Cheiloscopy: A Study on Manipuri Population

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ABSTRACT

Introduction: Cheiloscopy means studying lip prints which are the imprints of the wrinkles and grooves visible on lips and is one of the most emerging methods of human identification. Lip prints don't change during the life of a person and are individualistic and heritable. **Aim:** To identify the predominant lip pattern in Manipuri population, determine their uniqueness and compare lip prints in males & females. **Material and Method:** The study was done on 40 students (20 males & 20 females), aged 17 to 25 years, from Manipuri population, India. A dark coloured lipstick was applied, after which lip prints were made on cellophane tape and were visualized with a magnifying lens. **Results:** In the present study, Type I pattern on upper lip & lower lip appears to be the most predominant followed by type III, Type II & Type V on the upper lip and Type IV pattern on lower lip in females. In males, Type II pattern was predominant in both upper & lower lip followed by Type III on the upper lip, Type IV on lower lip & Type V on the upper lip and Type I pattern on the lower lip. **Conclusion:** Hence, it can be concluded that no two lip prints are similar to each other. The study is able to convey that lip prints behold the potential of determination of the sex and identity of the person.

KEYWORDS: Cheiloscopy, Lip prints, Manipuri population

INTRODUCTION

Identification of an individual whether living or dead is based on the fact that all individuals are unique. Personal identification is important not only in forensic sciences but also in the criminal investigation. DNA fingerprints and matching have been useful in the field of forensic science for person identification. Similar to these methods, lip prints can be useful in identifying a person positively. The wrinkles & grooves on labial mucosa, called as sulci labiorum, form a typical pattern called as lip prints.[1] The study of these lip prints is called Cheiloscopy. Cheiloscopy is derived from the Greek word, cheilos meaning lips and is a forensic investigation technique dealing with identification of humans on the basis of lip trace. It is possible to identify lip prints as early as 6th week I.U life and after development these lip patterns rarely change, resisting many afflictions.[2] In recent years, lipsticks have been developed that don't leave any visible trace after contact with the surface like clothing, glass, etc. and are called latent lip prints.[Fig 1]

Fig 1 Latent lip prints lifted by alum powder

These are characterized by their permanence and are called persistent lip prints and can be lifted using alum powder or magnetic powder. The edges of lips have sebaceous glands, the secretion of oil and moisture from these forms latent lip prints like latent fingerprints.[2]

Aim and objective of the study:
- To determine predominant lip print pattern in Manipuri population
- To determine and compare predominant lip print pattern in males and females of Manipuri population
- To compare predominant lip print pattern in upper & lower lip of Manipuri population

Individuals between 17-27 years of age were included in the study. Lips with lesion and scars or any deformity and with known sensitivity to lipstick were excluded.

MATERIALS AND METHODS

Material & Method: Study comprised 40 individuals from Manipuri population divided into 20 males & 20 females. **Armamentarium:** A dark coloured lipstick, Cellophane tape, White bond paper, Magnifying lens, Pen / pencil for labeling the individuals details. [Fig 2] **Method:** A dark lipstick was applied uniformly in a single stroke on the vermillion border of the lips. [Fig 3a] The subjects were asked to rub both the lips to spread the lipstick. [Fig3b] Lip impression was made on the strip of cellophane tape on glued portion which was then stuck to white thin paper serving as the permanent record. [Fig3c] Subject particulars were written at the back of the paper. The Middle portion of the lips was considered for the

recording of lip print pattern. [Fig3d] Suzuki & Tsuchihashi classification was used for classifying lip prints. [Fig 3e]

Fig 2 Armamentarium for studying lip prints: lipstick, cellophane tape, magnifying lens, white bond paper, pen for labeling individual details
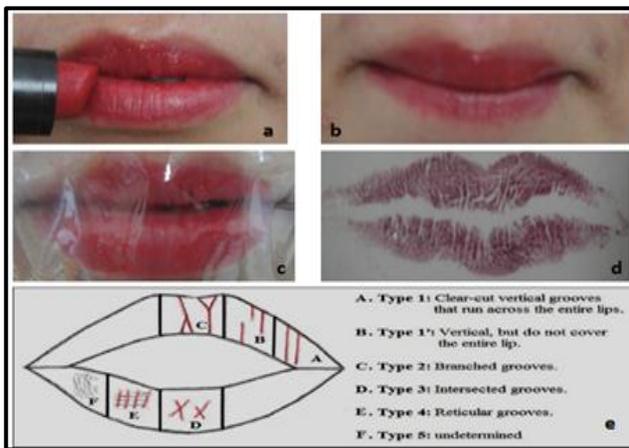

Fig 3 Method of taking lip prints

RESULTS

From our study we conclude that the predominant pattern in the 40 individuals is type I followed by type III, type IV and least common was Type II. [Fig 4] In males the most common pattern was Type II followed by type I &III. Least common was type IV. [Fig 5] In females most common was type I followed by type III, Type IV and least common was type II. [Fig 5] Pearson's coefficient was found to be 34.221, DF-4, p value- 0.0001 (p<0.05) and the difference was highly significant.
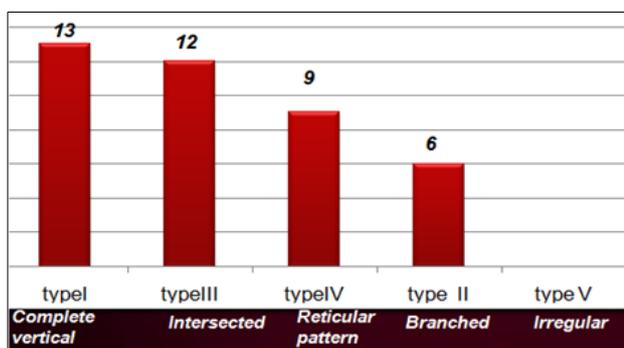
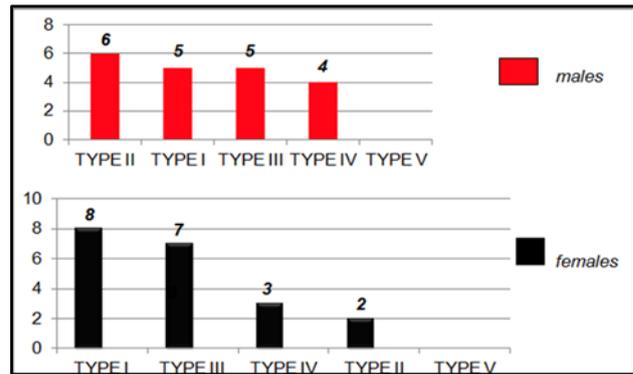

Fig 4 Most common pattern of lip prints

Fig 5 Lip print pattern in males and females

Comparison of the upper lip and lower lip of 40 individuals revealed that most common pattern in the upper lip was type III, followed by type II and least common was type IV. Most common pattern in lower lip was type I, followed by type III and least common was type II. [Fig 6]
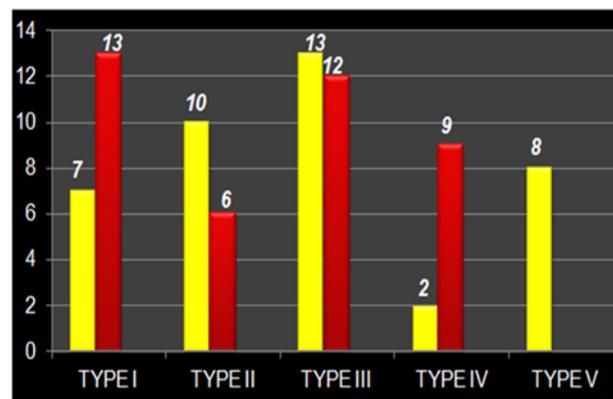

Fig 6 Comparison of lip prints in upper and lower lip

DISCUSSION

Lip prints are useful in forensic investigation & personal identification. Lip prints are considered to be an important form of transfer evidence and are analogous to fingerprints. These lip prints are unique for every individual. Lip print pattern of twins revealed that the lip print patterns are similar, but they were not exactly identical.[3] Analysis of lip prints in the family revealed that children showed similar lip grooves as their parents, showing a familial inheritance; the placement of these grooves was in different locations.[3]

An Anthropologist, R. Fischer, was the first to illustrate lip prints in 1902. In 1932, one of France's greatest criminologists Edmond Locard acknowledged the importance of Cheiloscopy. In 1950, Le Moyer Snyder, in his book ''Homicide Investigation'', mentioned the possibility of using lip prints in human identification. Japanese doctor Suzuki has done the greatest work on lip prints.[4] Suzuki in 1970 after conducting the study on 107 Japanese women simplified the classification into five main types. [Fig5] In our study, lip print pattern in all 40 subjects were different and none of the patterns were

identical. This is in compliance with results obtained in the study by Tsuchihashi & Suzuki.[4]

A study by Vahanwala & Parekh of 100 individuals in Mumbai found that type I was most frequently observed pattern followed by type II. [5]

Sivapathasundaram et al. concluded that type III was most common pattern found in the Indo-Dravidian population.[6]

G Sathish Kumar et al. in their study of 60 individuals found that Type II pattern was most common followed by Type III in the Pondicherry population.[7] In our present study type I was common followed by type III in Manipuri population.

According to Vahanwala et al. in the study done on 100 individuals(50 males & 50 females) of Mumbai population found that Type I and Type I' patterns were found to be prevailing in females while type III, IV and V were prominent in males.[5]

G Sathish Kumar et al. in their study of 60 individuals (30 males & 30 females) of Pondicherry population, concluded that most common pattern in females was type II, followed by type IV. And in males the most common pattern was Type III followed by type IV. [7]

Studies of TR Saraswathi et al. on 100 individuals (50 males & 50 females) of the north Indian population, showed type III was most common among both males & females and also in upper and lower lips of both males and females. In our study, predominant pattern in Manipuri females was type I and type III while in males was type II, III & I.[8]

Alvarez Sangui et al. & Ball et al. established that lip prints are unique for every person & can be used as a means for identifying the suspect.[9] The present study also revealed that lip print is unique for every individual & no two lip prints can be analogous to one another, hence it is a consistent method for forensic identification.

CONCLUSION

In our study of Manipuri population, the predominant pattern in the 40 individuals was type I followed by type III and type IV. Least common was Type II. Also, in males type II was the common pattern followed by type III. In females type I was common followed by type III. The most common pattern in the upper lip was type III, followed by type II. The least common was type IV. The most common pattern in lower lip was type I, followed by type III. Least common was type II. Also, there is a difference in lip print patterns of Manipuri population from the other population groups revealing their uniqueness to the particular population group.

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