

Research Article

To Assess the Lip Print Pattern in the Patients of Psoriasis in Both Sexes & to Provide Baseline Data for the Same

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ABSTRACT

Aim: The aim of the present study was to assess lip print pattern in the patients of psoriasis in both sexes & to provide baseline data for the same.

Methods: The present study was conducted on 200 subjects divided into two groups viz group A & group B. Group A was control group, comprising 100 subjects (M:F::50:50), taken from amongst Medical students of Govt. Medical College Patiala. Group B served as study group, comprising 100 subjects of psoriasis with or without involvement of lips reporting to Department of Dermatology of Rajindra hospital, Patiala.

Results: The prominent lip print pattern observed was Type 2(34.5%) followed by Type 3(26.75%) followed by Type 1(24.5%). Type 1(34.5%) Lip Print Pattern was found to be predominant, followed by Type 2(25.25%) and then by Type 3(18.75%). The dominant Pattern of Lip Print observed was Type 1(25.69%) followed by Type 2(21.53%) and then by Type 4(11.46). The main Pattern of Lip Print Pattern observed was Type 3(29.92%) followed by Type 2(27.23%) and then by Type 1(22.32%). The most prominent Lip Print Pattern observed was Type 2(29.87%). The most predominant Lip Print Pattern observed was Type 1(24.76%).

Conclusion: The data obtained from the present study showed promising results and indicated the uniqueness of lip prints. The major differences in the lip print patterns are seen in RUM and LUM region of Upper Lip (medial region) and RLM region of Lower Lip, which could be baseline data for further research work on lip print pattern in Psoriasis.

Keywords: Lip Print Pattern, Psoriasis.

INTRODUCTION

Historically, human identification is the biggest challenge that a man has confronted. It is a ubiquitous process based on research based theory and mainly involves fingerprinting, the main objective is to identify and register individuals for civil and criminal identification purposes. Likewise, even print of lips are distinctive for an individual and behold the capability for identification purposes.¹ The difficulty which has been faced by mankind is determining the recognition of a person. Identity is a collection of physical characteristics, functional or psychic, normal or pathological that defines an individual. Identification is prerequisite for personal, social and legal reasons.² It is required for recognition of any unknown person who is a victim of homicide, suicide or even mass disaster etc and for living individuals who have been missing or culprits hiding their identity. Traditional methods of personal identification included anthropometry, sex determination, age determination, measurement of height,

postmortem reports, blood groups, dactyloscopy and DNA fingerprinting. These methods have been proved to be successful in many occasions.³

Lip print pattern appears genetically and is unchanged since birth. These remain stable over time. So these are useful in identification purposes.⁴ The development of lips starts as early as the fifth week in vitro. During the period of the fifth to sixth week, the components that will become the lower lip begin to form. By the ninth week, the development of the upper lip will be formation gets completed and remains unchanged for the remaining human's life, unless the person undergoes severe trauma or surgery.⁵ The studies done on the lip prints, is commonly applied in forensic odontology and it called as cheiloscopy.⁶ The term cheiloscopy was derived from Greek words, in which "cheilos" means lip and "scopy" means to examine. This involves examination of normal grooves and fissures in the form of folds and furrows exists in the transition area in between the labial

mucosa of internal and external skin of the lips.⁷ The folds and furrows that form on lip, contribute to divergent type of lip patterns, which differs from each individual.⁸

The foundation of cheiloscopy and dactyloscopy is the same which means, lip prints are permanent and allow establishing a classification.⁹ The folds and fissures remain stable with ecological factors. However, any trauma or surgical procedure of the lips can cause alteration in its shape as well as pattern.¹⁰ Even patterns helps in sexual identification of males and females.¹¹

Psoriasis is a chronic systemic inflammatory disease of the skin consisting of well defined pink or dull red lesions surmounted by characteristic silvery scaling.¹² Lesions tend to become confluent and may persist indefinitely. The disease is unpredictable and capricious course but is common and an association with arthritis is not infrequent.¹³ The prominent type of psoriasis is psoriasis vulgaris. And the most common areas affected are extensor surface of elbows and knee, the sacral region, and the scalp, and the lesion may involve any part of the skin.¹⁴ Usually psoriasis doesn't affect the lips but if involvement occurs it causes diffuse erythema with fissures and desquamation over the lips, extending beyond vermilion border.^{12,13} Intra oral psoriasis with involvement of the lips remain a poorly recognised entity, specially in the absence of associated skin involvement.¹⁵

The aim of the present study was to assess the lip print pattern in the patients of psoriasis in both sexes & to provide baseline data for the same.

MATERIALS AND METHODS

The present study was conducted on 200 subjects divided into two groups viz group A & group B. Group A served as control group, comprising 100 subjects (M:F::50:50), taken from amongst Medical students of Govt. Medical College Patiala. Group B served as study group, comprising 100 subjects of psoriasis with or without involvement of lips reporting to Department of Dermatology of Rajindra Hospital Patiala. A written and informed consent for willful participation in the study was taken in the language easily understandable to the subject. The subjects were included /excluded as per following criteria.

INCLUSION CRITERIA

Subjects with full dentition

Subjects of psoriasis with or without lip involvement in study group.

Subjects with no lesion indicative of psoriasis in control group.

EXCLUSION CRITERIA

Subjects having malformations, deformity, trauma, surgical scars of lips.

Following materials were used in the study:-

- Transparent cellophane tape glued on one side (24mm)
- Bond paper of white color
- Digital camera
- Magnifying glass
- Adobe photoshop 7.0 software
- Dark lip color
- Wet wipes (tissue paper)
- Cotton buds

Method of Collection of Lip Print:-

- The subject was asked to sit on a low stool for taking lip print.
- He/She was advised not to change his/her position so that lip print could be taken accurately.
- Observer stood in front of the subject while taking lip print.
- Lips of the subject were cleaned with wet wipe.
- Subject was asked to keep lip muscle relaxed and jaw closed while the lip print were taken.
- Lip color was taken on one end of a cotton ear bud and applied gently starting on midline and moving laterally on upper lip.
- Same technique was applied on lower lip.
- The subject was asked to gently rub his/her lips for uniform application.
- A strip of cellophane tape 10 cm long was cut with scissors. The glued portion of cellophane tape was applied on upper and lower lips together.
- Cellophane tape was held in place. Gentle and uniform pressure was applied. Then the tape was lifted from lips from one end to another making sure there was no smudging of lip- prints.
- The strip of cellophane tape was glued to the attached performa and the photographs of the prints were taken.
- The photograph taken served as a permanent record and the identification number of the subject was written on the back of the cellophane tape which served as their identity.

- The lip prints were subsequently visualized with the use of a magnifying lens and lip print pattern were studied.
- The lip print patterns in different quadrants so obtained were transcribed into performa and the name, age, sex & related history of respective individuals was noted.
- The recorded data was further analyzed using adobe photoshop 7.0 software. The patterns noted were entered in the performa.

The lip prints were divided into different quadrants as follows:-

A horizontal line was drawn to distinguish the upper lip and the lower lip (y-y'), and a median line to divide into left and right sides (x-x'). These two lines were intersected at right angles thus dividing the lip prints into four quadrants (2 halves of each lip). Then the right and left halves of each lip print were again divided into two equal halves (medial and lateral) by two vertical lines (z1-z1',z2-z2') thus forming eight quadrants(4 quadrants of each lip print).These were named as:-

- Right upper lateral
- Right upper medial
- Left upper medial

Analysis

RESULTS

Table 1: Lip Print Patterns in All Quadrants among Control Males

Lip Print Pattern	RUL		RUM		LUM		LUL		RLL		RLM		LLL		LLM		TOTAL	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
1	22	44	2	4	5	10	19	38	8	16	15	30	19	38	8	16	98	24.5
1*	6	12	2	4	2	4	2	4	2	4	1	2	1	2	1	2	17	4.25
2	10	20	15	30	10	20	19	38	29	58	12	24	11	22	32	64	138	34.5
3	11	22	21	42	27	54	10	20	10	20	11	22	10	20	7	14	107	26.75
4	1	2	8	16	6	12	0	0	1	2	8	16	6	12	2	4	32	8
5	0	0	2	4	0	0	0	0	0	0	3	6	3	6	0	0	8	2

The prominent Pattern of Lip Print observed was Type 2(34.5%) followed by Type 3(26.75%) followed by Type 1(24.5%).

Table 2: Lip Print Patterns in All Quadrants among Control Females

Lip print pattern	RUL		RUM		LUM		LUL		RLL		RLM		LLL		LLM		TOTAL	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
1	15	30	19	38	15	30	19	38	9	18	20	40	25	50	16	32	138	34.5
1*	16	32	5	10	2	4	8	16	9	18	2	4	3	6	3	6	48	12
2	8	16	9	18	15	30	9	18	19	38	10	20	9	18	22	44	101	25.25
3	8	16	14	28	10	20	10	20	13	26	10	20	4	8	6	12	75	18.75
4	1	2	2	4	5	10	2	4	0	0	5	10	6	12	2	4	23	5.75
5	2	4	1	2	3	6	2	4	0	0	3	6	3	6	1	2	15	3.75

The data thus obtained was compiled, and classified as per Tsuchihashi (1974)¹⁶ classification [vide infra] and then analysed, compared controls and cases.

Tsuchihashi (1974) classification of pattern of lip prints:-

Types Description

1. Long vertical (clear cut vertical grooves that run across lips)

1*. Short vertical (partial length groove of type 1)

2. Branched grooves (branching y shaped pattern)

3. Intersected grooves (criss cross or X shaped pattern)

4. Reticular pattern (grooves that form rectangular shape)

5. Mixed or indefinite (grooves that do not fall into any category or combination of two or more pattern and/or cannot be differentiated morphologically or undetermined)

Ethical Justification

Only subjects who volunteered to join the study were taken and data was kept confidential. Study did not cause any financial burden on subjects and institute, therefore the study was ethically justified.

Type 1(34.5%) Lip Print Pattern was found to be predominant, followed by Type 2(25.25%) and then by Type 3(18.75%).

Table 3: Lip Print Patterns in all Quadrants among Case Males

Lip print pattern	RUL		RUM		LUM		LUL		RLL		RLM		LLL		LLM		TOTAL	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
1	22	30.6	14	19.4	14	19.4	20	27.8	16	22.2	22	30.6	26	36.1	14	19.4	148	25.69
1*	11	15.3	6	8.3	9	12.5	11	15.3	12	16.7	7	9.7	7	9.7	8	11.1	71	12.33
2	8	11.1	20	27.8	20	27.8	15	20.8	15	20.8	13	18.1	11	15.3	22	30.6	124	21.53
3	14	19.4	8	11.1	10	13.9	12	16.7	7	9.7	8	11.1	11	15.3	12	16.7	82	14.23
4	5	6.9	11	15.3	10	13.9	7	9.7	5	6.9	4	5.6	8	11.1	6	8.3	66	11.46
5	12	16.7	13	18.1	9	12.5	7	9.7	17	23.6	8	11.1	9	12.5	10	13.9	85	14.75

The dominant Pattern of Lip Print observed was Type 1(25.69%) followed by Type 2(21.53%) and then by Type 4(11.46%).

Table 4: Lip Print Patterns in all Quadrants among Case Females

Lip print pattern	RUL		RUM		LUM		LUL		RLL		RLM		LLL		LLM		TOTAL	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
1	10	35.7	5	17.9	6	21.4	6	21.4	5	17.9	6	21.4	8	28.6	4	14.3	50	22.32
1*	1	3.6	1	3.6	2	7.1	0	0.0	0	0.0	0	0.0	0	0.0	1	3.6	5	2.23
2	4	14.3	7	25.0	3	10.7	11	39.3	13	46.4	5	17.9	5	17.9	13	46.4	61	27.23
3	8	28.6	9	32.1	11	39.3	9	32.1	8	28.6	6	21.4	7	25.0	9	32.1	67	29.92
4	2	7.1	4	14.3	3	10.7	2	7.1	1	3.6	8	28.6	6	21.4	1	3.6	27	12.05
5	3	10.7	2	7.1	3	10.7	0	0.0	1	3.6	3	10.7	2	7.1	0	0.0	14	6.25

The main Pattern of Lip Print Pattern observed was Type 3(29.92%) followed by Type 2(27.23%) and then by Type 1(22.32%).

Table 5: Quadrant Wise Distribution of Lip Print in Total Control Group (Male+Female)

Lip print pattern	RUL		RUM		LUM		LUL		RLL		RLM		LLL		LLM		TOTAL	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
1	37	37	21	21	20	20	38	38	17	17	35	35	44	44	24	24	236	29.5
1*	22	22	7	7	4	4	10	10	11	11	3	3	4	4	4	4	65	8.12
2	18	18	24	24	25	25	28	28	48	48	22	22	20	20	54	54	239	29.87
3	19	19	35	35	37	37	20	20	23	23	21	21	14	14	13	13	182	22.75
4	2	2	10	10	11	11	2	2	1	1	13	13	12	12	4	4	55	6.88
5	2	2	3	3	3	3	2	2	0	0	6	6	6	6	1	1	23	2.88

The most prominent Lip Print Pattern observed was Type 2(29.87%).

Table 6: Quadrant Wise Distribution of Lip Print in Total Case Group (Male+Female)

Lip print pattern	RUL		RUM		LUM		LUL		RLL		RLM		LLL		LLM		TOTAL	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
1	32	32	19	19	20	20	26	26	21	21	28	28	34	34	18	18	198	24.76
1*	12	12	7	7	11	11	11	11	12	12	7	7	7	7	9	9	76	9.5
2	12	12	27	27	23	23	26	26	28	28	18	18	16	16	35	35	185	23.12
3	22	22	17	17	21	21	21	21	15	15	14	14	18	18	21	21	149	18.6
4	7	7	15	15	13	13	9	9	6	6	22	22	14	14	7	7	93	11.6
5	15	15	15	15	12	12	7	7	18	18	11	11	11	11	10	10	99	12.38

The most predominant Lip Print Pattern observed was Type 1(24.76%).

Table 7: Lip Print Pattern in Males and Females of Both Groups

Lip print pattern	Male						Female					
	Control		Cases		total		Control		Cases		total	
	n	%	n	%	n	%	n	%	n	%	n	%
Type 1	98	24.5	148	25.69	246	25.20	138	34.5	50	22.32	188	30.12
Type 1*	17	4.25	71	12.33	88	9.01	48	12	5	2.23	53	8.49
Type 2	138	34.5	124	21.53	262	26.84	101	25.25	61	27.23	162	25.96
Type 3	107	26.75	82	14.23	189	19.36	75	18.75	67	29.92	142	22.75
Type 4	32	8	66	11.46	98	10.04	23	5.75	27	12.05	50	8.01
Type 5	8	2	85	14.75	93	9.52	15	3.75	14	6.25	29	4.64
P value	<0.001						<0.001					
Significance	HS						HS					

Difference between males and females of both groups i.e control and cases was found to be statistically significant.

DISCUSSION

Psoriasis of the lips can be the only clinical presentation of psoriasis, preceding the appearance of typical psoriasis lesion or as in our case occurring after appearance of the skin lesions. There is no consensus regarding the authentic oral manifestations of psoriasis; however, a number of morphological patterns have been described.¹⁷ These include diffuse, intense mucosal erythema associated with acute psoriatic flares, well-defined, annular, white or grayish-yellow lesions, as well as mixed, ulcerative, pustular and indurated entities.^{18,19} Manifestations of psoriasis may involve the oral cavity in a variety of locations with the buccal mucosa most commonly affected. The palate and gingiva are unusual sites. Oral findings are frequently transient, migratory, and fluctuating daily in prominence parallel to exacerbation or remission of cutaneous lesions.²⁰

The comparison of Pattern of lip prints in RUL region, the dominant lip print pattern in males was Type 1 for both control and psoriatic

subjects, whereas Type 3 was the most common pattern in a study done by Augustine et al¹ and Type 1 was common in Sekhon J et al²¹ study. In females, the predominant lip print pattern was Type 1 in control group and Type 1 in psoriatic subjects, whereas Type 3 in a study conducted by Augustine et al.¹ Sekhon J et al²¹ found Type 2 as most predominant pattern in their study. The difference in the study was due to the difference in population, the population of Augustine et al study was from Maharashtra and population in our study was north Indian population. The predominant lip print pattern in males was Type 1 for both control and psoriatic subjects, whereas Type 3 was the most common pattern in a study done by Augustine et al¹ and Type 3 was common in Sekhon J et al²¹ study. In females, the predominant lip print pattern was Type 1 in control group and Type 1 in psoriatic subjects, whereas Type 3 in a study conducted by Augustine et al.¹ Sekhon J

et al²¹ found Type 3 as most predominant pattern in their study.

The predominant lip print pattern in males was Type 3 for control and Type 2 for psoriatic subjects, whereas Type 3 was the most common pattern in a study done by Augustine et al¹ and Type 2 was common in Sekhon J et al²¹ study. In females, the predominant lip print pattern was Type 1 and Type 2 in control group and Type 3 in psoriatic subjects, whereas Type 3 in a study conducted by Augustine et al.¹ Sekhon J et al²¹ found Type 3 as most predominant pattern in their study. The predominant lip print pattern in males was Type 1 and Type 2 for control and Type 1 psoriatic subjects, whereas Type 3 was the most common pattern in a study done by Augustine et al¹ and Type 2 was common in Sekhon J et al²¹ study. In females, the prominent Pattern of lip print was Type 1 in control group and Type 2 in psoriatic subjects, whereas Type 3 in a study conducted by Augustine et al.¹ Sekhon J et al²¹ found Type 2 as most prominent pattern in their study. The dominant lip print pattern in males was Type 2 for both control and psoriatic subjects, whereas Type 3 was the most common pattern in a study done by Augustine et al. and Type 2 was common in Sekhon J et al²¹ study. In females, the prominent lip print pattern was Type 2 in control group and Type 2 in psoriatic subjects, whereas Type 3 in a study conducted by Augustine et al.¹ Sekhon J et al²¹ found Type 2 as most dominant pattern in their study.

The dominant lip print pattern in males was Type 1 for both control and psoriatic subjects, whereas Type 4 was the most common pattern in a study done by Augustine et al¹ and Type 1 was common in Sekhon J et al²¹ et al study. In females, the prominent lip print pattern was Type 1 for both control and in psoriatic subjects, whereas Type 4 was found predominant in a study conducted by Augustine et al.¹ Sekhon J et al²¹ found Type 1 as most prominent pattern in their study. The dominant lip print pattern in males was Type 1 for both control and psoriatic subjects, whereas Type 4 was the most common pattern in a study done by Augustine et al. and Type 1 was common in Sekhon J et al²¹ study. In females, the proominant lip print pattern was Type 1 in control group and Type 4 in psoriatic subjects, whereas Type 4 in a study conducted by Augustine et al. Sekhon J et al²¹ found Type 1 as most prominent pattern in their study. The main lip print

pattern in males was Type 2 for control and type 5 for psoriatic subjects, whereas Type 3 was the most common pattern in a study done by Augustine et al. and Type 2 was common in Sekhon J et al²¹ study. In females, the predominant lip print pattern was Type 2 in both control group and psoriatic subjects, whereas Type 3 in a study conducted by Augustine et al.¹ Sekhon J et al²¹ found Type 2 as most dominant pattern in their study.

CONCLUSION

The data obtained from the present study showed promising results and indicated the uniqueness of lip prints. The major differences in the lip print patterns are seen in RUM and LUM region of Upper Lip (medial region) and RLM region of Lower Lip, which can serve as baseline data for further research work related to lip print pattern in Psoriasis.

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