

Palmar C-Line Polymorphism in Four Sub-Castes of Reddis of Andhra Pradesh

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ABSTRACT C-line polymorphism has been reported among four endogamous sub-castes of Reddis namely Desuri Reddis (DSR), Pedakanti Reddis (PKR), Motati Reddis (PKR), and Kodide Reddis (KDR) in Rayalaseema region of Andhra Pradesh. All four study groups show higher frequency of radial terminations on right hands (57.00% to 52.00%) and ulnar terminations on left hands (54.50% to 30.50%). The proximal types are more on left (31.50% to 11.50%) than right (19.50% to 6.00%) hands. The absence of C-line is more than twice in left than right hands. Comparison has been made with some caste populations of Andhra Pradesh. The comparative picture shows that backward and schedule caste populations come closer to Reddis. While, other tribal populations fall apart.

INTRODUCTION

Palmer C-line is the only main line which is truly polymorphic and demonstrates directional (qualitative and quantitative) variation in population studies (Rife 1968). Further, Rife (1969) also suggested that the C-line polymorphism as an invaluable marker to elucidate ethnic variation in terms of transversality and termination of main lines of the palm. Plato (1970) noticed that the C-line is the only main line of the palm in terms of direction as well as degree of transversality, and he proposed four fold classification for the termination of this main line. The four types are ulnar, radial, proximal and absent. Bansal and Battacharya (1972) studied the inheritance of C-line terminations, and several other studies have shown significant bilateral differences and greater variation in the occurrence of C-line terminations (Rajasekhara Reddy, 1984; Rao and Babu, 1991; Babu and Naidu, 1992; Santha Devi and Veerju, 1994; Kusuma et al., 1994 and others). An attempt is made in the present study to focus intra variation of C-line polymorphism in four endogamous subgroups of the larger caste namely Reddis of Andhra

Pradesh and to account inter variation by comparing with other neighbouring caste and tribal populations.

MATERIAL AND METHODS

The materials selected for the present study are Telugu speaking Reddis of Rayalaseema region of Andhra Pradesh. There are as many as 88 sub-castes (Surendranadha Reddy, 1993) within the larger population. For present study four endogamous sub-castes, namely, Dasuri Reddis (DSR), Pedakanti Reddis (PKR), Motati Reddis (MTR) and Kodide Reddis (KDR) from Chittoor, Cuddapah and Ananthapur districts of Andhra Pradesh are considered. Though the Reddis are traditionally agriculturists but they are also engaged in various other activities like trade, politics, government jobs and others.

The data for the present study were drawn from thirty randomly selected villages from the above three districts. Inked bilateral palmar impressions were collected from 800 unrelated male individuals, 200 from each of the four sub-castes in the age range of 15-60 years. The palm prints were obtained and analysed after Cummins and Midlo (1961). The C-line terminations were classified according to Plato (1970).

RESULTS AND DISCUSSIONS

Table 1 shows the percentage frequency of C-line terminations in four sub-castes as well as pooled Reddis. The data show high frequency of radial and ulnar types and low frequency of proximal and absent types. The common features among all the study groups is the finding of higher frequency of radial types on right palm (57.00% to 52.50%) and ulnar types (54.50% to 30.50%) on left palm. In both hands the combined figures show an abundance of ulnar types

in MTR (41.50%) followed by KDR (43.75%) and radial types in DSR (43.50%) followed by PKR (42.50%). The proximal types are noted more on left palm than right among all groups. The total absence of C-line is observed more than twice in left hand than right in all the four sub-castes of the present series. However, the general trend in pooled Reddis for the C-line model types is $R > U > Px > O$. Higher R/U values are observed in all the four groups of Reddis. It is interesting to note that the right palm R/U ratios are above

two to three times more than those of left palm in all groups, a trend similar to that observed by Plato (1970). All the model types except radial types uniformly predominate on left hand than on right hand irrespective of sub-castes.

The bilateral differences among all populations are found to be highly significant chi-square values indicating the heterogeneous nature of polymorphic C-line model types in left and right palms (Table 1).

The comparative frequency distribution of

Table 1: Percentage frequency distribution of C-line polymorphism

Population	Hand	C-line terminations					χ^2 values Bilaterality (df=3)
		Ulnar (U)	Radial (R)	Proximal (Px)	Absent (A)	R/U Ratio	
MTR	R	36.50	52.50	19.50	1.50	1.44	30.47*
	L	46.50	27.00	22.50	4.00	0.58	
	T	41.50	39.75	16.00	2.75	0.97	
PKR	R	27.50	55.00	14.00	3.50	2.00	17.02*
	L	30.50	30.00	31.50	8.00	0.98	
	T	28.50	42.50	22.75	5.75	1.49	
KDR	R	33.00	57.00	6.00	4.00	1.72	23.03*
	L	54.50	24.00	11.50	10.00	0.44	
	T	43.75	40.50	8.75	7.00	0.92	
DSR	R	31.50	55.50	7.00	6.00	1.76	12.38**
	L	43.50	31.50	12.50	12.50	0.76	
	T	37.50	43.50	9.75	0.25	1.16	
ALL	R	31.12	55.00	9.12	3.75	1.71	
	L	43.75	28.12	19.50	8.62	0.64	
	T	37.93	41.56	14.31	6.18	1.09	

* Significant at 0.1% level of probability

** Significant at 1% level of probability

Table 2: Percentage frequency distribution of palmar C-line terminations in some Andhra populations (Males)

S.No.	Population	Sample size	Hand	C-Line terminations				Investigator(s)
				Ulnar (U)	Radial (R)	Proximal (Px)	Absent (O)	
1	Reddis	800	R	32.12	55.00	9.12	3.75	Present study
			L	43.75	28.12	19.50	6.62	
2	Padmasalis*	50	R	28.00	52.00	10.00	10.00	Santha Devi and Veerraju, 1994
			L	32.00	38.00	8.00	22.00	
3	Kotia**	110	R	49.09	40.90	4.55	5.45	Kusuma et al., 1994
			L	64.55	24.55	1.82	9.09	
4	Manne Dora***	97	R	41.22	51.55	4.12	3.09	Kusuma et al., 1994
			L	51.55	26.80	7.22	14.43	
5	Savara***	125	R	58.40	37.60	0.80	3.20	Rao and Babu, 1991
			L	72.00	23.30	0.00	4.80	
6	Koya Dora***	204	R	49.01	47.55	1.47	1.96	Rao and Babu, 1991
			L	51.96	40.69	2.94	4.41	
7	Washermen*	206	R	33.49	58.74	1.94	5.83	Subhashii, 1986
			L	42.23	45.57	2.43	7.77	
8	Madiga**	200	R	36.00	45.50	13.50	5.00	Rajasekhara Reddy, 1984
			L	45.00	33.50	16.00	5.50	

* Backward population

** Schedule population

*** Tribal population

C-line terminations of pooled Reddis with some Andhra populations (Table 2) shows that the Reddis of present study come closer to some backward (Padmasali and Washermen) and scheduled (Madiga) caste populations and fall apart to many tribal populations. It is interesting to note a common feature from the table that low frequencies of right ulnar and left radial terminations and high frequencies of left ulnar and right radial terminations in caste as well as tribal groups including Reddis. For proximal type right hands of Padmasali (9.12%) and left hands of Madiga (16.00%) come closer to Reddis, whereas, the other tribal groups show low values. For absent type, like Reddis all other populations also show higher in left than right hands.

REFERENCES

- Babu, B.V. and Naidu, J.M.: Palmar C-line diversity among some Andhra tribes. *Comp. Physiol. Ecol.*, 17: 88-91 (1992).
- Bansal, I.J.S. and Battacharya, D.K.: Inheritance of C-line termination types in palmar dermatoglyphics. *Z. Morph. Anthropol.*, 63: 358-390 (1972).
- Cummins, H. and Midlo, C.: *Finger Prints, Palms and Soles: An Introduction to Dermatoglyphics*, Dover, New York (1961).
- Kusuma, Y.S., Babu, B.V. and Naidu, J.M.: C-line polymorphism and its association with some dermatoglyphic traits. *J. Hum. Ecol.*, 5: 139-142 (1994).
- Plato, C.C.: Polymorphism of palmar dermatoglyphics with a new classification of the C-line terminations. *Am. J. Phys. Anthropol.*, 33: 413-420 (1970).
- Rao, V.L.N. and Babu, M.S.: C-line variation in three tribal populations of Andhra Pradesh, South India. *J. Hum. Ecol.*, 2: 101-102 (1991).
- Rife, D.C.: Finger and palmar dermatoglyphics in Seminde Indians of Florida. *Am. J. Phys. Anthropol.*, 28: 119-126 (1968).
- Rife, D.C.: Finger and Palmar dermatoglyphics in the Puerto Ricans. *Anthropologist, Special Volume*, 134-143 (1969).
- Rajasekhara Reddy, K.: *A Genetic Study of the Madigas: A Scheduled Caste Population of Andhra Pradesh, India*. Ph.D. Thesis, S.V. University, Tirupati (1984).
- Santha Devi, K. and Veerajulu, P.: C-line polymorphism of palms among Padmasalis of Andhra Pradesh. *J. Hum. Ecol.*, 5: 143-144 (1994).
- Subhashini, A.B.: *A Genetic Study Among the Washermen of Tirupati, Andhra Pradesh, India*. Ph. D. Thesis, S.V. University, Tirupati (1986).
- Surendranadha Reddy, K.: *Genetic Variation Among the Reddis of Andhra Pradesh*. Ph. D. Thesis, S.V. University, Tirupati (1993).