Study on Pattern of Lip Prints and its Relation to Sex and Blood Groups in Telangana Population

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Abstract

A cross sectional study on the pattern of lip prints was conducted among the population of Telangana region. A sample of 140 individuals comprising of 70 males and 70 females were taken from both medical and nursing students of the Mediciti Institute of Medical Sciences, Medchal, Telangana.

The present study showed type-1 (vertical groove running across the lip) is the most common pattern present in all the quadrants of the lip in both males and females. In the left upper quadrant, it is found to be 51.4%, followed by 37.1% in the left upper right quadrant, 49.3% in the lower left quadrant and 53.6% in the lower right quadrant. Type-2 pattern (vertical partial length groove) is the second common pattern, in the upper left quadrant, it is 37.1%, in the upper right 42.1%, in the lower-left 34.3% and lower right quadrant 27.9%. Type-3 (Branched groove) observed as the third common pattern in the study population, in the upper left quadrant it is 11.4%, upper right 18.6%, lower left 15.7%, lower right quadrant 17.9%. Type-5 (Reticular pattern) is noticed in the upper right quadrant in 1.4%, lower left 0.7%, lower right 0.7% and not found in the upper left quadrant. The type-6 pattern is found upper right quadrant in 0.7% of study population and Type-4 pattern (intersected groove) is not found in our study group.

Our study revealed that the pattern of lip prints for each individual in each quadrant is unique. According to our study, there is no sex difference with lip print patterns. Study also revealed that there is no relation between lip print patterns and the blood groups, a near significant relation observed with the chi-square test in one quadrant, but not considered as significant.

Lip print patterns are constant, do not change with time and the uniqueness of its nature in each individual, it can be used for personal identification in various medico-legal issues.

Keywords: *Lip prints, Personal identification, Crime investigation, Relation to sex, Relation to blood groups.*

Introduction

Lip prints havea great significance in medico-legal issues. Identification plays a major role in any criminal investigation. The external surface of lips has many elevations and depressions forming a characteristic pattern called lip prints, examination of which is known as cheiloscopy. The lip prints are unique and distinguishable for every individual like fingerprints.[1]

R. Fischer in 1902 was the first anthropologist to describe the furrows on the human lips.[2] In 1932, a French criminologist, Edmond Locard recommended the use of lip print for identification of a person.[3] The idea of using lip print for identification was first suggested by Le Moyne Snyder in the year 1950.[4] In 1972, Mc Donell reported that two identical twins seemed to be

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indistinguishable by every other means, but their lip prints were different[1] like fingerprints.

The lip prints, being uniform throughout life and it is the characteristic to aperson, it can be used to verify the presence or absence of a person from the crime, provided there has been consumption of beverages, drinks, usage of cloth, tissues or napkin etc., at the crime scene. However, studying in-depth and establishing further facts and truth in lip prints will certainly help as useful evidence[5] in crime investigation.

The present study aimed, to study the lip prints of different individuals in both upper and lower lip and find out the various patterns in the study population, to identify the most common pattern of Lip prints in the region of Telangana, to observe any gender differences and to find out any relation with the blood group. Several studies were conducted worldwide and in many parts of the country, but very few studies are available in the region of Telangana.

To classify lip prints we chose the classification scheme proposed by Suzuki and Tsuchihashi in 1970[6,] which is as follows: Type- 1: A clear-cut groove running vertically across the lip.

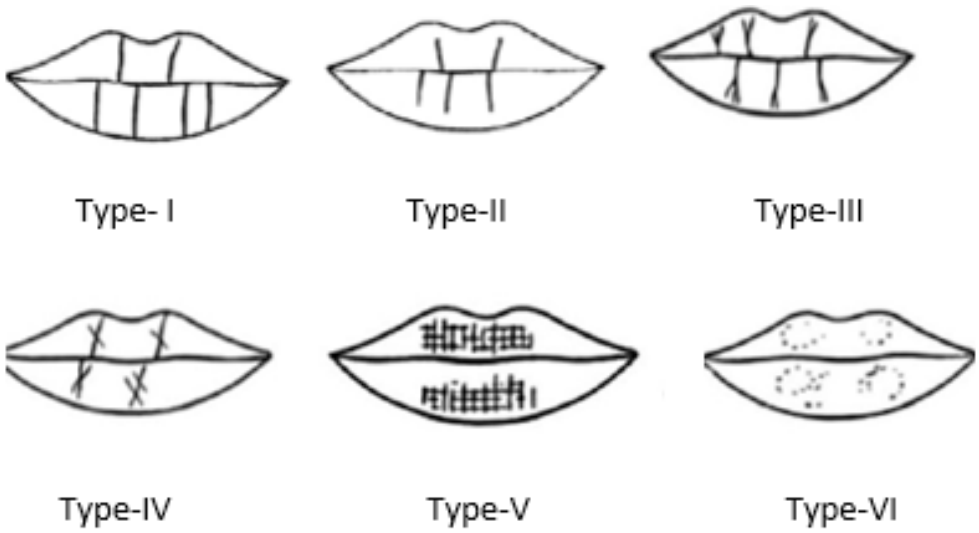
Type-2: Vertical Partial-length groove.

Type-3: A branched groove.

Type-4: An intersected groove.

Type-5: A reticular pattern.

Type-6: Other patterns.



Materials and Method

A cross sectional study on pattern of lip prints was conducted in Telangana region in the year 2019. A sample of 140 individuals comprising of 70 males and 70 females, both medical and nursing students of Mediciti institute of Medical sciences, Medchal of Telangana area were taken in the study. All healthy individuals in the age group of 18 to 25 years with known blood groups were selected for this study. Individual Lips free from any pathology and having absolutely normal transition zone between the mucosa and skin were considered in this study. Individuals with any disease, cuts, injuries and deformities on lips were excluded. Informed consent was taken from all the individuals before commencement of the study.

The materials used in this study were Brown colored lipstick (Revlon), Cellophane tape, White chart paper and Magnifying lens.

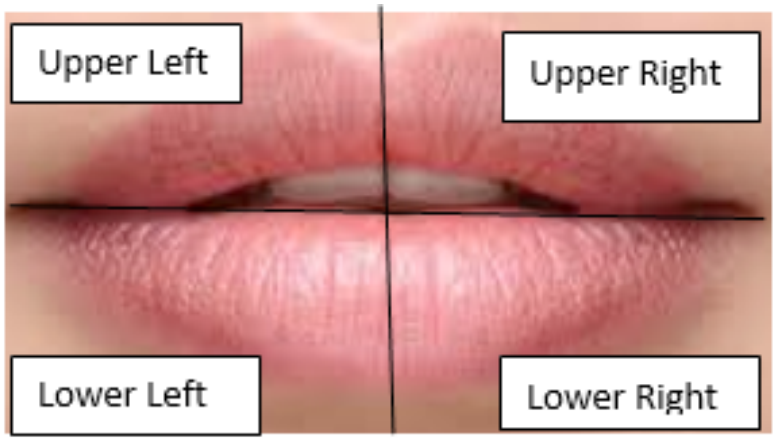
Method adopted for collection of lip prints as follows: Both upper and lower lips of the individual were cleaned and a brown colored lipstick was applied on the lips uniformly. Over the lipstick, a white paper was used for impression of the lip prints. Subject was asked to make a lip impression in a normal resting position of the lips by dabbing it in the center first and then pressing

it uniformly towards the corners of the lips. The Glued portion of cellophane strip was pasted on the imprinted white paper for better preservation. The lip print patterns were examined by magnifying lens.

Lip prints of both upper and lower lips were divided into four quadrants, each quadrant was examined carefully and the pattern was identified according to the Suzuki classification. Lip print patterns were also compared with sex and Blood groups.

All the data was analyzed statistically using a SPSS software current version 21.0 for determining the pattern of prints in each quadrant of the lip.

Figure 1: Lip print pattern divided into four quadrants.



Results

A cross sectional analytical Study on Lip print pattern was conducted in the Telangana region among the population of the age group between 18-25 years. A total number of subjects are 140 in which males are 70 and females are 70. The following results were observed in our study showing that no two lip print pattern matched with each other, thus establishing the uniqueness of lip prints.

Table-1: Blood group wise distribution of sample in both Males and Females.

Blood Group	Females		Males		Total	
	Number	Percentage	Number	Percentage	Number	Percentage
A+ve	12	17.1	10	14.3	22	15.7
A-ve	4	5.7	2	2.9	6	4.3
B+ve	20	28.6	20	28.6	40	28.6
B-ve	0	0	1	1.4	1	0.7
AB+ve	4	5.7	8	11.4	12	8.6
AB-ve	0	0	1	1.4	1	0.7
O+ve	29	41.4	28	40	57	40.7
O-ve	1	1.4	0	0	1	0.7
Total	**70**		**70**		**140**	

Table-2: Lip print pattern in Upper Left quadrant Lip both Females and Males.

Lip Prints Pattern	Females		Males		Total	
	Number	Percentage	Number	Percentage	Number	Percentage
Type-1	32	45.7	40	57.1	72	51.4
Type-2	29	41.4	23	32.9	52	37.1
Type-3	9	12.9	7	10	16	11.4

Table-3: Lip print pattern in Upper Right quadrant Lip both Females and Males.

Lip Print Pattern	Females		Males		Total	
	Number	Percentage	Number	Percentage	Number	Percentage
Type-1	26	37.1	26	37.1	52	37.1
Type-2	32	45.7	27	38.6	59	42.1
Type-3	11	15.7	15	21.4	26	18.6
Type-5	1	1.4	1	1.4	2	1.4
Type-6	0	0	1	1.4	1	0.7

Table-4: Lip print pattern in Lower Left quadrant of Lip both Females and Males.

Lip Print Pattern	Females		Males		Total	
	Number	Percentage	Number	Percentage	Number	Percentage
Type-1	35	50	34	48.6	69	49.3
Type-2	27	38.6	21	30	48	34.3
Type-3	8	11.4	14	20	22	15.7
Type-5	0	0	1	1.4	1	0.7

Table-5: Lip print pattern in Lower Right quadrant Lip both Females and Males.

Lip Print Pattern	Females		Males		Total	
	Number	Percentage	Number	Percentage	Number	Percentage
Type-1	39	55.7	36	51.4	75	53.6
Type-2	21	30	18	25.7	39	27.9
Type-3	10	14.3	15	21.4	25	17.9
Type-5	0	0	1	1.4	1	0.7

Table-6: Chi square test for lip print pattern in relation to the Blood groups.

Lip Quadrant	Females			Males		
	Value	DF	P Value	Value	DF	P Value
UL	17.975	10	0.055	20.182	12	0.064
UR	7.381	15	0.946	17.819	24	0.812
LL	8.050	10	0.624	13.964	18	0.731
LR	4.621	10	0.915	12.515	18	0.820

(UL- Upper left, UR – Upper right, LL- Lower left, LR – Lower right)

A Chi square test was done and it revealed a p value of more than 0.05 that was considered as insignificant. In our study there was no significant difference in the lip print patterns in both males and females and no significant correlation was observed between blood groups and lip print pattern.

Discussion

Lip prints are essential for identification of an individual and is an important tool in crime investigation similar to fingerprints and DNA analysis. Lip print impressions were obtained from both the sex with known blood groups of Telangana region and were classified by Suzuki's classification. The lip print patterns of all the four quadrants of both upper and lower lip in relation to the sex and blood group were analyzed.

In our study it revealed that in upper left quadrant three types of patterns (Type-1, Type-2 and Type-3) were observed, among those patterns Type-1 is the most common variety in both males and females, 45.7% in Females and 57.1% in males and a total of 51.4% is observed. The second most common is Type-2 pattern observed in 41.4% of females and 32.9% of males and a total of 32.9%., followed by type-3 with, 12.9% in females and 10% in males and a total of 11.4%. The remaining lip print patterns, type 4,5,6 were not found in the upper left quadrant.

In upper right quadrant Type-2 is the predominant pattern, observed in 45.7% in females and 38.6% in males and a total of 42.1%. The next common is found to be Type-1 with 37.1% in females and 37.1% in males and a total of 37.1%, the third pattern is type-3 which is 15.7% in females and 21.4% in males and a total of 18.6%. Type-5 pattern observed in a total of 1.4% and Type-6 in 0.7%. The remaining Type-4 pattern not observed.

In the lower left quadrant, type-1 is the most common one, with 50% in female and 48.6% in male and a total of 49.3%. Type-2 is the second common pattern with 38.6% in females and 30% in males and a total of 34.3%,followed by Type-3 11.4% in female and 20% in male and a total of 15.7%.Type-5 is not found in females, whereas found in 1.4% males and a total of 0.7% is observed. The remaining patterns, Type 4 and 6 were not observed.

In the Lower Right quadrant, the commonest pattern is type-1, which is 55.7% in females, 51.4% in males and a total of 53.6%. Type-2 is observed in 30% in females and 25.7% in males and a total of 27.9%, followed by Type-3 14.3% in female and 21.4 % in male and a total of 17.9%.Type-5 is found only in males with 1.4% and a total of 0.7%. The remaining type-4 and type-6 were not found.

In all the quadrants of the lip, type-1 is the most predominant one, except in the Right Upper quadrant. The second most common is type-2 and followed by type-3. Type-5 lip print pattern observed in all the quadrants except upper left quadrant. Type-6 found in only one subject in the upper right quadrant of the Lip. Type 4 pattern was not found in our study population.

Lip print pattern in relation to the blood groups were analyzed. The most common blood group is O+ve, found in 40.7% of study population. The next common is B +ve which is 28.6% and third common one is A +ve with 15.7% as observed in our study. The blood groups in relation to the lip print patterns in all the four quadrants were analyzed with chi square test and a p value less than 0.05 is considered as significant. In our study, none of the quadrants showed a statistical correlation, except for the Upper Left Quadrant which showed a near significant value. (p value is 0.055 in females and 0.064 in males).

Several Studies conducted in India by Shaini Basheer *et al*[7] in Kerala, Hima B. Nalluri *et al*[8] in Telangana, Simarpreet Sandhu *et al*[9] in Punjab, Suraj Multani *et al*[10] in Chhattisgarh and Aman Kumar *et al*[11] of Bihar showed similar results that Type-1 pattern is the most common pattern.

In contrary to our results some of the studies conducted in Rajasthan[12], Gujarat[13], Maharastra[14] and Andhra Pradesh[15], revealed Branched pattern is the predominant lip pattern. In another study conducted by Devaraj et al at Karnataka[16] showed Reticular Pattern is the common type. Saraswathi T R *et al* of Tamil Nadu[1] shows Intersecting pattern is most predominant.

In relation to the blood group and lip print patterns, our study coincides with various other studies conducted by shaini basheer[7] of Kerala, Rahul patel[13] of Gujarat and pradhuman verma[12] of Rajasthan, revealed no significant correlation.

Conclusion

A Study on lip print pattern conducted in the

Telangana population revealed that the commonest pattern **is** Type-1, followed by type 2 and Type 3. Several studies conducted in India also revealed similar results.

Overall, in our study, we observed that in each quadrant there was a mixture of the pattern. These patterns are unique for each individual. No particular pattern was specific to any gender and No similar lip print pattern was observed in any two subjects. Every individual has a unique lip print, thereby confirming the uniqueness of the lip print.

We did not find any significant relation between the blood groups and lip print pattern in our study, probably due to the small sample size.

Conflict of Interest: Nil

Source of Fund: Self.

Ethical Clearance: Yes.

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