Cheiloscopy And Blood Groups: Aid In Forensic Identification

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Abstract

Lips are two fleshy folds surrounding oral orifice. They are lined externally by skin and internally by mucosa. The skin is continuous with mucosa at transitional or vermilion border, reddish zone covered by thin keratinized epithelium. Line of contact between the lips (oral fissure) lies just above cutting edges of upper incisor teeth and on each side labial commissure form angle of mouth usually near first premolar tooth. Epithelium of vermilion area exhibits less well-developed stratum corneum than skin. Lip has many elevations and depressions forming characteristic pattern called lip print. The study of lip prints is called cheiloscopy. It is used for personal identification since lip prints are unique for individuals and do not change during the life of a person. A lip print may be revealed as a stratified surface trace with visible elements of lines, namely the furrows and if the lines are not clear, only the shape of the lips is printed. The present study was done to determine the distribution of different lip print patterns among the subjects having different ABO and Rh blood groups and to determine the correlation between their characters and blood groups. Correlating lip prints with blood groups may be useful in forensic science in accurate identification of individual than by using lip prints alone.

Keywords:

Cheiloscopy, Lip prints, Blood Groups,

Introduction

Personal identification plays inevitable role in forensic investigation of unknown deceased, missing person cases or identification of criminal suspects. Fingerprints and wrinkle patterns on lips have some individual characteristics that are unique for every individual. Identification of humans on basis of lip wrinkles is type of forensic investigation known as cheiloscopy. Lips are two fleshy folds surrounding oral orifice, lined externally by skin and internally by mucosa. Skin is continuous with mucosa at transitional or vermilion border, reddish zone covered by thin keratinized epithelium. Lip has many elevations and depressions forming characteristic pattern called lip print. It is used for personal identification since they are unique for individuals and do not change during life of person.

Aim and Objectives

Present study was carried out to determine distribution of different lip print patterns among subjects having different ABO and Rh blood groups and to determine correlation between their characters and blood groups.

Materials and Methods

Present study was carried out in Department of Oral Pathology and Microbiology of Sardar Patel Institute of Dental & Medical Sciences, Lucknow. Sample of 123 individuals was randomly selected for study123 (38 males and 85 females) Bachelor of Dental Surgery (B.D.S) students aged between 18–23 years. Materials used included microscopic glass slides, Whatman's filter paper, magnifying glass, and Lakme colour lipstick.

Lips of subject were first cleaned thoroughly. Lipstick was applied uniformly to lips using lipstick applicator brush starting at midline and moving laterally. Lipstick was allowed to dry for about 2 min after which lip prints were taken using No. 1 Whatman's filter paper. Blood groups of subjects were analyzed by placing drop of blood on slide and treated with anti-A, anti-B and anti O sera. Positive agglutination reaction with Rh antigen is considered Rh + or otherwise as Rh-.
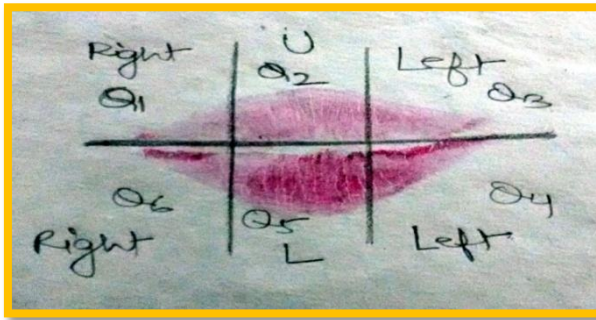
Fig. 1- Armamentarium

Fig. 2-One drop of blood was placed on slide and was treated by Anti O, Anti A, Anti B respectively
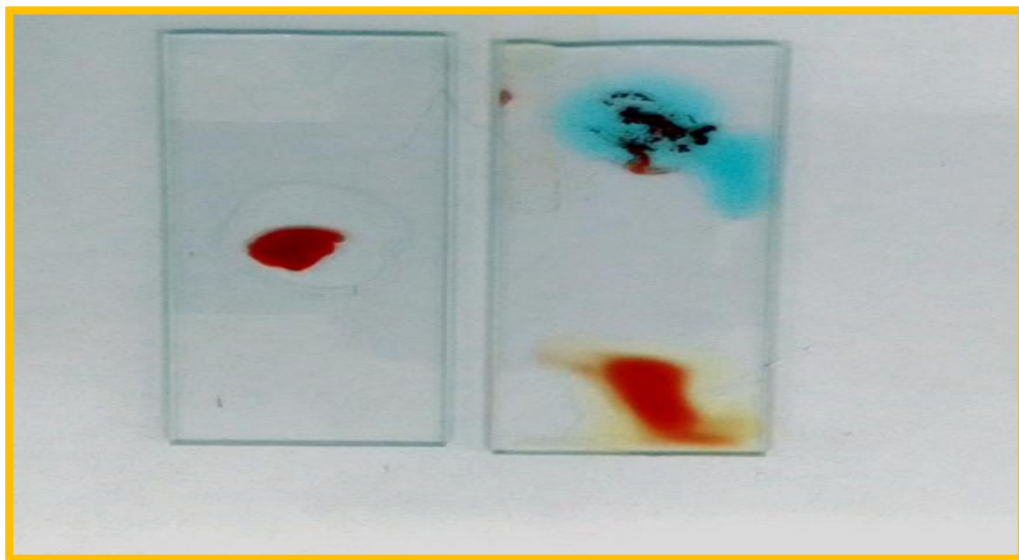

Fig. 3- Test reveals the agglutination in Anti A slide. The blood group of subject is A

Results

Among total of 123 individuals, 32.5% belonged to blood group "B +", followed by 28.5% of "O +", about 18.6% of "A+", 7.3% "AB +", 5.7% "B –", 3.2% of "A – and O-", "AB –" being 0.8%.

Blood Groups	A+	A-	B+	B-	AB+	AB-	O+	O-	Total (123)
Male	08	03	08	02	03	01	11	02	38
Female	15	01	32	05	06	00	24	02	85

Table 1- Distribution of Blood Groups in the study sample

General distribution of lip prints in given population was in order of Branched type (38.2%), Vertical type (19.5%), Intersected type (17.1%), Reticular type (14.6), Other type (10.6%).

Type	I (Vertical)	II (Branched)	III (Intersected)	IV (Reticular)	V (Other)	Total (123)
Male	06	19	04	06	03	38
Female	18	28	17	12	10	85

Table 2: Distribution of Lip Prints in the sample

Distribution of Lip pattern with frequency of Type I and Type II lip prints was more among B+ group, distribution of Type III and Type V lip prints was more in O+ group, Type IV lip prints was equal among A+ and O+ group.

Distribution of Lip Prints and Blood Groups co relation was calculated between lip prints and blood groups by Chi square method and the result was found insignificant [Chi square= 39.7; df=28; p>0.05, non significant (p=0.91)].

Lip Print	Blood Group								
	A+	A-	B+	B-	AB+	AB-	O+	O-	Total
Type I	02	01	12	01	02	00	06	00	24
Type II	09	00	18	02	05	00	13	00	47
Type III	05	01	04	03	00	00	07	01	21
Type IV	04	02	02	01	01	01	04	03	18
Type V	03	00	04	00	01	00	05	00	13
Total	23	04	40	07	09	01	35	04	123

Chi square= 39.7; df=28; p>0.05, non significant (p=0.91)

Table3: Distribution of Lip Prints and Blood Groups

Discussion

One of most interesting emerging methods of human identification, which originates from criminal and forensic practice is lip's recognition. Lip prints are unique and do not change during life of person, so it may be used effectively for personal identification. Lip prints play vital role in transfer

of evidence. Lip prints may easily be lifted by aluminium and magnetic powder. Suzuki and Tsuchihashi in 1970 revised a classification where they divided lip grooves into:-

- Straight Line

- Curved Line

- Angled Line

- Sine-Shaped Line

Augustine *et al.*, stated that minimum number of Type V pattern was seen in Tsuchihashi classification, as in present study where 13 subjects showed same pattern

- Type I- Clear cut groove running vertically across lip

- Type I'- Partial length groove of Type I

- Type II- Branched groove

- Type III- Intersected groove

- Type IV- Reticular groove

- Type V- Other pattern

Most common type of blood group was B+ in both males and females. The result revealed no significant correlation between distribution of lip prints and ABO blood groups (p=0.91).

Conclusion

From the current study, it was concluded that no significant correlation exists between blood group and lip prints. To utilize the mammoth role of cheiloscopy in forensic investigation, it is mandatory to perform more studies on different population groups to establish database