



B22 The Occurrence of Forcibly Removed Hairs in Combs and Hair Brushes

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After attending this presentation, attendees will learn about the occurrence of forcibly removed hairs found in combs and hair brushes.

This presentation will impact the forensic science community by accounting for one alternate explanation as to why forcibly removed hairs could be found at a crime scene.

A hair examiner is occasionally asked whether or not a hair has been forcibly removed, as indicated by a hair possessing an anagen root. In one particular instance, a hair examiner was asked during testimony in a child abuse case if a large group of hairs possessing anagen roots was pulled out or could have come from brushing. This study was designed to observe the growth stages of hairs present in hair brushes and combs to determine whether or not it is likely for a large group of forcibly removed hairs to have come from a person simply brushing their hair.

Subjects were asked to clean out their hair brushes or combs prior to obtaining the sample for this study. They were then asked to comb or brush their hair as normal and collect the comb or brush in a ziplock bag. The hairs were then removed from the comb or brush, mounted on slides with permount, and proximal ends were categorized into one of three groups: anagen, catagen/telogen, or broken.

For each individual, a number of factors were recorded to include race, sex, age (or approximate age when the subject would not reveal their age), and type of comb or hair brush used. Combs and brushes were categorized into seven different general types.

Thirty-nine individuals participated in this study and a total of 1,216 hairs were examined from these individuals. Of these hairs, 26 had anagen roots (2%), 306 were broken at the proximal end (25%), and 884 had catagen/telogen roots (73%). Thirty-one of the samples examined did not contain any anagen roots. The highest number (and percentage) of anagen roots found in any one sample was six out of 26 hairs (23%) from a 13-year-old White male using a comb.

The three Black samples examined are of note, as they contained predominantly broken hairs: 61 out of 73 hairs (84%), 51 out of 68 hairs (75%), and 74 out of 137 hairs (54%). High numbers of broken proximal ends were also seen in a White female with heavily treated hair: 21 out of 22 hairs (95%) and a 6-year-old White female: 36 out of 53 hairs (68%). The Black samples and the color-treated White sample did not contain any anagen roots, while the 6-year-old sample contained four anagen roots (8%).

The results of this study show that it is not common to find large numbers of anagen roots on hairs recovered from brushes or combs after a single brushing. This finding should be considered when evaluating possible explanations for the occurrence of forcibly removed hairs.

Hair, Roots, Force