

Original Research Article

Comparison of Lip Prints between Monozygotic and Dizygotic Twins

Ravi Sunder R¹, Neelima P²

¹Associate Professor, Department of Physiology, GIMSR, Visakhapatnam.

²Associate Professor, Department of Anatomy, GIMSR, Visakhapatnam.

Corresponding Author: Ravi Sunder R

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ABSTRACT

Background: Study of lip prints is called cheiloscropy. Identification of the individual by the patterns of lip prints has emerged out as one of the most efficient methods in crime investigation. The patterns vary widely among individuals, even between the twins.

Aims and objectives: To study the patterns of lip prints in monozygotic and dizygotic twins and to compare their uniqueness.

Materials and methods: A pair of monozygotic and a pair of dizygotic twins who are all females of 18-20 years age were asked to apply lipstick. The lip prints were obtained by asking them to press a folded white paper in between the lips. Images were captured and analyzed.

Result: Monozygotic pair: twin-1-type 1 pattern with very few ridges in all quadrants; twin-2- type 5 pattern with no ridges. **Dizygotic pair:** type-1 pattern with nearly equal number of ridges in all 4 quadrants in both twins.

Conclusion: Though monozygotic twins with identical features, two types of patterns (Type-1 and type-5) were detected and same type of pattern (type-1) is seen in dizygotic twins who had different features indicating a variation from the observation.

Keywords: Twins, lip prints, monozygotic, dizygotic.

INTRODUCTION

Cheiloscropy is a forensic investigation technique that deals with identification of humans based on lips traces. [1] Lip prints were first described by Fisher in 1902. [2,3] Not only has it proven effective in identification of individuals, but its role in sex determination has also been investigated. [2] The wrinkles and groves on the labial mucosa, called as sulci laborium, form the characteristic lip print pattern. [1] These wrinkles were termed as “sulci labiorum rubrorum” by Tsuchihashi. [4] There are no changes in the lip prints during the entire life time of an individual. [5]

The uniqueness of the lip prints forms the basis for identification in crime investigation in the recent era. Does the

uniqueness apply for twins too (dizygotic or monozygotic) is the subject for evaluation. Literature was scanty on the studies of lip prints on twins. Hence an attempt was made on the present study to evaluate the different patterns of lip prints in twins.

MATERIALS AND METHODS

A pair of monozygotic and a pair of dizygotic twins formed the material for the study. Both pairs are females in the age group of 18-20 years. After taking verbal consent, they were asked to colour their lips with a pink coloured lipstick and the lip prints were obtained by pressing the paper with their lips. Images were captured and analyzed.

RESULTS

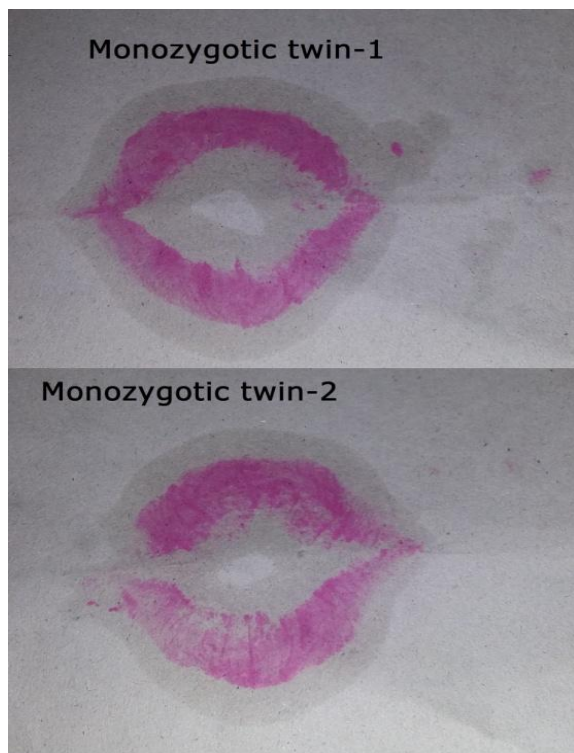


Figure 1: lip prints of monozygotic twins

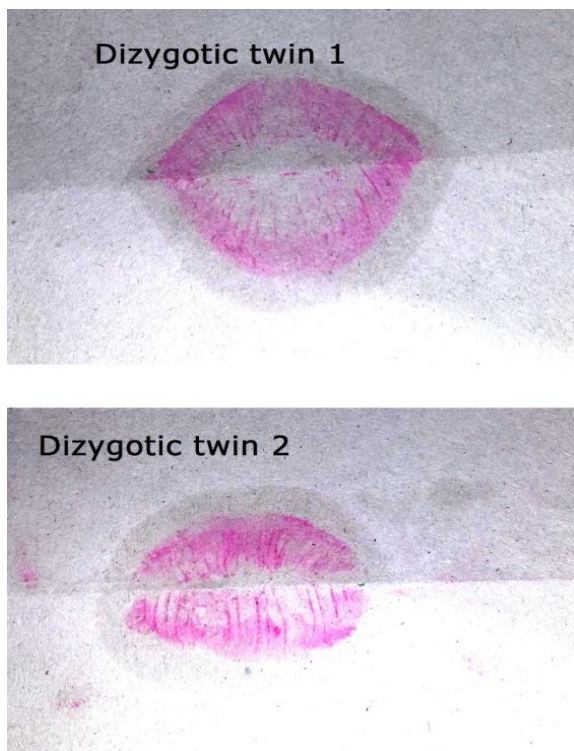


Figure 2: lip prints of dizygotic twins

Monozygotic pair: Twin-1: type-5 pattern with no clearly identifiable ridges and a mixed pattern which cannot be included in any other type. Twin-2: type-1 pattern with ridges extending till the margin. The

numbers of ridges are very few in each quadrant in both upper and lower lips. Though monozygotic, the twins had different patterns which form the hallmark of the study.

Dizygotic pair: both twins had a similar pattern i.e., type-1 with all the ridges extending till the vermilion border. The number of ridges in both twins is more or less equal with no gross difference. Though the girls are dizygotic twins with different features, they had similar lip prints.

DISCUSSION

Cheiloscopy (from the Greek words, Cheilos = lips, Skopein = see) is the study of lip prints. ^[1] In 1932, French criminologist Edmond Locard recommended the use of lip prints for the first time, while Le Moyne Snyder mentioned the use of lip prints in the identification of individuals in his book "Homicide Investigation" written in 1950. ^[6] Lip prints, a subspecialty of forensic odontology, is analogous to fingerprints. ^[7] Many studies have been performed to evaluate the uniqueness of the lip prints. ^[8-11] Tsuchihashi described 5 types of patterns of lip prints, ^[4] of which type 1 is the most common. Another study determines the importance of lip prints in determining sex. ^[12] Lip prints are unique to each individual and also between the twins. The present study determines the patterns of lip prints shared in between the twins-both monozygotic and dizygotic. From the study, the lip prints between the dizygotic twins who share different features was the same. But the pattern varied between monozygotic twins. One twin from the monozygotic twin showed type-1 pattern but the other twin exhibited type-5 pattern. This shows that the patterns of lip prints vary even between monozygotic twins. This has to be dealt in detail in further studies with more number of twins.

CONCLUSION

Lip prints vary between individuals analogous to finger prints. This is true even

between the twins. From the study, both the dizygotic twins showed a similar pattern of type-1 whereas one twin of monozygotic had type-1 and the other exhibited type-5 pattern of lip prints.

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