Lip prints: A study of its uniqueness among students of MediCiti Medical College

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Abstract

Background: “Cheiloscopy” is a technique that deals with lip prints. The pattern of fine creases on the lips are unique to the individual. They are similar to finger prints and useful in crime investigation.

Aims and Objectives: To study the uniqueness, prevalence, and gender significance of lip print patterns in human subjects.

Materials and Methods: The study was conducted on 100 randomly selected male and female undergraduate medical students. The lip print of each subject was obtained and its pattern was analyzed according to Suzuki and Tsuchihashi classification.

Results: The study showed that Type I lip pattern was the commonest. The study sh...
Statistical analysis: The difference between males and females for lip patterns was done by Chi square test. The p value less than 0.05 was considered significant. There was no significant difference observed between genders. All the statistical procedures were done using MedCalc Statistical Software version 13.0 (MedCalc Software bvba, Ostend, Belgium; http://www.medcalc.org; 2014).(10)

Results

The present study was conducted to assess the uniqueness of lip prints and the gender-wise predilection of its patterns. Lip print impressions were obtained from either sex of student population and were classified by Suzuki’s classification. The gender wise distribution of lip print types was analyzed, Type 1 was found to be more common in the present study. Distribution of various types of lip prints in males and females were summarized (Table 1).

<table>
<thead>
<tr>
<th>Type</th>
<th>Female</th>
<th>Male</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type 1</td>
<td>22 (44%)</td>
<td>33 (66%)</td>
</tr>
<tr>
<td>Type 2</td>
<td>22 (44%)</td>
<td>10 (20%)</td>
</tr>
<tr>
<td>Type 3</td>
<td>1 (2%)</td>
<td>0</td>
</tr>
<tr>
<td>Type 4</td>
<td>4 (8%)</td>
<td>3 (6%)</td>
</tr>
<tr>
<td>Type 5</td>
<td>1 (2%)</td>
<td>4 (8%)</td>
</tr>
</tbody>
</table>

The data shows percentage wise distribution of different lip patterns

In the present study the analysis of lip print patterns revealed that no two lip prints were similar, thus establishing the uniqueness of lip prints. The commonest pattern found in our study was Type I (55%). This was followed, in order, by Type II (32%), Type IV (7%), Type V (5%) and Type III (1%). There was a difference in gender wise distribution of lip prints. Among females, Type I and II (44%, each (22) appear to be equally dominant patterns followed by the Type IV (8%), Type III (2%) and Type V (2%) patterns while in males, Type I (66%) was the predominant pattern followed by Type II (20%), Type V (8%), Type IV (6%), and Type III (0%) patterns.

Discussion

Cheiloscopy is an upcoming tool in crime investigation. Though finger prints and DNA comparison are most commonly used, additional tools like cheiloscopy and palatoscopy can be used for identification. The commonest lip pattern found in present study was type-I. Various studies carried out in India, done by Sivapathasundarum et al,(2) Govindkar,(9) and Saraswathi,(8) showed type-III as predominant type, (Table 2). Studies of Sharma et al(10) and Verghese et al(3) showed type-IV as predominant type. The present study coincides with Vahanwalla and Parekh(6) study done in a Mumbai population. This variation in prevalence can be explained by the ethnic and racial differences of the several cohorts studied. Cheiloscopy can be useful for forensic investigation based on available literature
irrespective of ethnic origins of a person. However further studies on lip prints involving a larger cohort may be useful which can show ethnic, geographic and racial differences if any.

Just as efficient equipment and databases have been built over time for fingerprint detection recording and matching, similar effort and investment in methodologies and personnel, would help in expanding the utilization of lip prints in forensic science.

Table: 2 Studies on lip prints from India

<table>
<thead>
<tr>
<th>Author</th>
<th>Region</th>
<th>Predominant lip pattern</th>
</tr>
</thead>
<tbody>
<tr>
<td>Verghese (2011)</td>
<td>Kerala</td>
<td>Type-IV</td>
</tr>
<tr>
<td>Sharma (2009)</td>
<td>Uttar Pradesh</td>
<td>Type- IV &amp; V</td>
</tr>
<tr>
<td>Gondivkar (2009)</td>
<td>Maharashtra</td>
<td>Type-III</td>
</tr>
<tr>
<td>Saraswathi (2009)</td>
<td>Tamilnadu</td>
<td>Type-III</td>
</tr>
<tr>
<td>Sivapathasundaram (2001)</td>
<td>Tamilnadu</td>
<td>Type -III</td>
</tr>
</tbody>
</table>

Conclusion

In the present study, lip prints of our study participants did not match with each other. Therefore, the result of our study validates that lip prints are unique as that of finger prints and therefore has forensic importance. Regional population variation in prevalence pattern merits further study, and hence in future could gain more anthropological significance. Even though there is no significant difference in lip patterns of males and females, studies with larger sample may be used for depicting sex differentiation if any.

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References
