ORIGINAL ARTICLE

Gender Variation of Lip prints among the students of Avicenna Medical College, Lahore

MUHAMMAD HAMMAD[1], HAROON HABIB[2], YASIR ALI BHATTI[3], *SADIA ZIA[4], FOUZIA JAVED[5], MUDASER HUSSAIN ABBASI[6], RANA MUHAMMAD AKHTAR[7], HASSAAN BARKAT[8], SALAHUDDIN[9]*

ABSTRACT

Aim: To determine association of lip prints pattern among the male female MBBS 3rd year students.
Study design: Cross sectional study
Place and duration of study: The present study was conducted in the Avicenna Medical College Lahore in the department of Forensic medicine and Toxicology from to April 2012.
Methods: Lip prints were collected from the subjects after obtaining their informed consent in the month of February-April 2012. A total of 100 MBBS, 3rd year students of the Avicenna Medical College Lahore participated in the study. Lip prints were recorded on a white paper and each lip print was assigned by their serial numbers and roll no. of student. Patterns of lip prints were classified according to Suzuki and Tsuchihashi classification.
Results: The most common pattern among the students was Type-I or long vertical grooves (60%), and 2nd most common pattern was Type-II or Branching grooves(20%), 3rd common pattern was Type –II short vertical grooves (8%) was found. The least common lip print patterns Type-III and type-IV were found and very least pattern of lip print was other type grooves or type-V.
Conclusion: Lip print pattern is unique for each of the examined individual. This finding is hoped to be useful in the identification process, both in civil and criminal cases. The most common pattern of lip prints was long Vertical groove or Type-I , and the second common pattern was the Type-II Branching grooves. Second least common pattern which were found to the type-III and type-IV and Very least pattern of lip print were found to be other type grooves or type-V. There is no any significant association of lip prints between males and females was found.
.**Keywords:** Cheiloscopic variation, lip prints, tsuchihashi classification

INTRODUCTION

The concept of identity is a set of physical characteristics, functional or psychic, normal or pathological that defines an individual[1]. In forensic identification, lip print patterns can lead us to important information and help in person's identification[2]. Cheiloscopy is a forensic investigation technique that deals with identification of humans based on Lip traces[3]. Labial mucosa a part of oral mucosa is not smooth like buccal mucosa or soft palate. It has many elevations and depressions forming a characteristic pattern called "Lip Prints". The examination of these Lip Prints is called "Cheiloscopy"[4]. Where identification is concerned, the mucosal area of the lip holds the most interest. This area, also called Klein's zone, is covered with wrinkles and grooves that forms a characteristic pattern-the lip print[5]. The importance of Cheiloscopy is linked to the fact that lip prints are unique to one person, except in monozygotic twins[5,6,7]. Like fingerprints and palatal rugae, lip grooves are permanent and unchangeable. It is possible to identify lip patterns as early as the sixth week of intra uterine life[6]. From that moment on, lip groove patterns rarely change, resisting many afflictions, such as herpetic lesions. Lip Prints are considered to be the most important forms of transfer evidence and are analogues to finger prints[4]. The presence of lipstick stains on a suspect's clothing can be considered, as an indirect evidence of a relationship between the suspect and the cosmetic using victim. Lip Prints can be used to verify the presence or absence of a person from the crime, provided there has been consumption of beverage, drinks, usage of cloth, tissue/ napkin etc, at the crime scene. Smears can also be found in other places such as cups, spoons or cigarette butts[8]. The middle 10 mm wide part of the lower lip is almost always visible in traces. The determination of the pattern depends on the numerical superiority of properties of the lines on the fragment[8]. Lip prints have to obtained within 24 hours

[1] *Assistant Prof. Forensic Medicine & Toxicology, Al Nafees Medical College, Islamabad,*
[2,3]*Lecturer in Biochemistry,* [4]*Lecturer in Pathology,* [5]*Lecturer in Biochemistry,* [6]*Assistant Prof. Forensic Medicine& Toxicology* [7]*Prof. Community Medicine,* [9]*Lecturer in Forensic Medicine & Toxicology, Avicenna Medical College, Lahore.*
Correspondence to Dr. Haroon Habib Email: dr.haroonhabib@gmail.com

of time of death to prevent erroneous data that would result from postmortem alteration of lip[13]. Lip patterns are classified in to five types of according to Suzuki and Tsuchihashi (1970)[7,10,11,12]. It is also known as Tsuchihashis classification. He classified the lip prints into six types according to the shape and course of the grooves. These were:

Type I: clear-cut grooves running vertically across the lip.
Type I: the grooves are straight but disappear halfway.
Type II: the grooves fork in their course.
Type III: the grooves intersect.
Type IV: the grooves are reticular
Type V: the grooves do not fall into any of the types I to IV.

Lip print pattern mainly depend on whether mouth is opened or closed. In closed mouth position lip prints shows the well defined ridges, where as in open mouth the ridges are relatively ill defined and difficult to interpret[14].

METHODOLOGY

Lip prints were collected from the subjects after obtaining their informed consent in the month of February-April 2012. The present study was conducted in the department of Forensic medicine and Toxicology to assess the common pattern of lip prints among the students. A total of 100 MBBS, 3rd year students of the Avicenna Medical College Lahore participated in the study. Lip prints were recorded on a white paper and each lip print was assigned by their serial numbers and roll no. of student. The Name and general information of the students like Age, Sex and Blood groups and Ethnicity were recorded on the proforma. Patterns of lip prints were classified according to Suzuki and Tsuchihashi classification. All the subjects were in the age range of 19-25 years consisting of 30 male and 70 female students. Ethical clearance was obtained from the institutional Ethical Committee. All those subjects willing to participate in the study, free from any active or passive lesions on their lips were included in the study. Those subject with gross deformities of lips like cleft lip, ulcers, traumatic injuries on lips, known allergy to the lip stick used were excluded.

RESULTS

This study was done using SPSS ver.20.The frequency of each lip print type was tabulated and the percentage of each type was calculated. The chi square ($\chi 2$) test was applied to see whether there was any association between the lip print types. "p" value is probability role at 0.05 level of significance for corresponding degree of freedom. $p<0.05$ is significant, $p>0.05$ is not significant

Lip print patterns

	Male	Female	Total
Type-I or Long vertical grooves	15	45	60
Type-II or Short vertical grooves	2	6	8
Type-II or Branching grooves	6	14	20
Type-III or diamond grooves	1	4	5
Type-IV or Reticular grooves	2	3	5
Type-V or other type grooves	1	1	2

Total of hundred MBBS 3rd year Students was analysed for lip prints out of which 27 students were males and 73 students were females. The most common pattern among the students was Type-I or long vertical grooves (60%), and 2nd most common pattern was Type-II or Branching grooves(20%), 3rd common pattern was Type –II short vertical grooves (8%) was found. The least common lip print patterns Type-III and type-IV were found and very least pattern of lip print was other type grooves or type-V. Chisquare test did not show any significant association of lip prints b/w males and females.

Chi-Square Tests

	Value	df	Asymp.Sig.(2-sided)
Pearson Chi-Square	1.319[a]	5	.933
Likelihood Ratio	1.233	5	.942
Linear-by-Linear Association	.680	1	.409
N of Valid Cases	100		

a. 7 cells (58.3%) have expected count less than 5. The minimum expected count is .54.

DISCUSSION

Human identification is one of the most challenging subjects that man has been confronted with. Identification of an individual is a pre-requisite for certification of death and for personal, social and legal reasons. Lip prints can be instrumental in identifying a person positively.(15,18) The present study showed the lip print patterns are unique and no two samples are identically same. In our study the most common pattern among the students was Type-I or long vertical grooves (60%), and 2nd most common pattern was Type-II or Branching grooves(20%), 3rd common pattern was Type –II short vertical grooves (8%) was found. The least common lip print patterns Type-III and type-IV were found and very least pattern of lip print was other type grooves or type-V. It is consistent with the study conducted in Fatima memorial hospital who supports the same[19]. Another different studies conducted in India supported the same[20,21]. Limitations Such type of result may be due to sampling in particular students, equal number of gender may be taken. Many studies have characterized lip prints in order to ascertain their unique features and characteristics[17], with lip print types, forensic applications of the

technique[7] and method of acquiring lip impressions at the crime scene[17]. Identifiable lip prints can be obtained up to 30 days after being produced[13]. Lip stick smears are frequently encountered in forensic science laboratories as one important form of transfer evidence. The presence of Lipstick stains on a suspect's clothing can be considered indirect evidence of a relationship between the suspect and the cosmetic-using victim[16]. Until more scientific investigation regarding the reliability of lip prints has been done it is highly doubtful, that this technique will be admissible in the court of law for identification purposes. Cheiloscopy is still an inexact science and more studies need to be done to confirm its validity[16]. The lip print is produced by a substantially mobile portion of lip. This fact alone explains the reason why the same person can produce different lip prints, according to the pressure, direction and method used in taking the print. If Lip stick is used, the amount can also affect the print. Smudging of lip prints is one of the major limitations of using lip sticks as in the presents study. Manual register of the overlay is another problem, due to possibility of some subjectivity. Another factor to be considered is the existence of some pathological conditions (lymphangiomas, congenital lip fistula, lip scleroderma, Meckelson-Rosenthal syndrome, syphilis, lip cheilitis, among others), which can invalidate the cheiloscopic study. One must also consider the possibility of post mortem changes of lip prints from cadavers with various causes of death. It should also be pointed out that only in very limited circumstances, is there antemortem data referring to lip prints, which obviously impairs a comparative study where necro identification is concerned[16].

CONCLUSION

Lip print pattern is unique for each of the examined individual. This finding is hoped to be useful in the identification process, both in civil and criminal cases.

The most common pattern of lip prints was long Vertical groove or Type-I , and the second common pattern was the Type-II Branching grooves. Second least common pattern which were found to the type-III and type-IV and Very least pattern of lip print were found to be other type grooves or type-V. There is no any significant association of lip prints between males and females was found.

RECOMMENDATIONS

Similar studies are suggested on a larger sample at a National level so as to increase the accuracy of prediction

It is suggested to establish a data base for all individuals in a certain locality so as to be a reference in the criminal investigations

Further studies concerning the standardization of the pressure applied to the lip during recording the prints is recommended to allow fast and accurate assessment of lip-print patterns.

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