

Myiasis and Neglect

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Editorial

Forensic entomology is a science that studies the crime scene and solves other civil and criminal litigation by using many species of insects. Among these, flies have a main role in the minimum Post Mortem Interval (PMI) assessment in death or murder cases but flies also have medical and veterinary importance because they carry pathogens causing diseases or parasitosis to humans and animals. More specifically, myiasis that are well known in medical and veterinary field, are infestations caused by fly larvae that at least for a certain period feed on living or dead tissues, body fluids or ingested food of the host [1]. Many species of Oestridae, Calliphoridae, Sarcophagidae and Muscidae are considered the main agents of myiasis in wild vertebrates, but also farmed and domestic animals and humans [1-9]. Myiasis occur in animals when untreated injuries or uro-genital and anal secretions, make the living vertebrate a suitable substrate for fly development. Pets and farmed animals are very attractive to flies when neglect results in the accumulation of urine or feces on the coat. [10] This may also occur as a result of traumatic injury or pathology. [8]. Recently, [7] have reported that in cats, decubitus ulcers and exposed wounds are very attractive conditions for facultative-myiasis species (e.g. *Calliphora vicina*, *Lucilia sericata* (Diptera, Calliphoridae) and *Sarcophaga argyrostoma* (Diptera, Sarcophagidae). *Cuterebra jellisoni* (Diptera, Oestridae) is a species commonly found on domestic rabbits [11,10] while *Wohlfahrtia magnifica* [12], (Diptera, Sarcophagidae) known as the Mediterranean screwworm, is an obligate parasite of sheep and goats although dogs can serve as a reservoir for it [3,4,12-15,8]. In humans the incidence of myiasis is generally underreported [4] and their importance in legal investigations has often been underestimated. If humans are attractive, flies lay their eggs or larvae in and around clothing and on the skin. The immature stages feed on open wounds, ulcers, natural openings [1,4] and there complete their life cycle. In humans, in addition to open wounds and poor hygiene, low levels of education, alcoholism, malnutrition, lesions in the oral cavity and gingivitis, are factors leading to the myiasis [16]. *Dermatobia hominis* and *Cochliomyia hominivorax* are the main agents causing cutaneous myiasis in humans.

When human infestation occurs, the parasites are useful tool in forensic sciences because they can prove neglect or abuse. In the world, many cases such as neglect of the elderly and children and cases of abuse on animals [10,17-21], using the diptera larvae infestations (e.g. *Fannia canicularis*) have been reported. When myiasis occurs, the subjects are still alive, so time of death is not the issue, but length of time of neglect is the data we are interested in. Under these circumstances, the exact identification of the species causing myiasis and the length and age of the maggots will indicate the minimum length of time of abuse or neglect [22,23]. It may happen that if a person was already infested when death occurred, the insects collected

may cause an overestimation of PMI [24,25]. In order to avoid this mistake in the time of death estimation, the entomologists must pay more attention to both the crime scene and the detected species.

While in humans the relevance of insects in showing neglect has been proven, in animals this relation is poorly investigated. Often myiasis in farmed animals and pets has not been reported because the owners were reluctant to consult a veterinarian for many reasons [10] but, in the cases reports by vets, the larvae causing myiasis can be used to prove neglect in farmed animals and pets but also to estimate the length of time of suffering. In conclusion, myiasis is very helpful evidence for pathologists and veterinarians when cases of deliberate neglect or abuse in both humans and animals are investigated. In these contexts flies may become important evidence during trials of owners, farmers and relatives of a victim.

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