



Short Communication

Cheiloscopy- A Tool in Crime Investigation

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ABSTRACT

Introduction: Forensic science refers to the areas of endeavor that can be used in a judicial setting and accepted by the court and the general scientific community to separate truth from untruth. In forensic identification, the mouth allows for a myriad of possibilities.

Material and Methods: The study sample consists of 100 MBBS students of Adichunchanagiri Institute of Medical Science, B G Nagar, Mandya. A total of 50 females and 50 males (aged from 18 to 23 years), from different parts of India were included in the study.

Results: In the present study, among males it is recorded that the maximum number of individuals have Type I' lip prints, followed by Type I and the minimum number of individuals have Type V lip print. Among females it is recorded that the maximum number of individuals have Type II lip prints, followed by Type I' and the minimum number of individuals have Type IV lip print.

Conclusion: The present study has been aimed to study in depth of the lip prints of different individuals in different parts of the lips to establish further facts and truth and throw more lights on lip print with an object of providing further information about lip print to police, forensic surgeon and investigator in the field of forensics, to help in law and justice.

Key words: Cheiloscopy, forensic identification,

INTRODUCTION

Forensic science refers to the areas of endeavor that can be used in a judicial setting and accepted by the court and the general scientific community to separate truth from untruth. In forensic identification, the mouth allows for a myriad of possibilities.

Cheiloscopy (derived from the Greek word cheilos means lips) is the forensic investigation technique that deals with

identification of humans based on lip traces.¹ The biological phenomenon of systems of furrows on the red part of human lips was first noted by anthropologists.

Fisher was the first to describe it in 1902^[1-3] It is possible to identify lip patterns as early as the sixth week of intrauterine life. Thereafter, lip groove patterns rarely change, resisting many afflictions.^[4]

However until 1930, anthropology merely mentioned the existence of furrows

without suggesting a practical use for the phenomena. Edmond Locard^[5] was one of the France's greatest criminologists who first recommended the use of lip prints in personal identification and criminalization.

Suzuki and Tsuchihashi^[6] made some other important observations too. They examined 18 pairs of uni-ovular twins and found that there were considerable similarities in these twins. But one of the remarkable curiosities of nature is that even uni-ovular twins have different fingerprint patterns.

Vahanwala and Parekh^[7] have conducted a study of lip patterns of 50 male and 50 females' subjects in the age group of 19-21 years to promote the importance of cheiloscropy in forensic science identification. Hirth et al^[8] had conducted a study in 500 persons, including 76 families with 133 children, 22 mono and 17 dizygote twins.

Objectives:

1. To highlight the importance of lip prints related to forensic investigators for identification.
2. To study the most common lip prints in each individual.
3. To discover most common lip print patterns in Indian population.
4. To compare the lip prints pattern of male and female and to find out quadrant wise and sex wise predilection of the lip.

MATERIALS AND METHODS

Source of data: The study sample consists of 100 MBBS students of Adichunchanagiri Institute of Medical Science, B G Nagar, Mandya. A total of 50 females and 50 males (aged from 18 to 23 years), from different parts of India were included in the study. Informed consent taken from each of them.

Study Material:

1. Brown and red colored lipstick
2. White paper

3. Magnifying lens.

Method of collection of data: Red or brown, non-persistent, non-glossy, non-metallic lip stick was used to get clear lip prints. White papers and tissue papers were used to take the impressions of the lips.

A thin film of lipstick was applied onto cleaned and dried lips, left for 3 min, and then the impressions of the lips were taken on the specified papers.

The following methods were used for taking the impressions from every subject: Direct light pressure was applied by the lips on a folded paper. At least three prints were taken from each person to be sure that we had at least one complete print sufficient for examination and identification of various areas of the lip, and to avoid subjective different pressure applied to the lip.

Examination of the prints: The lip print was divided into six topographic areas (each lip was divided into three areas) and each area was studied alone to determine the type of the grooves: a transverse line was drawn between the two highest points of the philtrum angles, two perpendicular lines were drawn on that transverse line at the points of its meeting with the angles of the philtrum. The perpendicular lines were extended to cut the upper and lower lips.

Therefore, each lip print was divided into the following six areas:

- Upper right (UR),
- Upper middle (UM),
- Upper left (UL),
- Lower right (LR),
- Lower middle (LM)
- Lower left (LL)

In order to study the lip prints, classification scheme proposed by Suzuki and Tsuchihashi will be considered:

TYPE I: Clear cut vertical grooves that run across the entire lips.

TYPE I': Similar to type I but does not cover the entire lips.

TYPE II: Branched grooves (branching Y shaped pattern).

TYPE III: Criss-cross pattern.

TYPE IV: Reticular grooves.

TYPE V: Undetermined.

Study Design: Cross sectional study.

Inclusion criteria:

1. Lips having absolutely normal transition zone between the mucosa and the skin will be included in the study of lip prints.

Exclusion criteria:

1. Patients with any pathology of the lips will be excluded from the study.
2. Patients with known hypersensitivity to lipstick will be excluded from the study.

RESULTS

Table 1: Sexwise and Pattern wise distribution of Lipprints.

| Areas | Sex | Frequency of pattern | | | | | |
|-------------------|--------|----------------------|---------|---------|----------|---------|--------|
| | | TYPE I | TYPE I' | TYPE II | TYPE III | TYPE IV | TYPE V |
| Upper right (UR) | Male | 14 | 15 | 13 | 5 | 2 | 1 |
| | female | 12 | 13 | 15 | 7 | 1 | 2 |
| Upper middle (UM) | Male | 13 | 14 | 11 | 7 | 3 | 2 |
| | female | 10 | 14 | 16 | 6 | 1 | 3 |
| Upper left (UL) | Male | 13 | 16 | 12 | 6 | 3 | - |
| | female | 9 | 14 | 15 | 8 | - | 4 |
| Lower right (LR) | Male | 13 | 16 | 12 | 5 | 2 | 2 |
| | female | 11 | 12 | 17 | 4 | 2 | 4 |
| Lower middle (LM) | Male | 13 | 15 | 12 | 5 | 3 | 2 |
| | female | 12 | 13 | 15 | 7 | 1 | 2 |
| Lower left (LL) | Male | 12 | 16 | 12 | 6 | 2 | 2 |
| | female | 12 | 14 | 14 | 6 | 1 | 3 |

DISCUSSION

In the present study, among males it is recorded that the maximum number of individuals have Type I' lip prints, followed by Type I and the minimum number of individuals have Type V lip print.

Among females it is recorded that the maximum number of individuals have Type II lip prints, followed by Type I' and the minimum number of individuals have Type IV lip print.

It was also observed that no two persons had similar lip prints, either the same type or different types. It was further noticed that not even a single person had one

Ball had reported the history of lip prints and importance of its evidence in the courts and the status of lip prints as a source of Forensic evidence.^[3]

As to the permanence of the lip print the present study agrees with that of the

study carried out by Tsuchihashi and his statement "in a criminal search, where the unchanged pattern even for a 6 months period would be helpful" is justified.^[6]

According to a study by Vahanwala et al. type 1 and type 1' patterns were found to be dominant in females while type 3 and type 4 patterns were dominant in males. In another study by Vahanwala and Parekh, it was shown that all four quadrants with the same type of lip prints were predominantly seen in female subjects and male subjects showed the presence of different patterns in a single individual.^[7]

CONCLUSION

The present study has been aimed to study in depth of the lip prints of different individuals in different parts of the lips to establish further facts and truth and throw more lights on lip print with an object of

providing further information about lip print to police, forensic surgeon and investigator in the field of forensics, to help in law and justice.

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