁹ (1971), found it in karatosis follicularis. Different types of ridge dissociation have been described such as 1. Severe, 2. Dotted ridge, 3. Total 4 Partial. In the present study 48.85 % Schizophrenic males showed Ridge dissociation compared to 4.5 % in normal males. None of the normal females showed dissociation, where as 28.21 % Schizophrenic females showed dissociation. These findings are highly significant and have not been reported by any worker in India. Raphael¹⁰ (1962), found that 18 % of Male Schizophrenic showed dissociation. Beckham and Noring¹¹ (1963), found that 19 % of Schizophrenic males and 10 % of Schizophrenic females showed ridge dissociation. S. Singh¹² (1967), observed dissociation in 9% of Schizophrenic females compared to 2 % in control females. Dissociation was found to be most frequent on thumb by Abel³ (1936), and on little finger by Furuya¹³ (1961), in mentally deficient Japanese. In the present study left hand index finger was involved in all cases of dissociation.

CONCLUSION

Although the diagnosis of Schizophrenia in a domain of psychiatrist, simple recording of pattern on terminal phalanx of left index finger and noting the presence or absence of ridge dissociation may serve as an additional parameter for determining proclivity for Schizophrenia.

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