



Pathology/Biology Section - 2016

H93 When Insect Colonization Starts Before Death: A Case From Central Italy

*Stefano Vanin, PhD**, Queensgate, Huddersfield HD1 3DH, UNITED KINGDOM; *Martina Focardi**, Largo Brambilla 3, Florence 50134, ITALY; *Manuela Bonizzoli, MD*, Neuromusculoskeletal and Sensory Organs Dept, Largo Brambilla 3, Florence 50134, ITALY; *Marialuisa Migliaccio, MD*, Neuromusculoskeletal and Sensory Organs Dept, Largo Brambilla 3, Florence, ITALY; *Laura Tadini Buoninsegni, MD*, Neuromusculoskeletal and Sensory Organs Dept, Largo Brambilla 3, Florence, ITALY; *Marco Mangini, MD*, Neuromusculoskeletal and Sensory Organs Dept, Largo Brambilla 3, Florence, ITALY; and *Vilma Pinchi, PhD*, via Della Resistenza 14, Murlo, Siena 53016, ITALY; *Gian A. Norelli, sez.dep.Medicina Legale, Firenze, ITALY*

After attending this presentation, attendees will better understand the case of a woman with a severe myiasis found unconscious in her garden five days after having last been seen alive. Attendees will realize that in cases such as this, in case of death, an entomological evaluation of the time since death would be completely wrong.

This presentation will impact the forensic science community by demonstrating that flies can colonize unconscious bodies before death and in so doing can affect the minimum Postmortem Interval (mPMI) estimation based on the entomological approach.

Forensic entomology is a branch of forensic science in which insects are used as evidence in legal investigations relating to humans or wildlife. The examination, identification, and analysis of insects associated with human remains, combined with the knowledge of insect biology, can provide a further level of detail in addition to medical and anthropological data in the reconstruction of events occurring close to the time of death. In particular, necrophagous insects are useful in studying Postmortem Interval (PMI), postmortem transfer, and presence of drugs or poisons. One of the theoretical pillars on which the discipline is based concerns the fact that flies colonize a body after death; however, in cases of myasias (infestation of parasitic fly larvae on living or necrotic tissues in living vertebrates), maggots are present before the death of the individual with consequences in the correct estimation of the mPMI if based only on the entomological approach.

In this presentation, a case is reported of a woman who was found alive lying in her garden for four days before being rescued. The living woman was largely colonized by fly larvae.

In July 2015, an 84-year-old woman, affected by arterial hypertension and hyperthyroidism, was found unconscious by the emergency rescue team in the garden of her home. The pre-hospital evaluation found the patient hypertensive, hypoglycemic, with a severe infestation of fly larvae on the face and particularly on the conjunctivae, the nasal choanae, the mouth, and the external auricular ducts. A sore was detected in the sacral region, potentially related with her lying position. The patient was also affected by first- and second-degree sun burns on the exposed parts of her body: the abdomen and part of the thorax.

A total body Computed Tomography (CT) scan of the woman showed a left cerebral intraparenchymal capsulo lenticular hemorrhage. The larvae infestation was reported in the bronchi, rectum, vagina, and the external auricular ducts with bilateral multiple perforations of the tympanic membranes. Larvae, on the second and third instars were collected and identified as members of the *Calliphoridae* family. A second CT scan reported a bilateral purulent ethmoidal, maxillary sinusitis, that received surgical drainage. No larvae were found in the affected sinuses. The infestation evolved in the perforation of bilateral tympanic membranes, maxillary sinusitis, and bacterial pneumonia. The sacral wound was treated with escharectomy and debridement of purulent material

The woman had been observed being active five days before being rescued and died the day after the rescue. In this case, a classic entomological evaluation would have provided a completely erroneous mPMI. This case is an example of how unconscious bodies can be colonized before death and how it can affect the time-since-death evaluation if based only on the entomological approach. In suspicious conditions, histological analysis of the colonized tissues can be helpful in order to evaluate if colonization started before or after death of the victim.

Entomological Evaluation, PMI Estimation, Myiasis