



United States Department of Agriculture

Animal and Plant
Health Inspection
Service

Veterinary
Services

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New World & Old World Screwworm Myiasis

Case Definition

(Notifiable)

1. Clinical Signs:

1.1 Clinical Signs: Screwworm myiasis is caused by either of two species of fly larvae (both in the family Calliphoridae): *Chrysomya bezziana* (Old World screwworm) and *Cochliomyia hominivorax* (New World screwworm). Screwworm myiasis is often associated with pre-existing wounds, though infestation can also occur on mucous membranes, such as nostrils, eye orbits, ears, mouth, and genitalia. Nearly any wound is susceptible to screwworm infestation. This includes natural wounds received from arthropod bites, fighting, and disease, or wounds resulting from management procedures such as barbed wire fencing, dehorning, castration, and ear tagging. Navels of newborn mammals are also common sites for screwworm infestation. Characteristics of infested wounds include drainage, suppuration, discharge of blood and serum, and distinctive odor. Secondary bacterial infections are also likely to occur. Upon close examination, eggs are deposited "shingle-like" in masses. Larvae are visible by the third day of infestation and are positioned with their posterior ends at the surface of the wound. In cases where the wound is deep, pocket-like, and the opening small, minor movement within the wound may be the only indicator of infestation. Animals with screwworm infestations often display discomfort, lethargy, and depression, and they may separate from the herd. Anorexia and decreased milk production may also be observed.

2. Laboratory criteria

2.1 Agent identification: Larvae collected for diagnosis should be removed from the deepest part of the wound using forceps to reduce the possibility of collecting non-screwworm species. Living specimens should be examined for pigmentation of the posterodorsal tracheal trunks, then preserved in 70 percent alcohol (ethyl or isopropyl) for further examination. Young specimens may also be placed in 80-95% alcohol. *Do not place larvae into other preservative solutions because the larvae may contract and darken.* Larvae are best preserved when they are killed in boiling water prior to placing in alcohol or ethanol, though this preservation method is not necessary. Killing larvae by boiling in water has no negative effect on potential subsequent extraction of mitochondrial DNA, amplified by polymerase chain reaction (PCR), but it might affect other molecular techniques.

2.2 Serology: At this time, there are no applicable serological tests, nor are they indicated in the identification of this disease.

3. Case Definition and Reporting Criteria

3.1 Suspect case: An animal with clinical signs consistent with blow fly or screwworm myiasis.

3.2 Presumptive positive case:

3.2.1 Presumptive positive imported case: A suspect case that has travel history outside the United States to any screwworm-infested country within the previous 10 days.

3.2.2 Presumptive positive autochthonous case: A suspect case that has no travel history outside the United States within the previous 10 days, **and was**

- Located near a previous confirmed positive, **or**
- Identified as screwworm by a lab other than the NVSL, **or**
- Identified as screwworm by a collector with screwworm experience.

3.3 Confirmed positive case:

3.3.1 Confirmed positive imported case: The National Veterinary Services Laboratories (NVSL) confirms presence of screwworm from a presumptive positive imported case by visual identification of the egg mass, larvae (first, second, or third instars), or adult fly.

3.3.2 Confirmed positive autochthonous case: The NVSL confirms presence of screwworm from a presumptive positive autochthonous case by visual identification of the egg mass, larvae (first, second, or third instars), or adult fly.