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Lip Print Examination: A Tool Used In Investigation

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Abstract:

Lip prints are the same as a fingerprint which is used for the purpose of personal identification such as their individual characters for every human (Male and Female). Lips have their own unique feature and these unique features can be analyzed by the Cheiloscopy examination, lip print can help the investigating officers in linking between subject and location where show the absent and present in the crime scene. The lip print basically fissures by the attached to the wrinkles and grooves by the labial mucosa were known as Sulci labiorum, in the scientific language, the study of the lip prints is called Cheiloscopy which is a Greek word which means skopein-see and chelios-lips it's more helping in the field of forensic science for identification or examination. The methods used in the development of lip print from the crime scene in which the use of lip print kit such as cellophane tape, thin paper, magnifying glass usually used 10x, brush, and lipstick. Lip print also helps in sex determination. The present study is moreover related to defining the authenticity of lip print on the basis of individual feature which was similar to that of fingerprints.

Key Words: *Cheiloscopy, Lip Print, Forensic Science*

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Introduction

The study of the lips print called Cheiloscopy was derived from the Greek word which means skopein-see and chelios-lips and came from the study of lip print. The lip prints are basic line which is fissures by the wrinkles and where present of grooves in the field of the transition of the human lips. Between the outer or inner labial mucosa skin, lip prints are the same as compared with a fingerprint which deciphers the personal identification of every individual, and hence the study is used in forensic science for the purpose of identification by unique and individuality principle. It can be identified for the method of sex determination with the help of the lip print, where the investigation of lip print will be helpful in determining the link between suspect with the evidence covering various things like location such as cloths and body (neck, cheeks, and face). During the investigation, the lip print can be easily found in things such as Water glass, cup, etc. In forensic science, the study of lip print is as used and defined as trace evidence **(Bharathi.S 2015).**

Historical Overview – In **1902 Fischer** was the first man who describes the red part of the human lips. After a renowned criminologist Edmond Locard who given the method that the lip print used for personal identification.

In **1970** a Japanese investigator **Suzuki** and **Tsuchihashi have** given the measurement of the lip print and classification of the lip print such as vertical line, horizontal line, reticular pattern, intersected groove **(Nalliapan 2016).**

Tools/Equipment used for lip print analysis **(Figure 1)**

1. A thin paper (Bond paper 7.6 cm×6.5cm)
2. Cotton swab
3. Seizer
4. Brush
5. Mirror
6. Magnifying lens (10X)
7. A transparent and cleaned cellophane tape and Pencil/pen for marking**.**

Technique

Before taking a lip print from the subject, first of all, take a cotton swab and start cleaning the lips by swabbing upper and lower part of the lips then applied lips stick on the lips **(Figure 2)** with the help of the brush to the lower part of the lip then guide the subject to rub both the lips for uniformity in the entire lip **(Figure 3)**, later wait for 2-3 minutes and then use the cellophane tape for transferring the impression on it and stick on the lips. Now place the tape carefully after lifted from the lips **(Figure 4)**. Later, paste the cello tape having an impression on a thin bond paper **(Figure 5)** and followed the procedure by marking it as upper right, upper left, and lower right, lower left respectively. It is also required to mark the angle or position of the lip print in the thin bond paper, take a record of the lip print for the purpose of further analysis, and the future examination of the lip print **(Sharma 2009).**

Figure No. 1: Lip Print Kit

Figure No. 2: Apply Lipstick

Figure No. 3: Roll Lips to Spread Lipstick

Figure No. 4: Apply Cellophane Tape over the Lips

Figure No. 5: Place the Cellophane Tape on Paper

Examination of Lip Print

Examination of the lip print basically classified by the Japanese investigator Tsuchihashi and Suzuki. Prints are divided into two parts called quadrants by the mid-lines, every quadrants further divided into two parts by measuring both in equal parameters. These segments are named according to their sides i.e. Lower Right Lateral, Lower Right Medial, Lower Left Medial, or Lower Left Lateral.

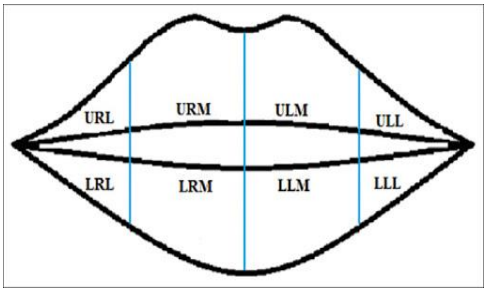

Figure No. 6: (URL (Upper Right Lateral)**, URM (**Upper Right Medial)**, ULM (**Upper Left Medial)**, ULL (**Upper Left Lateral)**, LRL (**Lower Right Lateral)**, LRM (**Lower Right Medial)**, LLM (**Lower Left Medial**), LLL (**Lower Left Lateral)

Upper Right Lateral, Upper Left Medial, Upper Left Medial, and Upper Left Lateral these are mention according to the side by side. Later, the classification on the bases of the pattern such as given by the Suzuki and Tsuchihashi are stated as:

1. Complete Vertical Groove
2. Incomplete Vertical Groove
3. Branched
4. Reticulate
5. Irregular Groove **(Sharma, 2009)**.

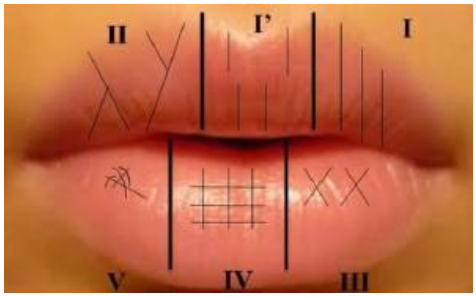

Figure No. 7: Classification of the Lip Print by Suzuki and Tsuchihashi

Review of Literature

Dineshshankar (2009), in the present study, the examination of the lip print taking from the subject was done by the basic method and simple techniques with the help of Cheiloscopy tool kit to collect the lip print from the subject. First, clean the lips then take a brush to apply lipstick on the lip lower part and start rolling the lip then they used cellophane tape to stick lip impression from lips to the bond paper. Lip prints are visible in the thin bond paper as showing the figure 5 and using a magnifying glass of 100x it can be more observed in detail for the purpose of examination. The observation of the lip print classification pattern which is given by the Suzuki and Tsuchihashi was followed in the study of work. pattern which is given by the Suzuki and Tsuchihashi,

Sharma, Saxena and Rathod (2009), lip prints plays an important role in forensic science investigation and used for personal identification. They are transfer evidence which when comes in contact with the surface leaves the impression on it, which was later helpful in creating the direct link between a suspect and the scene of crime. The prints can be easily visible in Glass, Cigarette butts, etc. At the scene of crime lip prints are found invisible so different powders such as Aluminum powder and Magnetic powder are used to develop the print from the surface which was very significantly described by the authors in the paper. The visible part of the lip print is the middle portion which can be easily encountered.

Ranjan, K Sunil and Kumar (2014), in the present study, they studied the lip groove patterns in all the quadrants of both male and female subjects to identify the sex. For the study, 300 lip prints samples were collected from D. J. College of Dental Sciences and Research, Modinagar, Uttar Pradesh. After an in-depth study of the samples, it was found that none of the lip prints were alike. Therefore, it can be used for personal

identification and Suzuki's classification was significant in gender determination.

Singh, Oswal and Karande (2016), in the present study, the Suzuki. K and Tsuchihashi Y classification were used for analyzing the recorded lip prints. The lip prints were divided into four quadrants for analysis (Upper Right Lateral), URM (Upper Right Medial), ULM (Upper Left Medial), ULL (Upper Left Lateral), LRL (Lower Right Lateral), LRM (Lower Right Medial), LLM (Lower Left Medial), LLL (Lower Left Lateral). In this study of work, it was found that most of the common patterns seen in the print are vertical, and other pattern is such as incomplete vertical, reticular, and branched. In the case of the study of the females, there is a pattern observed such as complete vertical groove comparison of the males.

Loganadan (2019), conducted the study on the Deutero-Malay ethnic in Indonesia population to identify the chance of the kids receiving the lip print patterns from their parentages and described the patterns in children and their parents. 90 samples were collected from individuals, which includes mother, father, and child (age ranges from 12 to 60 years old). Photography techniques were used to collect the samples, which was further analysed by Adobe Photoshop CS3 software. In lip prints samples collected grooves and wrinkles of primary quadrant one, three, six, and seven of lips were studied as per the Suzuki and Tsuchihashi's classification. After studying they found that the Type I′ is the most common lip print pattern in comparision to Type I among Deutero-Malay population. It was also found that the similarity of pattern between mother and child is more in comparison to the similarity between father and child. Conclusively, they said that lip prints can be inherited and not same for all populations of race.

Discussion

With the survey and collection of different studies, this paper concluded that lip print is the same as fingerprint and bite marks, lip print is unique and unchangeable their patterns are unique and easily identified by the use of Cheiloscopy examination. There are many methods or techniques used for identification or analysis of the lip print such as powder (aluminum powder and magnetic powder) were used on different types of surfaces such as pore or non-pore surface. After reading research papers and review paper we found that for the examination of the lip prints, the middle portion of the lip which is the Upper Right Medial, Upper Left Medial, and Lower Right Medial, Lower Left Medial were majorly used. It was found the pattern of the lip prints are irregular groove, branched, vertical grooves both complete and incomplete.

Conclusion

After reading many research papers and review papers of the lip print they are the same as a fingerprint. The study of the lip print called Cheiloscopy which came from Greek word. The forensic science used lip print as trace evidence, which helps the investigating officers in correlating the crime scene to suspect. Cheiloscopy also helps in sex determination, age determination, and personal identification of a person. Suzuki and Tsuchihashi gave the lip print classification and the patterns such as Complete Vertical groove, incomplete vertical groove, Branched, Reticulate, and Irregular Groove were used to examine and analyse the lip prints. Now a day's lip prints are the most common type of trace evidence found in sexual assault cases form the victim body (male or female) from the neck, face, and other parts of the body. In forensic science, lip prints help to investigate the case and give minute details about the suspected. Uniqueness in the lip print patterns on the upper-middle or lower-middle part of the lips which called red part of the body help in personal identification, according to the Japanese investigator Suzuki and Tsuchihashi.

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