Cheiloscopic Variation among the Students of Avicenna Medical College Lahore

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ABSTRACT

Objective: Objective of study was to evaluate common pattern of lip prints among the MBBS 3rd year students.

Study design: Observational Descriptive 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 February 2012 to April 2012.

Materials and 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. 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.

Results: The most common pattern of lip prints was long Vertical groove or Type-I, sixty students (60%); Second common pattern was the Type-II Branching grooves, twenty (20%); Type-II of short vertical grooves were only eight (8%); Second least common pattern which were found to the type-III and type-IV each group was consisting of five students (5%). Very least pattern of lip print was found to be Other type grooves or type-V; only two (2%) students were found to be belonging to this group.

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.

Key words: Cheiloscopic Variation, lip prints, Tsuchihashi classification

INTRODUCTION

With the advancing age Forensic science and law enforcement agencies demanding the latest technologies which helps to find out the curtilage which are found on a crime scene and helps to nexus the criminal with the crime. Establishing a person’s identity is very difficult cognitive process in which the study of teeth, fingerprinting and DNA techniques are used and giving a fast and get one’s hand in the process of identification¹.

There are many new famous techniques and methods has been introduced for the human identification, in which the most interesting technique for the human identification which evolve from the outlaw and forensic practice, is the recognition of human lip patterns². Cheiloscopy is a forensic investigation technique that deals with identification of humans based on Lip traces³. 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 “Cheiloscopy⁴”. 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 print⁵. The importance of Cheiloscopy is linked to the fact that lip prints are unique to one person, except in monozygotic twins⁶,⁷. 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 life⁶. 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 prints⁴. 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. 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. Lip prints have to obtained within 24 hours of time of death to prevent erroneous data that would result from postmortem alteration of lip prints. Lip patterns are classified in to five types of according to Suzuki and Tsuchihashi (1970). It is also known as Tsuchihashis classification. These types are most widely accepted classification in literature. Tsuchihashi studied the lip prints of 757 males and 607 females of Japanese origin. 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 II: the grooves are straight but disappear halfway.  
Type III: the grooves fork in their course.  
Type IV: the grooves intersect.  
Type V: the grooves are reticular.  
Type IV or other type 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). The Study was carried out to study the variation of pattern among the students and their relation with the blood groups.

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.

Inclusion criteria
- Subjects willing to participate in the study and providing informed consent.
- Subjects free from any active or passive lesions on their lips.
- Those participated in the study were students of MBBS 3rd year in Avicenna Medical College Lahore

Exclusion Criteria
- Gross deformities of lips like cleft lip, ulcers, traumatic injuries on lips.
- Known allergy to the lip stick used.
- Those participated in the study were not the students of MBBS 3rd year in Avicenna Medical College Lahore.

Materials used: Red color lip stick, white bond paper, unglazed Magnifying lens, Tissue paper

Procedure: The upper surface of the lipstick was wiped clean on tissue paper prior to each use for hygienic purposes. The subject was asked to open the mouth and lip stick was applied in a single motion evenly on the upper lip, then on the lower lip. The subject was asked to rub the upper and lower lips together in a horizontal direction, to spread the lipstick evenly on all parts of the lips. Print was acquired on the plain White paper with open and closed lips.

RESULTS

This study was observational descriptive study which was conducted on the students of Avicenna Medical College from Feb 2012 to April 2012 to explore and describe the trends of Lip prints. A total of one hundred students of 3rd year MBBS class were enrolled in the study.

<table>
<thead>
<tr>
<th>Pattern of Lip prints</th>
<th>No. of pattern</th>
<th>%age</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type-I or Long vertical grooves</td>
<td>60</td>
<td>60</td>
</tr>
<tr>
<td>Type-II or Short vertical grooves</td>
<td>08</td>
<td>08</td>
</tr>
<tr>
<td>Type-II or Branching grooves</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>Type-III or diamond grooves</td>
<td>05</td>
<td>05</td>
</tr>
<tr>
<td>Type-IV or Reticular grooves</td>
<td>05</td>
<td>05</td>
</tr>
<tr>
<td>Type-V or other type grooves</td>
<td>02</td>
<td>02</td>
</tr>
</tbody>
</table>

This study showed that the most common pattern of lip prints was long Vertical groove or Type-I. Sixty students (60%) of the students were having this type I pattern of lip prints. Second common pattern was the Type-II Branching grooves, twenty (20%) students belonged to this type of pattern. Following these two most common lip print pattern Type-II of short vertical grooves were only eight (8%). Second
least common pattern which were found to the type-III and type-IV each group was consisting of five students (5%). Very least pattern of lip print was found to be other type grooves or type-V, only two (2%) students were found to be belonging to this group.

**DISCUSSION**

Human identification has always been of paramount importance to society. Worthy of note as providing an additional tool for personal identification is the series of studies on the morphology of the lips and the pattern produced when they are impressed on to a variety of surfaces. The present study is the first of its kind being conducted in Pakistan describing the lip print pattern among the students of MBBS 3rd year. The present study showed the lip print patterns are unique and no two samples are identically same. This study showed the most common pattern of lip prints was long Vertical groove or Type-I (60%) and the second common pattern was the Type-II Branching grooves, (20%) and Type-II of short vertical grooves were only (8%). The second least common pattern which was found to be the type-III and type-IV each group was consisting of five students (5%). Very least pattern of lip print was found to be of other type grooves or type-V. Only two students were of this type (2%). Research into lip print identification has been performed for the last 50 years, resulting in the importance of this technique being recognized and accepted in many countries. Many studies have characterized lip prints in order to ascertain their unique features and characteristics, with lip print types, forensic applications of the technique and method of acquiring lip impressions at the crime scene. Identifiable lip prints can be obtained up to 30 days after being produced. 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. 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 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.

**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 was found to be other type grooves or type-V.

**RECOMMENDATIONS**

1. Similar studies are suggested on a larger sample at a National level so as to increase the accuracy of prediction
2. 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
3. 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.

**REFERENCES**


