

## Maggots in Detached Hair: A Valuable Conclusion

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### Abstract

An unknown dead body of a middle aged man was found hanging from a tree, by a coir rope, in the Indian forests. The body was in an advanced state of decomposition and partial skeletonization was evident in the upper parts of the body. Crime scene investigation revealed a bunch of hair located at a distance away from the dead body with a few maggots crawling on the recovered bunch of hair. The source of the isolated hair bunch was perplexing and there was a possibility of violence ensuing ante-mortem separation of hairs. The length and texture of isolated hairs matched with the scalp hairs on the dead body, which was later confirmed by microscopy. The presence of maggots in the isolated hair bunch recovered from the deep forest suggests that the flies had laid eggs on these hairs in situ. The hairs were later detached from the scalp as a normal postmortem sequel. The maggots that were present in the scalp accompanied the hairs during its postmortem detachment. These findings confirm that the isolated hairs had their origin in the corpse, and rules out the ante-mortem separation of hairs, a possibility of any scuffle or homicidal attempt. The above case justifies the diverse implementations of Forensic Entomology in crime investigation.

**Keywords:** Forensic entomology; Maggots; Detached hair.

### Introduction

Forensic Entomology has remarkable contribution in determination of the location and time of death. The presence of maggots in a dead body, study of its species and developmental stages provide valuable information in crime investigation [1-3]. More recently the value of entomological evidence in detecting poisoning has been established [4]. Every component of a dead body undergoes insect infestation: in the initial stages of

decomposition, when the body is moist and fleshy, two-winged flies predominate, but in the later stages, other kinds of insects appear such as beetles and moths which can even infest hair and bones. The Skin/Hide Beetle belonging to Family Dermestidae characteristically makes its appearance only in the final stages of decomposition of a carcass. The adults and larvae of this beetle species feed on the dried skin, tendons and bone left by fly larvae. Hide beetles possess enzymes necessary for breaking down keratin, a protein component of hair. Subsequently, Clothes moths belonging to Family Tineidae arrive to feed on the hair during their larval stages, and often forage on any hair that remains. They are amongst the last of the insects contributing to the decomposition of a corpse.

Sometimes a careful observation could reveal obscure, unforeseen, fascinating details regarding the case under investigation. We report one such case where a bunch of hair was located at a distance away from the dead body with a few maggots crawling on it. The source

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of the isolated hair bunch was perplexing and there was a possibility of violence ensuing ante-mortem separation of hairs.

#### *Case details*

An unknown dead body of a middle aged man was found completely hanging from a tree, by a coir rope, in the Indian forests. One end of the rope was fastened around his neck and the other end was tied to a branch of a tree. The human remains were in an advanced state of decomposition and partial skeletonization was evident in the upper parts of the body. Soft tissues in the neck were absent and, hence the nature of the ligature mark in the neck could not be ascertained. No external injuries were obvious on the body. Numerous maggots were present predominantly on the upper part of the completely hanging body. Post mortem interval was estimated to be around 2 weeks to 2 months.

Crime scene investigation revealed a bunch of hair located nearly 15 meters away from the dead body. A few maggots were crawling on the recovered hair bunch that appeared similar to those observed on the dead body on gross examination. Due to lack of facilities the maggots were not examined further for the identification of its type and species. The length and texture of isolated hairs matched with the scalp hairs on the dead body, which was later confirmed by microscopy.

#### **Discussion**

Normally the flies start laying eggs within a day after the death. Flies do not lay eggs in cut or plucked hair bunches, even with their intact roots, as the hair can not provide nourishment for the developing maggots. This consentaneous observation is substantiated by the fact that the snipped hairs hoarded at barber shops or at certain places of pilgrimage, in India, are never invaded by the flies to lay eggs. For hair and bones to be invaded, a faunal succession is required that occurs only in a decaying body. A decaying body emanates

odours that attract insects to get the process of putrefaction going. The question of entomological infestation in the detached hairs originating from a living being hence, does not arise.

The presence of maggots in the isolated hair bunch recovered from the deep forest suggests that the flies had laid eggs on these hairs in situ. The hairs were later detached from the scalp as a normal postmortem sequel. The maggots that were present in the scalp accompanied the hairs during its postmortem detachment. Maggots are not likely to derive any nutrition from the hair. Considering the fact that live maggots were still present on the detached hairs, it can even be argued that the postmortem detachment was a recent event. The observations confirm that the isolated hairs had their origin in the corpse, and rules out the ante-mortem separation of hairs, a possibility of any scuffle or homicidal attempt.

The reported case justifies the diverse implementations of Forensic entomology in crime investigation, and explores the possibility of finding maggots in detached hairs. The same principle can also be applied in evaluating the presence of living or dead maggots in clothes and other inanimate evidentiary material. No literature is available on whether or not flies lay eggs on the isolated hairs. Our opinion is based on observations at places where loose/detached hairs are usually found in bunches. Our observations and description hence, needs to be confirmed by further experiments. Oil or other human or animal body fluid may be attached on the hairs that are cut or plucked ante-mortem to study the various possibilities of insect invasion.

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