

Effect of Age on the Medulla Types of Hair

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ABSTRACT Scalp hair samples from 514 subjects (212 males and 302 females) from Patiala, Punjab ranging from, 1 day to 30 years of age have been studied for their Medulla types. The Absent Type has been observed to be the most frequent of all the types; the frequency shows a progressive decline with the increase in age.

Hairs are routinely examined for their medulla types and the medullary index for determining the species origin; the medullary index in man being 0.3 or less (Bhatia et al., 1986). However, in individuals whose hair lack medulla the index cannot be calculated at all as a result of which its utility as a part of the evidence is greatly diminished. Further, the medulla types not only show individual and population variation, they are not uniform even in the same individual (Kaur et al., 1993).

In the present paper an attempt has been made to examine the effect of age on the medulla types.

METHOD AND MATERIAL

Scalp hair samples, atleast five hairs from each individual, were collected from 514 subjects (212 males and 302 females) from the Patiala City of the Punjab by the forcibly pull-out method except in the case of the children of 1 day to 2 months of age. The hair samples were

kept in serially marked envelopes on which the details of age, sex, name, etc. were recorded and stored in a dust free chamber till their analysis. A separate register with the particulars of each subject was also maintained; the age of the subjects included in the present study ranged from 1 day to 30 years.

The hairs were examined microscopically from the proximal to the distal end for their medulla types under 10X x 15X magnification. The classification of the medulla types into Continuous, Discontinuous, Fragmented and Absent types have been made according to Kumar et al. (1989) and Chattopadhyay (1992).

RESULTS AND DISCUSSION

The frequency of the medulla types in the two sexes are given in table 1 and 2. It is evident that the Absent type is the most frequent of all the types; the frequency showing a progressive decrease with the increase in age in both the sexes. It seems probable that in the initial stages of hair development medulla is absent; later it starts to appear in smaller fragments which are progressively joined together with the increase in age to give rise to the discontinuous and continuous types. Further, the changes in the hair medulla most likely varies from hair to hair. More work is needed with large samples from different age groups to elucidate the problem.

Table 1: Frequency of medulla types in males

Age	No. of Males	No. of hair samples examined	Continuous medulla		Discontinuous medulla		Fragmentary medulla		Absent medulla	
			No.	%	No.	%	No.	%	No.	%
0-6 months	12	60	3	5.00	5	8.33	14	23.33	38	63.33
1-5 year	23	115	20	17.39	8	6.96	30	26.09	57	49.56
6-10 year	82	410	69	16.82	78	19.02	84	20.49	179	43.66
1-15 year	46	230	28	12.17	48	20.87	80	34.78	74	32.17
16-20 year	17	85	18	21.17	18	21.17	23	27.06	26	30.59
21-25 year	18	90	12	13.33	21	33.33	27	30.00	30	33.33
26-30 year	14	70	11	15.71	20	28.57	18	25.71	21	30.00

Table 2: Frequency of medulla types in females

Age	No. of Females	No. of hair samples examined	Continuous medulla		Discontinuous medulla		Fragmentary medulla		Absent medulla	
			No.	%	No.	%	No.	%	No.	%
0-6 Months	28	140	1	0.71	3	2.14	22	15.71	114	81.43
1-5 Year	19	95	2	2.10	10	10.53	12	12.63	71	74.74
6-10 Year	110	550	37	6.73	72	13.09	160	29.09	281	51.09
1-15 Year	60	300	52	17.33	37	12.33	55	18.33	156	52.00
16-20 Year	33	165	11	6.67	25	15.15	49	29.70	80	48.48
21-25 Year	34	170	29	17.06	312	18.82	49	28.82	60	35.29
26-30 Year	18	90	15	16.67	24	26.67	20	22.22	31	43.44

The studies made so far indicate that the medulla types vary from one population to another (Kaur, et al., 1993; Chattopadhyay, 1992; Chattopadhyay et al., 1994; Singh and Jindal, 1992). Further, one or more types of medulla can also be present in the same individual as has been observed in the present study. Similar observations have also been made by Kaur et al. (1993) and other workers. Because of this and the fact that the medulla types are affected by age, the evidential value of hair in forensic problems is greatly reduced.

Chowdhuri and Bhattacharya (1964) observed double medulla in a beard hair. No such peculiarity has been observed during the course of the present investigation.

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