

Pattern of phalangeal hair distribution among 'Kurubas' of Kolar district

Shantharam V¹, Raghavendra R^{2*}, Veluri Ganesh³, Manjunath KY⁴

¹Professor, Department of Anatomy, ²Associate Professor Department of Forensic Medicine and Toxicology, ³Tutor, Department of Biochemistry, Akash institute of medical sciences and research centre. Devanahalli, INDIA.

⁴Emeritus Professor, Department of Anatomy, Vinayaka mission university. Salem, INDIA.

Email: shansdenovo@gmail.com

Abstract

Background: The presence and distribution of hairs on the dorsum of the phalanges have been studied on various population groups of India belonging to different regions by Chhabra and Dhall (North Indians) 1993 and Margret and Manjunath (South Indians) 2004. **Material Methods:** In the present study a total number of fifty-nine adults (32 males and 27 females) belonging to 'Kuruba' community of Karnataka state (Kolar District) were examined for presence of phalangeal hairs and noted their patterns. The age range of the sample was 20-60 years. **Results:** The presence of hairs on proximal phalanx was more in males (100%) than females (99%). Only one female subject showed complete absence of hairs. The presence of hairs on middle phalanx was also more in males (100%) than females (99%). Only one case showed asymmetry (male) on proximal phalanx of fourth digit. Middle phalangeal hair was noted in 8 males and 2 females. None of the subjects had hairs on distal phalanx. **Conclusion:** Our study shows the incidence of phalangeal hair patterns among kuruba community. Majority of subjects had bilateral symmetrical presence of phalangeal hairs.

Key words: Phalangeal hairs, kuruba community, Identification

*Address for Correspondence:

Dr Raghavendra R, Associate Professor, Department of Forensic Medicine and Toxicology, Akash institute of medical sciences and research centre Devanahalli, INDIA.

Email: shansdenovo@gmail.com

Received Date: 05/01/2021 Revised Date: 11/02/2021 Accepted Date: 04/03/2021

DOI: <https://doi.org/10.26611/10011812>

This work is licensed under a [Creative Commons Attribution-NonCommercial 4.0 International License](https://creativecommons.org/licenses/by-nc/4.0/) 

Access this article online

Quick Response Code:	Website: www.medpulse.in
	Accessed Date: 12 April 2021

Ethiopians⁵; Paramar (1968)- Ghorkas⁶ Tiwari and Bhasin (1969)-Tibetians⁷. Among South Indian population it was demonstrated by Margret and Manjunath (2004)⁸. The present study was undertaken to determine the incidence and patterns of phalangeal hair among one particular "Kuruba" community belonging to Kolar district of Karnataka state in south Indian region.

MATERIAL AND METHODS

A total number of fifty-nine adults (32 males and 27 females) belonging to 'Kuruba' community residing in Kolar district of Karnataka were used for this study. Only those subjects whose parents have been married with in the kuruba caste were included with age ranging from 20-50 years. The dorsum of digits was cleaned with soap water, dried and examined with a hand-held magnifying lens for presence or absence of the hairs on the proximal, middle and distal phalanges and the observations were noted in a proforma. The compiled data was analysed.

INTRODUCTION

Hair is a filamentous keratinized accessory structure of the skin which is present over almost the entire body surface¹. The hair pattern on the dorsal aspect of the hand is genetically determined and the frequency varies with different races. The incidence and distribution pattern of phalangeal hairs have been studied in many races from different parts of the world by; Chhabra and Dhall(1993)- North Indians², Bernstein (1949)- white race³; Saldanha and Guinsburg (1961)-Brazilians⁴; Batmiriam (1962)-

RESULTS

Only one case among females showed total absence of hairs on both proximal and middle phalanx of both hands.

A) Proximal phalangeal hair: Out of 59 subjects (32 males and 27 females) 57 had symmetrical pattern of hair distribution on the proximal phalanx.

Males: on proximal phalanx 1,2,3,4,5 bilateral digital combination was found to be highest amongst males (25 cases-78%) followed by 2,3,4,5 combination (5 cases-15.62%), and 1,2,3,4(1 case-3.12%). All the combinations were observed bilaterally except in one case where proximal phalangeal hair was present unilaterally on right side only (3.12%). (Table I)

Females: Female showed similar pattern of digital combination i.e., 1,2,3,4,5 bilateral digital combination

was seen in 23 cases (85.16%) followed by 1,3,4,5 digital combination in one case (3.7%) and on 2nd digit in one case (3.7%). (Table II)

B) Middle phalangeal hair:

Males: Middle phalangeal hair was observed in 8 cases (25%). Only 3,4,5 and 3,4 digital combination was found in two cases each. Other digital combinations found were 1,3,4,5, 2,3,4,5, 3,4,5 and 3rd in one case each. (Table I)

Females: Only two cases showed middle phalangeal hairs (7.4%) one case each was observed i.e. 1,2,3,4,5 and 3,4 digital combination. (Table II)

C) Distal phalangeal hair

None of the subjects showed presence of hair on the dorsum part of distal phalanx

Table 1: Incidence pattern of phalangeal hairs-a) Males, n = 32

Digital combination	Bilateral		Unilateral Right		Unilateral Left	
	proximal	Middle	proximal	middle	proximal	Middle
1,3,4,5		1				
2,3,4		1				
1,2,3,4	1					
1,2,3,4,5	25					
2,3,4,5	5	1				
3,4,5		2				
3,4		2				
3		1				
4					1	
Total	31	8	Nil	Nil	01	Nil

Table 2: Incidence pattern of phalangeal hairs-a) Female, n = 27

Digital combination	Bilateral		Unilateral Right		Unilateral Left	
	proximal	Middle	proximal	middle	proximal	Middle
2	1					
1,2,3,4	1					
1,2,3,4,5	23	1				
1,3,4,5	1					
3,4		1				
Nil	1					
Total	27	02	Nil	Nil	Nil	Nil

DISCUSSSON

Proximal phalangeal hair distribution serves as a good anthropological trait to study since it is neither affected by age or sex⁸. Contrary to the findings of Chabra and Dhall² middle phalangeal hair distribution was slightly higher in males and the frequency of occurrence was 3,4,5. Findings of the present study were almost similar to previous study on south Indians Margaret *et al.*⁸. Compared to previous study by Margret *et al.*⁸. which had two cases of complete absence of hairs on all phalanges in our study we had one case, but in both the studies these subjects were females. The only difference between present study and study by Margret *et al.*⁸ was that in our study 57 subjects out of 59 showed bilateral symmetry. According to Danforth CH⁹

the phalangeal hair distribution is genetically determined. It can be considered a potential useful tool in population studies, particularly the proximal phalangeal hair distribution¹⁰. The middle phalangeal hair cannot be considered as an ideal trait as it is affected by age and sex. Also, absence of middle phalangeal hair might be due to recessive gene⁹. Most of the previous studies on phalangeal hairs have been done on ethnic groups or homogenous population or regional background⁸.

CONCLUSION

In the present study subjects belong to kuruba caste of kolar district, which is a common gene pool of the caste in the region of Karnataka state, located in south India.

Further studies can be conducted in the same group with large sample size, also same study in other castes of the region can yield useful results.

ACKNOWLEDGEMENT

authors will acknowledge the support and cooperation of head of the institution.

REFERENCES

1. Jungueria C. and J. Carneiro, 2005. The hair basic histology: text and atlas. 11th Ed, MC Graw Hill Co. Inc., USA., PP368-369.
2. Chhabra S, Dhall U.1995. The incidence and distribution of phalangeal hairs in North Indians. Anatomical Adjuncts. 2(1):25-28.
3. Bernstein M.E., 1949. The mid digital hair gene: Their inheritance and distribution among the white race. J. Haredity, 40: 127-131. Quoted by Chhabra S, Dhall U.1995.
4. Saldanha P. H and S. Guinsburg, 1961. Distribution and inheritance of middle phalangeal hair in white population of Sao Paulo, Brazil, Hum. Biol., 33: 237-249. Quoted by Chhabra S, Dhall U.1995
5. Batmiriam MA. A survey of some genetical characters in Ethiopian tribes VIII Distribution of mid digital hair. American journal of physical anthropology.20:196-197.
6. Parmar P.1968. The distribution of middle phalangeal hair among Ghorkas. Acta genet Statist Med, 18: 70-77. Quoted by Chhabra S, Dhall U.1995.
7. Tiwari SC, Bhasin MKA. 1969.Note on the didtribution of middle phalangeal hair among tibetians. American journal of physical anthropology.31:429-431.
8. Margret M, Manjunath KY, Balasubramanyam V.Anatomica Karnataka(2004) 1(5):59-65
9. Danforth CH.1921. Distribution of hair on the digits of man. American Journal of Physical Anthropology. Quoted by Chhabra S, Dhall U.1995.
10. Garn SM. The use of middle phalangeal hair in population studies. American journal of physical anthropology.9:325-333.
11. Jungueria C. and J. Carneiro, 2005. The hair basic histology: text and atlas. 11thEdn., MC Graw Hill Co. Inc., USA., PP368-369.
12. Chhabra S, Dhall U.1995. The incidence and distribution of phalangeal hairs in North Indians. Anatomical Adjuncts. 2(1):25-28.
13. Bernstein M.M. and B.S. Burks, 1942. The incidence and mendelian transmission of mid-digital hair in man. J. Heredity, 33: 45-53. Quoted by Chhabra S, Dhall U.1995.
14. Bernstein M.E., 1949. The mid digital hair gene: Their inheritance and distribution among the white race. J. Haredity, 40: 127-131. Quoted by Chhabra S, Dhall U.1995.
15. Batmiriam MA. A survey of some genetical characters in Ethiopian tribes VIII Distribution of mid digital hair. American journal of physical anthropology.20:196-197.
16. Brothwell D. and T. Molleson, 1965. The frequency of middle phalanges hair in Britain. Eugenet. Rev., 57: 131-135.
17. Saldanha P. H and S. Guinsburg, 1961. Distribution and inheritance of middle phalangeal hair in white population of Sao Paulo, Brazil, Hum. Biol., 33: 237-249. Quoted by Chhabra S, Dhall U.1995.
18. Singh J.D., 1982. Distribution of hair on the phalanges of hand in Nigerians. Acta Anat., 112: 31-35.
19. Danforth.
20. Tiwari SC, Bhasin MKA. 1969.Note on the didtribution of middle phalangeal hair among tibetians. American journal of physical anthropology.31:429-431.
21. Nasir A., B. S. Zafar and F. Naseem, 1995. Hair distribution on phalanges of hand among Punjabis in Pakistan. The professional med. J., 2: 163-167.
22. Parmar P.1968. The distribution of middle phalangeal hair among Ghorkas. Acta genet Statist Med, 18: 70-77. Quoted by Chhabra S, Dhall U.1995.

Source of Support: None Declared
Conflict of Interest: None Declared