

Article

Study on occurrence of myiasis in different species of animals at Babuganj Upazilla of Barishal district in Bangladesh

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Abstract: Myiasis is a common insect borne surgical problem of animals in Bangladesh. The present study was conducted to find out the occurrence in relation to various epidemiological factors in various species of animals at Upazilla Veterinary Hospital, Babuganj, Barishal, during the period of study from December 2020 to April 2021. Myiatic cases were identified by clinical examination with presence of maggot larvae in the affected regions. Questionnaire was used to collect data on species, sex, season, affected body region, age of animals. A total of 110 cases were recorded myiasis positive among 500 examined animals during the period of study. The overall occurrence of myiasis in different species of animals was 22%. Female animal of cattle, sheep, goat and buffalo were highly affected (63.63%) than male (36.36%). Goats were highly infected with myiasis followed by cattle, sheep and buffalo (45.45%, 22.72%, 18.18% and 13.63%, respectively). Myiasis frequently occurred in March and April (54.54%). The myiasis infestation rate was higher in local (68.18%) breed of cattle (local: 13; cross: 12), goat (local: 27; cross: 23), sheep (local: 20), buffalo (local: 15) than the cross (31.82%) breed. The <6 months (45.45%) aged animals were mostly affected followed by 6 months to 2 years (31.82%), and >2 years (22.73%) groups. The highly affected body region was navel (20%) followed by leg (18.18%), vulva lips (16.36%), hoof (15.45%), skin (12.73%), ear (9.09%) and neck (8.18%), respectively. This study will provide valuable information for future research on myiasis infestation in animals and impart the idea of maggot wound management.

Keywords: myiasis; occurrence; animals; maggot; breed

1. Introduction

Myiasis is the disease which affects the animal in all age. The flies that causing myiasis are two types: 1) primary myiasis causing flies that's larvae feed on living tissue, and 2) secondary myiasis causing flies that's larvae feed on necrotic tissues and exudates (Khan *et al.*, 2018). In wound myiasis the open wound mainly infested by fly larvae, mostly often from green and black blowflies (Dinulos *et al.*, 2014). Unlike the larvae of common house flies, the flies that cause wound myiasis invade healthy tissue as well as necrotic tissue and the treatment was usually done by irrigation and manual debridement (Caissie *et al.*, 2008). Live vertebrates are

infested by dipteran larvae they feed the dead and living tissue, liquid body substance and make broad range of infestation, that's depends on body location. The infestation of live vertebrates with dipterous larvae is called Myiasis (Francesconi *et al.*, 2012). Domestic animal's skin wound contains larvae and this are contaminated with bacteria (Obanda *et al.*, 2013). Calf was presented with the maggot wound and revealed the necrotic tissue filled with maggot around vulva and anus (Jesse *et al.*, 2016). Clinically, it can present as cuticole, gastrocole, anal, genitor-urinary, nasopharyngeal, ocular, cavicole and aural depending on anatomical site due to the eggs or larvae of dipteran fly that laid on the wounds or nasal, oral, genital and aural cavities (Sherman *et al.*, 2000). Infestation of its cause irritation, annoyance to the animal and disruption their normal habits including resting, feeding, digestion that lead to retard growth, loss of weight, reduce milk and meat production etc (Otranto *et al.*, 2004). Myiasis in sheep and goat is a major issue that causing considerable pain and suffering, if it is untreated produce major pain and productivity loss, reproduction loss and sometimes the animal are die (Sotiraki *et al.*, 2012). This study investigated the maggot formation in different species of livestock like cattle, goat, sheep, buffalo and different region like navel, leg, ear, inside the hoof, anus, vagina, and tail and also discussed the insidal maggot formation of navel, vagina, and this study give information about the significant difference of infestation rate of different gender. So, this study was carried out to meet the following objectives: to find out the overall occurrence of myiasis in different species animals and to know the occurrence of myiasis in relation to breed, age, sex, region and different body regions.

2. Materials and Methods

2.1. Study area and duration

The study was conducted on myiasis in cattle, goat, sheep and buffalo during December 2020 to April 2021 at Upazilla Livestock Office, Babugonj, Barishal, Bangladesh. Mainly local and cross breed animal were examined.

2.2. Sample size

A total of 500 animals were examined during the study period. Apparently healthy, infested, and dead animals of different species age, sex, breed, and coat color were examined for study.

2.3. Questionnaire design and data collection

Questionnaire was used to collect the animal data. All data were recorded including animal, s age, sex, breed, occurring season, affected site of myiasis.

2.4. Collection of clinical history about clinical findings:

The clinical history was collected from the farmers and person who were exclusively related with the affected animal. The asked questions were easy and simple and technical terms were avoided.

2.5. Tentative diagnosis:

Tentative diagnosis was based on clinical history, animal examination, presence of maggot in the affected regions and clinical findings.

2.6. Management procedure

At first the infested area were cleaned with the antiseptic solution and removed the hair from there if present. Then closely observed how many deep the wound was. And observed carefully the maggot were present or not. If the maggot were present then remove the maggot from there by the forceps. Then infused anti- parasitic in the wound. And then the infested area was bandaged. These cases were treated with antibiotic, antihistamine, pain killer, and tarpin oil.

3. Results and Discussion

3.1. Overall occurrence of myiasis in different species of animals

Among 500 samples the overall occurrence of myiasis infested case were 110 (22%) (Figure 1). Khan *et al.* (2018) reported that the prevalence of myiasis was 28.75%. The variation between the present and previous studies might be due to the sample size, geographical location, climate change, management factors, rearing procedure, topography of respected livestock.

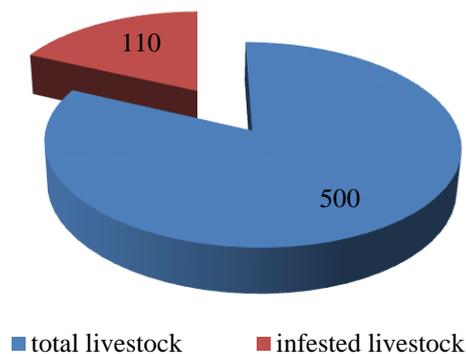


Figure 1. Overall occurrence of myiasis.

3.2. Age wise occurrence of myiasis in different species of animals

Occurrence of myiasis was higher in <6 months age group (45%) followed by 6 months to 2 years age group (32%) and > 2 years group (23%) (Figure 2). These results were supported by Juyena *et al.* (2013) and Rahman *et al.* (2009) who reported myiasis infestation in different age group of animals.

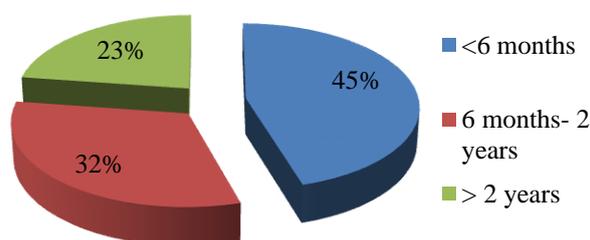


Figure 2. Myiasis infestation rate in respect to age groups.

3.3. Species wise occurrence of myiasis

Myiasis infestation rate was 45.45% and 13.63% in goat and buffalo, and (22.72%) in cattle, (18.18%) in sheep respectively (Figure 3). Wardhana *et al.* (2018) reported that the cattle were commonly infested host (65.5%) followed by goat (22.34%). Farkas *et al.* (1998) reported that the most commonly myiasis affected animal were cattle (72.7%), and sheep (53.6%).

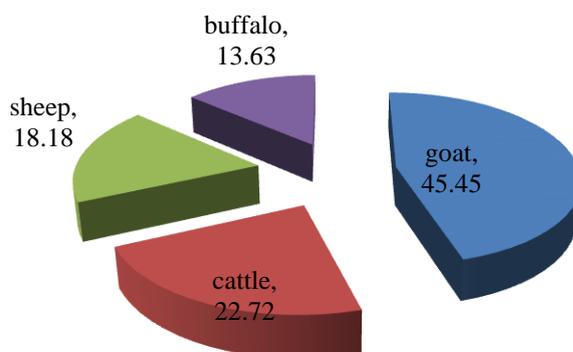


Figure 3. Myiasis infestation rate in different species.

3.4. Month wise occurrence of myiasis

The infestation rate was higher in March (22.73%) and April (31.82%) (Figure 4). Alahmed *et al.* (2004) reported that myiasis highly occurred during March-May (60%), and lower during June- August (5%) and cold season Dec-Feb (1.5%) that is similar to the present study.

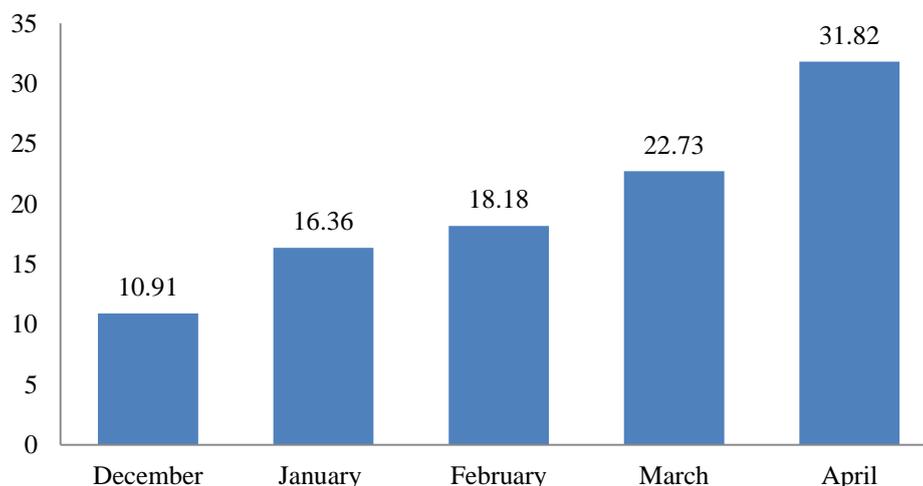


Figure 4. Occurrence of myiasis in different months.

3.5. Sex wise occurrence of myiasis

The total female animals of cattle, sheep, goat and buffalo were more frequently affected (64%) by myiasis than male (36%) (Figure 5). In line with present study Wardhana *et al.* (2018) reported female (55.4%) was significantly affected than male (44.6%). Rahman *et al.* (2009) revealed that females (67%) were highly affected than males (33%) which were similar with the present study.

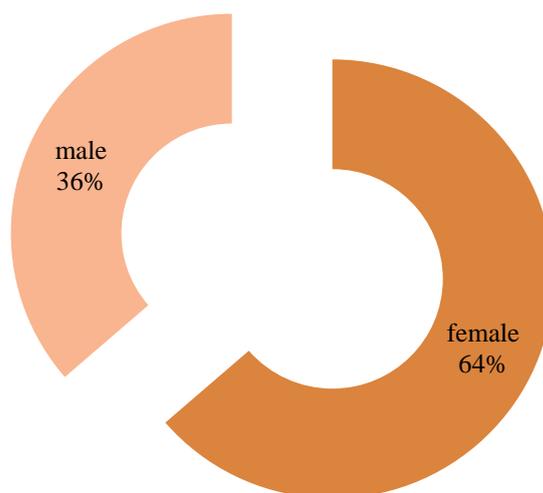


Figure 5. Occurrence of myiasis in relation to sex.

3.6. Breed wise occurrence of myiasis

Myiasis infestation rate was higher in local (68.18%) breed of cattle (local: 13; cross: 12), goat (local: 27; cross: 23), sheep (local: 20), buffalo (local: 15) than in cross (31.82%) breed (Figure 6). Rahman *et al.* (2009) reported that myiasis infestation rate was higher in cross (53%) breed and lower in local (47%) breed which was inconsistent with the present report.

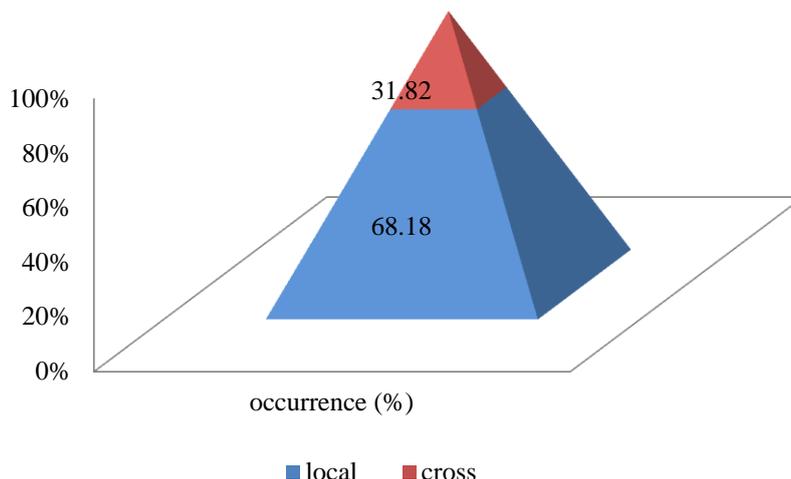


Figure 6. Occurrence of myiasis in relation to the breed of different species.

3.7. Occurrence of myiasis in relation to body regions

The highly affected body region was navel (20%) followed by leg (18.18%), vulva lips (16.36%), hoof (15.45%), skin (12.73%), ear (9.09%) and neck (8.18%) (Figure 7). Amandeep *et al.* (2016) reported that the body part of horn and tail are more prone to injuries than other body parts because of fight. The neck region of oxen often injured with plough during tilling of fields and nostril are more injured because of nose rope and this is the favorite site for onset of myiasis. And in newborn calf the navel region is the more prominent site for myiasis.

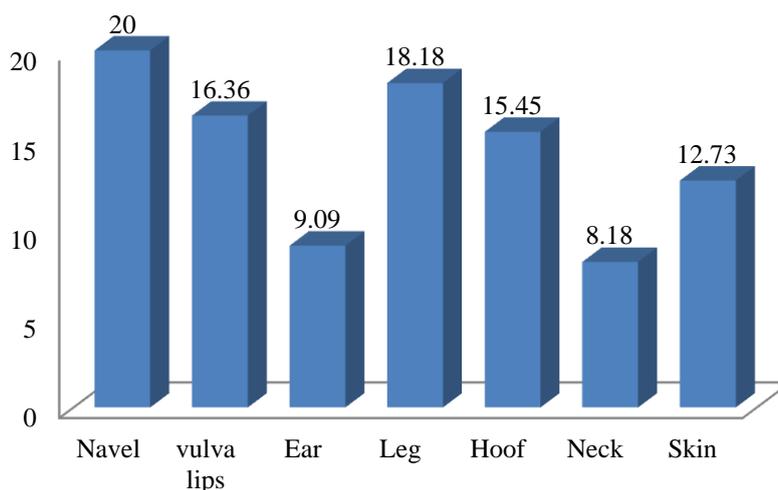


Figure 7. Occurrence of myiasis in relation to different body regions.

4. Conclusions

Myiasis is common problem in livestock and is of great concern in medical and veterinary fields. It occurs mainly from wound by maggot formation. Removal of larvae allows rapid healing. In severe case drug and disinfection is more effective. It affects the economic status. It is of great economic importance in an agricultural based country like Bangladesh where economic status depends on livestock industry. Goats were frequently affected than cattle, buffalo and sheep. The <6 months age group was highly affected. Local breed mostly affected and animal were frequently affected in April.

Conflict of interest

None to declare.

Authors' contribution

Bidyut Matubber: conceptualization, methodology, data collection, analysis and manuscript writing; Milton Talukder: supervision, reviewing and editing; Lamyea Farzana Nini: data collection, analysis and manuscript writing; Md. Atikuzzaman Arif: data collection, reviewing and editing. All authors have read and approved the final manuscript.

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