



**ORIGINAL RESEARCH PAPER**

**Forensic Medicine**

**WOUND ALTERATION BECAUSE OF MAGGOT ACTIVITY – A CASE REPORT**

**KEY WORDS:** Maggots, Artefacts, Wound alteration, Antemortem, Postmortem

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**ABSTRACT**

**Introduction:** The role of a forensic autopsy surgeon is to conclude the cause of death and to opine upon the nature of injuries. A post-mortem artefact is any change or alteration produced in the body after death which leads to confusion whether an injury or wound was produced antemortem. **Case Report:** A dead body of a 65 year old lady was found in the storage box of the bed of her room. Dead body was found by a relative and brought for postmortem. As dead body was infested with maggots it was difficult to find cause of death. **Conclusion:** Many times maggots are responsible for altering the shape and size of wounds in decomposing bodies. Accurate and judicious autopsy examination is the key to differentiate antemortem or postmortem wound and help in solving crime.

**INTRODUCTION**

Postmortem artefacts are unintentional changes introduced after death which may cause a forensic pathologist to misinterpret the findings. (1) These changes are usually unrelated to the actual cause of death. Among the myriad of artefacts known to us, artefacts due to animal or insect activity are routinely seen especially in bodies exposed to natural vagaries. Flies don't lay eggs over intact skin. From the moment of death, flies are attracted to the dead body and lay eggs over wounds and in natural orifices. The broken or damaged skin of the wound allows the maggots to penetrate the skin also in the body parts where there is no body apertures present. (2)(3) Maggots being voracious eaters destroy the tissues and cause alteration of shape and dimensions of the original injuries. They are also known to produce artifacts resembling injuries where none existed. It becomes pertinent for the forensic pathologist to differentiate ante mortem injuries from the postmortem artifacts, as any incorrect assessment may lead to miscarriage of justice, besides waste of time and resources (4)(5)

We here by present a case of an adult female whose maggot infested dead body where in maggot activity altered the wound characteristics. However, a thorough examination revealed the actual cause of the injuries.

**Case Report**

In the hot of July, a dead body of a 65-year-old lady was brought to a tertiary care center of north India for postmortem examination. As per police inquest papers, the deceased was living alone in her ancestral home. In the same house a couple was living on rent on the ground floor and another couple on the upper floor. Her son, who was living in another city used to call her daily, For few days he was unable to contact her so he asked a relative to check upon her. The relative on reaching the house found the main door open. There was a conspicuous foul smell coming on entering the house. The bedroom door was locked from outside, and he had to break open the same. On entering, he found the decomposing dead body of the deceased in the storage box of the bed. The storage box of bed was partly open. Police were informed immediately who after initial investigations at the crime scene shifted the dead body to mortuary of a tertiary care center of north India.

**Autopsy findings:**

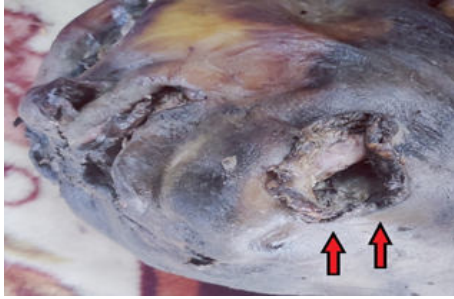
It was a foul-smelling decomposing dead body of a female aged 62 years, wearing pinkish salwar kameez (traditional combination dress, salwar being the lower and kameez being the shirt), pinkish dupatta (Indian scarf). The kameez of salwar suit was torn partly at its lower aspect and was blood stained. The body was in the early stages of decomposition. There was greenish black discoloration of skin at places. Abdomen was distended. Skin slippage was present at places. Marbling was present over the front of shoulder, arms, and chest. Rigor mortis had passed off. Postmortem lividity could not be appreciated due to decomposition changes. Scalp hairs were easily pluckable. Nails were easily separable. Facial features were bloated and were not identifiable. Tongue was protruding out. Small wood pieces were found stuck in hair and clothes.

The first wound measured 6.1 cm x 4.5 cm in size and was present over left side of neck, just above midclavicular area. (Fig 1)



**Fig 1 Wound on the left side of the neck.**

The wound margins were irregular and were hanging loosely partly due to maggot activity and some due to decomposition changes. On exploration track of the wound was inwards, downwards, and backwards transecting the skin, subcutaneous tissues underlying soft tissues, vessels of neck and thorax, extending to left side of chest cavity through medial part of left clavicular area reaching upto upper part of chest cavity. White colored eggs and larva in various stages of development were present at entry point of wound. The second wound was present on chin and measured 4.8 cm x 2.7 cm. The wound margins were similar to the first wound. (Fig 2)



**Fig 2:Wound on the undersurface of chin.**

The wound was muscle deep. White colored eggs and larva in various stages of development were visible in the wound cavity. The third wound was on hand.



**Fig 3: Incised wound on index finger of right hand**

It was an incised wound of size 1.9 cm x 0.4 cm present horizontally over back of middle of distal phalanx of index finger of right hand. (Fig 3) The underlying bone had a cut. Apart from these the second to seventh ribs on right side were fractured at their costochondral aspect with infiltration of blood at fractured ends. Viscera was collected and dispatched for chemical analysis. Sternum was collected for DNA profiling. No poison or intoxicant was detected on chemical analysis. The police arrested the tenant who confessed to murdering the lady with a knife.

### DISCUSSION

Common flies (like *Musca domestica* and *M. vicina*) are attracted to dead bodies and lay eggs in and around natural orifices and injuries. In summers, within 24 hours these eggs hatch into maggots or larvae. These maggots produce powerful proteolytic enzymes and crawl and burrow under the skin making tunnels and sinuses. These tunnels and sinuses allow air and bacteria which hastens putrefaction. These maggots develop into pupae and in the next 4 or 5 days transform into adult flies. They consume tissues and are known to alter wound morphology and, in some cases, have also been implicated in fabricating wounds. (5) The process decomposition is responsible for producing artefacts which is more in summers and with maggot activity. (3) Kanchan T and Acharya J have reported a case in which the maggot activity resulted in a wound that mimicked a gunshot injury. (1)

In our case the dead body was recovered after around three days. The body was in early decomposition state and was infested with maggots. Flies usually lay eggs over exposed natural orifices and undersurface of chin and neck were unusual sites to find infestation of maggots unless these were injuries. The upper body clothes of deceased were blood stained extensively which suggested profuse bleeding. The wounds on chin and neck had lax margins and their edges were also not regular partly due to maggot activity and partly due to putrefactive changes. It was difficult to comment upon the type of injury at first, however a careful inspection of the injured structures in the depth of wound favored sharp force trauma. Our findings were corroborated by police investigation. The alleged assailant was arrested by the police later and confessed to inflicting injuries with a knife.

Forensic entomology is an emerging field that studies the feeding of corpses by maggots which in turn produces postmortem changes in the dead body. (7) When the dead body is exposed to warm environmental conditions, insects start to infest soon after death. Among insects, flies are most frequently seen. Maggots soon start feeding extensively over soft tissue which leads to the appearance of a dead body and any antemortem wounds (8) Maggots can enter the skin through preexisting wounds in areas other than the often infected bodily apertures. In certain sporadic cases, the fly larvae's salivary gland enzymes may even cause bone lamellae to perforate. (9) Misinterpreting findings can be avoided by properly examining and documenting postmortem findings. The finding may not be suggestive at first, especially in bodies that have been exposed to the vagaries of the environment. Forensic pathologists should be aware of artefacts and be able to recognize these at autopsy. Incorrect interpretation of the autopsy finding can result in travesty of justice.

### CONCLUSION:

Artifacts, even though they have been extensively reported in the literature, can still be misinterpreted. Documenting and reporting artifacts that enhance the current knowledge is important. Forensic pathologists are expert witnesses who form expert opinions based on facts observed by them. They need to be well versant of the known and at the same time should be able to interpret what is yet not known.

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