

Flystrike among Domestic Animals: An Overview

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Abstract:- Flystrike is a condition which arises due to egg laying by certain group of flies on open wounds of domestic animals. After hatching, the larvae bury themselves under the skin and feeding on their flesh for a certain period of time. Infested animals often exhibit symptoms like distress, low appetite, and putrid odour, many of which further result in enhancement of oviposition by flies. Flystrike can prove to be fatal for affected animal due to septicemia or ammonia poisoning. The condition is troublesome, not only leading to degradation of livestock, but also causing the economics losses to the livestock industry. The loss of productivity is generally in terms of reduced production from the individually struck animals, and through the elevated amount of time and cost of treating and preventing the condition. Effective measures are needed to minimize the risk of flystrike that can prove beneficial to the health and wellbeing of livestock and farm productivity.

Keywords:- Flystrike, Myiasis, Blow Fly, Parasitosis.

I. INTRODUCTION

'Flystrike' often called as 'myiasis', is the invasion of live animals with fly larvae which feed on the host's necrotic or living tissue, blood or ingested food [1]. The larvae, also known as 'maggots' carry on their normal development for certain period of time on the body of an animal. The flies are allured towards neglected open wounds to lay their eggs. Egg laying is further enhanced by foul smelling putrid secretions from wounded tissue which is followed by larval development. Once the larvae metamorphose, flies continue to deposit eggs on to new or already infested animal, resulting in secondary myiasis. The larvae penetrate the ruptured skin and either burrow in to the dermal layers or open wounds leading to wound enlargement. Lesions caused by them make the livestock animals' deficient of blood, weakened and result into death in severe cases. Due to irritation caused by maggots; the animals do not feed properly and become malnourished. Affected animal generally become restless and scratches the affected body regions. Death may occur within few days but is possibly due to ammonia poisoning and septicaemia [2]. Incidence of myiasis is widespread worldwide among domestic animals in the tropical regions including India where all the favourable conditions for the abundant growth of myiatic flies and their larvae are prevalent. Various records are available in literature on the occurrence of myiasis among livestock throughout the world, like a summary of sheep-strike

by *Lucilia sericata* in Great Britain [3]; blowfly strike among sheep in New Zealand by *Lucilia cuprina* [4]; a review on the occurrence of myiasis in Africa among man and animals [5]; myiasis in animals including cattle, sheep, horse, dog and pig from Australia, due to *Chrysomya bezziana* [6]. Similarly, aggressive myiasis in pet dogs due to *Chrysomya bezziana* had been reported from Great Britain [3], Hong Kong [7] and Brazil [8]. Flystrike among livestock had also been reported extensively from India as well, with the earliest report dating back to 1920 [10-16].

II. FLYSTRIKE CAUSING SPECIES

Flystrike is the result of opportunistic infestation of wounded tissues of live animals by the larvae of three major groups of flies including blowflies belonging to family Calliphoridae, flesh flies belonging to family Sarcophagidae and bot flies belonging to family Oestridae. The house fly (*Musca domestica*) is also sometimes responsible to cause this problem. Among blow flies, The old World Screwworm fly- *Chrysomya bezziana*, the Greenbottle fly- *Lucilia sericata*, the Blackbottle fly- *Phormia terraenovae* and the Bluebottle fly- *Calliphora erythrocephala* are the key species responsible for the parasitic infestations by laying eggs in the wounds of livestock [1].

Fly populations are generally abundant during the summers, though due to the variations in climate, the period of risk can also be witnessed during winters (March to December) in certain geographical regions. In optimal conditions, the entire life history of the fly from egg to adult can be completed in 8 to 10 days. Gravid females generally lay eggs on open wounds and then hatch into first instar larvae after about 12 hours. The larvae then feed on the underlying tissue, pus and blood, becoming third-instars in only 3 days if humidity and temperature are at the optimum. Third-instars then fall on to the soil and undergo pupation; emergence of adult flies occurs after 3 to 7 days between May to September. Pupation can be prolonged over the months during winters in the soil and emerge when temperature of soil rises in the spring season [2].

Maggots are voracious feeders and hence result in enormous damage to the tissue by secreting hydrolytic enzymes whereas foul odours of decomposing tissue attract secondary blowflies. Toxins secreted by injured tissues and ammonia released by the maggots are actively absorbed through the porous lesions into the animal's bloodstream, resulting in

serious illness and leading to death in extreme cases [9]. Untreated secondary infections are common and may also result in death of the animal. Flystrike is a huge economic concern for the dairy farmers with remarkable prevention expenditure involved. Affected animals with fly strike have irregular patterns of grazing and result in rapid weight loss if kept untreated for many days [4]. Affected animals can be first detected exhibiting signs of depression, anorexia, and separation from herd mates; may be irritated and attempt to bite or rub at the struck area. Close observations reveals maggots burrowing or tunneling under the dermal or sub-dermal tissues. In spite of preventative measures undertaken by the dairy farmers, fly strike is a major animal welfare problem. This number can elevate much higher if no preventive measures are undertaken. Flystrike occurring on of foot lesions results into serious non-weight bearing lameness, increasing the welfare consequences of lameness alone. Death with estimated death rate of 5% generally results in affected animals [6].

➤ *Clinical signs*

Reproductively mature flies are attracted to the soiled body regions surrounding the tail or buttocks, and to wounds, foot-rot lesions on the skin, and urine scalding around the prepuce. Behaviour of the animal is a good indicator of flystrike. The important clinical signs include: Isolation from the herd, discolouration of wool, restlessness and kicking or nibbling at the affected body regions, irregular grazing, tissue decomposition, toxemia and death. Injuries from flystrike may range from minor skin damage or irritation with a few maggots to large traumatised areas and devitalised skin leading to death of the animal. More frequently, the hump of the animal is more affected, but lesions may also be witnessed around the shoulders, withers, back and head [3].

➤ *Diagnosis*

Diagnosis of flystrike is based on visual inspection, primarily by finding of fly larvae in the wound. Huge population of adult flies is often witnessed around the soiled fleece with maggots on the wounded skin as the adjoining fleece has been lifted. Putrid smell is often associated with the maggot wound due to putrefaction. Among sheep the wool may grow black on skin which has been damaged previously by flystrike.

➤ *Treatment*

Flystrike affected animal's treatment involves removing of maggots, cleaning and disinfecting of wounds, supplementing with course of broad spectrum antibiotics, and non-steroidal anti-inflammatory drugs under veterinarian's advice. Treatment by plunge dipping using a weak solution of organophosphate pesticide may be helpful but it is more suitable to cure individual animals with dip wash applied directly to the struck body regions after removal of fur or wool.

➤ *Prevention and control*

Prevention of fly strike is the first and foremost action of veterinarian's treatment plan. The key expenditure of blowfly

strike is related to the prevention of the condition. Repeated investigations of livestock combined with labour-intensive preventive measures generally cost more than treatment of a few parasitized animals; however inability to protect the livestock is a great welfare risk and could lead to a severe outbreak of the disease. Various approaches can be adopted to minimize the risk of flystrike among livestock:

- Blowfly alert so as to recognize the durations of elevated risk and to take precautionary measures.
- Manage lambs with intestinal infestations caused by helminths to reduce diarrhoea and hence reduce fecal contamination.
- Trimming of fur around the anal region to minimise fecal soiling.
- Pour-on medicinal preparations so as to reduce prone body regions for egg laying by flies.
- All the wounds and foot-rot lesions should be treated promptly.
- Fly trapping to help minimise populations of flies - this should be used along with other control measures.

III. CONCLUSION

Fly strike is a problem of great concern in the field of veterinary medicine. Moreover it is of great economic concern in an agriculture based country like India, where huge portion of the population's economy depends on the cattle business. The condition has long been identified as a cause of decline in productivity of the livestock industry as a result of pathological effects and recurring expenditures on prevention and management of flystrike.

This also poses a serious threat to the Indian livestock industry. There is an urgent need of public education regarding the actual causes of flystrike and the factors behind its occurrence, so that this problem can be controlled both among man and domestic animals. The effective preventive measures like the maintenance of neat surroundings, reduction of odours of decomposition, control of fly populations, and bandaged wounds can be of great help in protecting our animal populations.

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