ORIGINAL ARTICLE
LEFT HAND THUMB IMPRINT PATTERNS AMONG MEDICAL STUDENTS

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Background: Finger printing is an absolute method of identification. Recovery of finger prints from a crime scene is an important method of Forensic identification. Human finger prints are detailed, unique, difficult to alter, easily classifiable and durable over life making them stable and long-term tool of human identification. **Methods**: This cross-sectional study was conducted on 95,3rd year MBBS students of Ayub Medical College Abbottabad from December 2014 to August 2015 to establish the frequency of left hand thumb imprints by rolling and plain method. **Results:** Study shows Loops among most common finger print pattern in 55 (58%) students out of 95, followed by whorls 33 (35%), arches 5 (5%) and composite 2 (2%). **Conclusion:** It is thus concluded that most common finger print pattern is loops followed by whorls, arches and composite.

Keywords: Identity, Loops; Whorl, Arches; Composite

INTRODUCTION

Since the turn of the century, finger prints have been used as a very effective mean of establishing identity of a person. Finger printing also known as dactylography or Henry Galton System can be traced back as early in B.C era. Finger prints were used on pottery, clay slabs in times of Intan Khanan and tomb in Egypt (3000B.C).[1] Chinese used them on official documents (240 B.C), Grew (1684) and Biloo (1685) are among earliest scientific description of dermatoglyphics.[1]

Purkinje's in 1823 for the first time classify finger prints. W. J Herschel in 1858 began 1st known official use of finger prints in India. Henry faulds in 1880 worked on identification of criminals by finger printing. Francis Galton in 1890 devised1st scientific method of classification of finger print.[1] Juan Vucetisch in 1891 installed finger print files as an official method for criminal identification.

F.B.I of USA uses system called FINDER-II. This system reads the data about the fingerprint.[2] Finger printing is study of ridge pattern on the skin of palms and soles. These are papillary or epidermal ridges that are formed since birth,[3] and can be arranged in different classes, i.e., loops (65%), whorl (25%) arches (07%) composite (2–3%) of population[2].Galton examined cases showing loops 67.5%, whorls 26%, and arches (6.5%).[4,5]

Finger printing is surest comparative method of identification. No two individual even identical twins have same fingerprint pattern, i.e., 11 in 62,000,000,000 birth resembles in finger prints.

This study was conducted to find out frequency of left hand thumb imprint in 3rd year MBBS students.

MATERIAL AND METHODS

This cross-sectional study was conducted in department of forensic medicine Ayub Medical College Abbottabad. 95 students were selected for study through non-probability consecutive sampling technique of age 20–23 years from December 2014 to august 2015. Students with the history of trauma or injury of left hand thumb were excluded. Informed written consent was taken from the students after fully informing them about aims and the objective of the study.

They were asked to clean the fingers with the soap and water and then dry. Ball of left thumb was soaked in the printer's ink. The thumb was applied on unglazed paper using both plain and rolling methods. Rolling method is preferable using wider and clear pattern of the finger print study. Individual characteristics like pattern area, type line, delta or triad, core and ice land were studied manually. All the data was recorded and analysed using SPSS19. Frequencies and percentages were calculated for categorical variables

RESULTS

A total of 95 students were enrolled in this study. Among them 59 (62%) were male while 36 (38%) were female. (Table-1). The most common finger print pattern observed in our study was loops that was present in 55 (58%) students. Among 59 male

students, 30 (51%) had loops pattern while among 36 female students 29 (69%) had the loops pattern.

Second most frequent pattern of finger print among our study population was whorls that was present in 33 (35%) students out of total 95. Among 59 male students, 25 (42%) had this pattern of finger prints while among 36 total females, 8 (22%) female students had whorls as the pattern of finger prints.

The less frequent patterns of finger print among students were arches that was present in 5 (5%) of the students among whom 3 students were male while 2 students were female and the least frequent pattern among students was composite that was present in 2 (2%) students one each male and female. (Table-2)

Table-1: Gender wise distribution of cases

Trait	Number	Percentage
Male	59	62
Female	36	38
Total	**95**	**100**

Table 2: Distribution of left hand thumb patterns:

Trait	Male n (%)	Female n (%)	Total n (%)
Loops	30(51)	25 (69)	55 (58)
Whorls	25 (42)	8 (22)	33 (35)
Arches	3 (5)	2 (6)	5 (5)
Composite	1 (2)	1 (3)	2 (2)
Total	**59 (62)**	**36 (38)**	**95 (100)**

DISCUSSION

Our study reflected following findings. Loop is the dominant pattern with over all percentage of 55% followed by whorls 35%, arches 05% and composite 02%.

Patel had observed (45.68% loops, 7.41% arches and 46.91% whorls).[6] Rastogi and Pillai had observed 60.95% loops and 32.55% of whorl pattern.[7] Sam is of opinion that loops are (57.1%), Whorls (30.35%), composite (6.35%) and arches (6.2%).[8] loop is the commonest pattern among all finger print pattern.[9]

Our study showed Loops are common in females with 69%, whorls in male 42%, arches in females 6% and composite in females 3%.

Contrary to findings of Patel where whorls are dominant in female 50% followed by loops and arches 11.76%.[6] Rastogi and Pillai had observed

whorls dominant in males (55.78%) and loops in females (52.42%).[7] Study conducted by Ching observed that whorls were abundant in males (55.6%) as well as in females (65.6%).[10] Sam established that loops are common in females (58.4%), whereas whorls are common in male (31.8%). Similarly, composite is common in males (7.4%) and arches in females (7.2%).[8]

These differences can be due to regional variation, but the fact that loops are commonest than the whorls, arches and composite remains the same.

CONCLUSION

It is thus concluded that most common finger print pattern is loops followed by whorls, arches and composite. All the individuals have different finger print pattern. There are differences between the individuals from region to region.

AUTHORS' CONTRIBUTION

MZH & MAR helped in data collection, DK helped in paper writing.

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