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Case Report

Cutaneous Myiasis Infestation in an Eight Weeks Old Alsatian Puppy

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Abstract

Larval infestations (myiasis) of domestic and wild animals have been considered issues of economic and public health importance, alongside most arthropod diseases, since ancient times, due to significant damage they cause to the hides and skin of livestock, and also the fact that some of these larvae parasitize humans, this study has aid in understanding the complications that could result from infestation of myiasis in puppies.

Keywords: *Myiasis; Infestation; Alsatian Puppy*

Introduction

Myiasis is the infestation of Man and vertebrate Animal with the larval stages of dipterous flies. There has been recorded infestation of myiasis to occur at the eyes, mouth, urino-genital tract, nose, intestine and brain, where they ingest liquid body substances by feeding on living or dead tissues for the larvae survival [1,14]. They are been classified to three groups based on their predatory behaviour; obligatory, facultative and accidental fly maggots. Fly maggots that cause infestation when found on living Man and vertebrate animal are obligatory parasites, while facultative parasites are fly maggots attracted to fetid and foul odours of dead tissues and organic matter [7].

Myiasis can be classified as follows:

1. Obligatory myiasis: A living host is required to complete development (will not survive without a living host).
2. Facultative myiasis: Living host tissue is not required to complete development.
3. Accidental myiasis: Rare chance events of myiasis (i.e. accidental ingestion of fly eggs) [7].

Prevalence and epidemiology

Studies carried out in Africa on dog cutaneous myiasis records the prevalent rate of 41.09%, 58.95% and 68.9% an intensity level of 46% and 54% in male, female and puppies of age below 5 month were diagnosed with larvae extract, respectively with significance difference ($p < 0.05$) statistically in Nigeria was documented [11]. Average temperature and humidity has shown excellent positive factors in myiasis cases. There was a high number of myiasis cases been recorded during March to September when the temperature was above 25 degree Celsius (except in June) and relative humidity was 79 - 80% [11].

Life cycle

- The fly deposit eggs in the kennel or sleeping place of dogs.
- The larvae hatches in 2 - 4 days and penetrate into the skin where they grow to mature larvae in 8 - 15 days.
- The larvae pupate on ground for 3 - 4 weeks before the fly emerges.

Aetiology and transmission

Some flies may lay an egg in open wound, some other larvae may invade unbroken skin or enter the body through the nose or ear and still others may be swallowed if eggs are deposited on the lip or on food [8]. *Cordylobia* species *Cordylobia antropophaga* (*C. antropophaga*) also refer to as 'tumbu fly' of Africa are large robust, a brownish-yellowish fly which causes a boil like (funicular) type of myiasis particularly of dogs. The fly deposit it eggs on dry, shaded environment especially if contaminated with animal faeces and urine; the eggs are hatch after 1 - 3 days and remain just under soil surface to be activated by host body heat to emerge and actively burrow into the skin of the host and burrow in a furuncle [5].

The larvae feed on the liquid protein in the subcutaneous tissue until it reaches maturity without migrating into deeper structures for a set time, where it molts to both second stage and third stage larvae [2]. The larva feeds voraciously at this stage and then leaves the host in search of a dry and safe place to pupate. The pupa forms an outer coat and metamorphosis occurs after a few days, the adult fly emerges and the empty puparium is left behind [9] opening to the skin allows it breathe and eliminate larval excretions [12] the larva possesses two spiracles that give origin to two tracheas [13] and these are located in the posterior portion of the larva, close to the skin [10].

Pathology

Effect varies depending on the numbers of larvae, species of fly, and site of infestation, general signs include; irritation, discomfort, pruritus, weight loss, reduced fertility. Heavy infestations will lead to severe tissue damage, haemorrhage, anaphylaxis, toxaemia, and secondary bacterial infections which could lead to death if not treated.

Clinical sign and diagnosis

Furunculosis is the clinical sign observed in myiasis. Each nodular lesion contains one larva although multiple lesions may occur rarely more than four or five lesions application of a pressure to such lesion may lead to larva with liquefied haemorrhagic or purulent tissue, the application of pressure to such lesions may lead to expulsion of the larva [4,6]. Canine myiasis is usually been diagnosed by the extraction and laboratory identification of the larvae.

Treatment and control

Control and treatment methods for myiasis in dog are limited. If larvae are detected in puppies, immediate therapy is important. The coat will be clipped to observe the lesion and to extract many of the larvae present [3]. Consulting a Veterinarian as early detection will improve response to treatment, to observe an effective treatment of the wound.

Prevention

For effective prevention, as a dog owner you should observe the effectiveness of treating all skin wounds, your dog should be confined to fly-free areas. The coat should be cleaned when contaminated with urine or faeces and should not be allowed to become matted, to prevent the attraction of adult myiasis producing flies. Controlling adult flies in the field is by the destruction of their breeding places for excellent preventive measures [3].

Case Report

History: A Client brought the dog in on the 27th of February, 2017 to Agege Animal Hospital Oko-Oba, Agege Lagos State, with complaints of swellings on the jaw and the dog was salivating, and inappetance, also he said he did observed larva (maggots) coming out of the skin of the puppies.

Signalment

- Specie: Canine
- Breed: Alsatian
- Weight: 2.8 kg
- Age: 8 weeks
- Colour: Black and tan
- Sex: Male

Clinical finding

- Pale mucous membrane
- Lean
- Rough coat
- Enlarged lymph node
- Larva observed underneath the skin
- Sub-mandibular swelling

Conclusion

This study has shown that observing good personal hygiene, keeping the coat clean from contamination, proper wound management, ensuring good environmental hygiene, use of fly proofing measures, and Kennels and sleeping place of the puppy been kept clean and dry has improved the dog response to treatments.

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