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RETROSPECTIVE STUDY OF MYIASIS IN RUMINANTS AT BABUGANJ UPAZILLA VETERINARY HOSPITAL OF BARISAL

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ABSTRACT

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The study was conducted to know the occurrence of myiasis in cattle and goats at Babuganj Upazilla Veterinary Hospital, Barisal, Bangladesh. A total of 160 animals were examined. Among them 46 animals were found to be myiasis infested. A structured questionnaire was used to collect data on species, breed, age, sex, body condition of the animal, onset and duration of illness, affected sites of myiasis. The study was conducted during March 2014 to May 2015. All the data that were collected were entered into MS excel. Descriptive analysis was done by column and pie charts. It was possible to follow the response of treatment using two treatment protocols. The overall occurrence of myiasis was 28.75% where 39.13% in cattle and 60.87% in goat. The occurrence was higher in cross breed cattle (55.56%) than the local (44.44%). Similarly the occurrence rate was higher in cross breed goat (42.86%) than local breed (28.57%). Less than 6 months aged animals (71.73%) and females (cattle-61.11% and goat-64.29%) were more prone to myiasis. The frequency of maggot infestation was higher in navel region (54.35%) followed by vaginal (28.26%) and rectal (10.87%) regions respectively. The percentage of recovery to Inj. SP vet, Inj. Asta vet and Inj. Vermic were 67.86%. Myiasis is the major problem in livestock production in our country. Animals at high risk should be managed properly to avoid wound and special attention on wound management should be given after castration and parturition to prevent myiasis.

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INTRODUCTION

The Greek word 'Myia' means fly and myiasis means a condition caused by the infestation or invasion of organs or tissues of living animals or mans by the larval stages of dipteran flies. They feed hosts dead or living tissues, liquid body substances or ingested food (Zumpt, 1965). Livestock plays an important role in poverty alleviation and economic development of Bangladesh. Scientific breeding, feeding, management and disease control are the key points of success in livestock improvement program. But one of the major constraints in the development of livestock is some diseases which occur due to poor management. Myiasis is the one of the disease condition which affects the animals in all ages. Myiasis causing flies are two types: 1) primary myiasis causing flies whose larvae feed on living tissues; 2) secondary myiasis causing flies whose larvae feed on necrotic tissues and exudates.

Myiasis is distributed worldwide with seasonal variation, the occurrence of which is related to the latitude. Its incidence is higher in tropical latitude, south-east Asia and subtropics of Africa, where warm and humid climate prevail almost throughout the year, but uncommon in United States (Bologna et al., 2008). Presence of wounds, soreness and laceration, wounds after delivery, castration, amputation of tail, FMD, foot rot, horn fracture, moist navel and vulva, wetted condition with urine contamination, sanitation and hygienic condition, wetted fleece, hair, recent surgery, bacterial skin contamination with foul odor, lack of aseptic wound care and fecal contamination etc. are still documented as the main predisposing factors for myiasis (Myiasis Wiki vet, 2011). As clinical point of view, myiasis can present as cutaneous myiasis, anal myiasis, genitor-urinary myiasis, nasopharyngeal myiasis, ocular myiasis, body cavity myiasis, wound myiasis, aural myiasis and intestinal myiasis (Sesterhenn et al., 2009). Maggot infestation in wound or ulcer is called traumatic myiasis or maggot wound. It may be primary or secondary depending on the species causing it (Venugopalan, 2004). The most frequent host for myiasis is cattle and goat (46.4%), followed by dogs (15.3%), humans (14.7%), pigs (6%), horses (4%) and sheep (1%) (Sergio et al., 2007). The available literature of different regions of the world contains a full description of myiatic wound, responsible flies with their life-cycle, pathogenesis, and clinical history with diagnosis and therapeutic regimen which was undertaken against the condition. In Bangladesh, very limited research was found with a view to explore occurrence and associated risk factors of myiasis in Bangladesh. The study was, therefore, undertaken to observe the occurrence of myiasis in cattle and goat in relation to species, age, sex, site of wound at Upazilla Veterinary Hospital, Babuganj, Barisal, Bangladesh.

MATERIALS AND METHODS

Study Area and Population

This study was conducted on myiasis in cattle and goat which were brought to Babuganj Upazilla Veterinary Hospital during March 2014 to May 2015. The species of animals examined mostly were local and cross with different exotic breed (e.g. Friesian). A total of 160 animals were examined.

Questionnaire design and Data collection

A structured questionnaire was used to collect animal level data like species, breed, age and sex, body condition of the animal, onset and duration of illness, affected sites of myiasis.

Different treatment protocol used in the treatment of myiasis in goat

Myiasis infested animals were treated by the drugs of penicillin and streptomycin combination, antihistaminic and ivermectin groups. Table 1 shows two treatment groups with different drugs, their dose and route of administration.

Data analysis

All data were entered into MS excel (Microsoft office excel-2007, USA). Descriptive statistical analysis was performed by column and pie chart and presented as percentage.

Table 1. Different drugs used for treatment

Groups	Name of drugs	Dose and Route of administration
A (19 goats)	Inj. SP vet, Inj. Astavet, Inj. Vermic	Inj. SP vet-1ml/10kg, IM. Inj. Asta vet-0.5-1ml/10kg, IM. Inj. Ivermec-1ml/50kg,S/C.
B (9 goats)	Inj. SP vet, Inj. Astavet vet	Inj.SP vet-1ml/10kg, IM. Inj.Asta vet-0.5-1ml/10kg, IM.

RESULTS AND DISCUSSION

The distributions of myiasis were 56.52%, 26.09%, 13.04% and 4.35% respectively in Rahamatpur, Dehergati, Chadpasha, Madhabpasha (Figure 1). In this study, 46 myiasis cases were observed on which 60.87% were in goat, 39.13% in cattle (Figure 2) whereas (Sergio et al., 2007) recorded the most infested host for myiasis were cattle and goat (46.4%) followed by dogs (15.3%), humans (14.7%), pigs (6%), horses (4%) and sheep (1%). The overall proportional prevalence of myiasis was 28.75% (Figure 3) which is comparable to the result of (Giangaspero et al., 2011). Alahmed (2004) reported 3% of 3129 cases in Italy, 2% of 3712 cases in Riyadh Region which were lower than our findings. However, some authors found higher prevalence than the present study that are 14.71% among 1964 cases in South-eastern part of Iran, 13.1% out of 1998 in South Iran, 59.9% out of 554 in Ethiopia, 40.3% out of 387 in north-eastern part of Turkey, 31.9% out of 1276 cases in Turkey, 24% out of 520 in northern Jordan and 35.68% among 1303 cases in France, northern Mediterranean region respectively (Radfar and Hajmohammadi 2012; Shoorijeh et al., 2011; Gebremedhin, 2011; Arslan et al., 2008; Kara et al., 2005; Abo-Shehada et al., 2003; Dorchie et al., 2000). The apparent variation might be reflected the differences in the levels of management, housing, sanitation, sample sizes, duration of study, study setting (Hospital VS field) used among the researchers as well as genetic variation in disease resistance among the breeds. It was evident that cross breed goat were frequently infested with myiasis (42.86%) than the local (28.57%), JP (17.86%) and Black Bengal (10.71%) (Figure 4) which is higher than the findings were reported by Farkas et al., (1997) in sheep breed saying that incidence varied significantly in imported breeds (28.8%) than in indigenous breeds (5.8%). On the other hand, the prevalence of myiasis is higher in cross breed (55.56%) than the local breed (44.44%) among the 14 cattle investigated (Figure 5). (Kara et al., 2005) also reported lower infestation of fly larvae in native cattle. Figure 6 showed that less than 6 months old goats were more susceptible to myiasis (71.73%). This finding is quite opposite to (Rahman et al., 2009) who reported predominantly higher wound myiasis in cattle over 2 years. (Kara et al., 2005) described that the intensity of the infestation decreased with the age of cattle.

However, (Arslan et al., 2008) reported that the infestation gradually increase with the age of cattle like: 30.0%, for up to 1-years-old, 40.0% for 1 to 3 years-old and 52.4% for more than 3 years old. While Al Ahmed (2004) stated prevalence of larval myiasis among young sheep was 60% and 40% among adults and (Abo-Shehada et al., 2003) reported all age groups were infested in each month of the year. In this study, female animals were more frequently affected (63%) with myiasis than the male (37%) as shown in Figure 7. Similar finding was also reported by Radfar and Hajmohammadi (2012). Some authors reported more cases in male than female (Orfanou et al., 2011; El-Rahman, 2010; Kara et al., 2005; Farkas et al., 1997). (Shoorijeh et al., 2011) and (Abo-Shehada et al., 2003) reported same level of infection in both sexes. The study revealed that frequency of maggot infestation was higher in navel (54.35%) and vaginal region (28.26%) (Figure 8). Tyner, 2010 reported that the most common sites of myiasis of fawn were rump/hip, rectal/vaginal, tail, inter-digital space & tarsal glands, metatarsal gland, teats, umbilicus, chest/back and pre-orbital gland. Radfar and Hajmohammadi (2012) reported 71.25% and 28.75% myiasis in subcutaneous tissue of back and flanks respectively in goat. Kumar and Ruprah (1984) described 27% myiasis in the navel area of newborn calves and 20% in vulvar region of recently calved cows. It is also observed that, myiasis was appreciably linked with alteration of demeanour of animals. The infected animals under the investigation were found dull or depressed (Figure 9). Two treatment protocols were used in myiasis and the recovery percentage was around 68% in case of combined use of Inj. SP Vet, Inj. Asta Vet and Inj. Vermic were 67.86%.

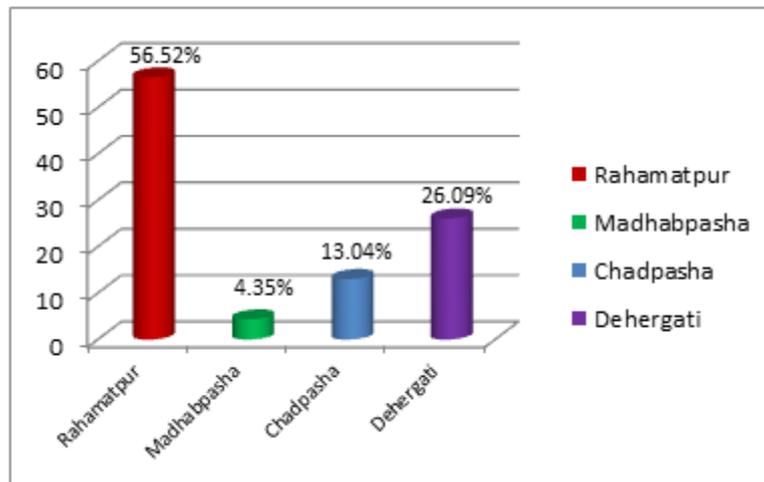


Figure 1. Area-wise distribution of myiasis studied at Babuganj Veterinary Hospital during March 2014 to May 2015.

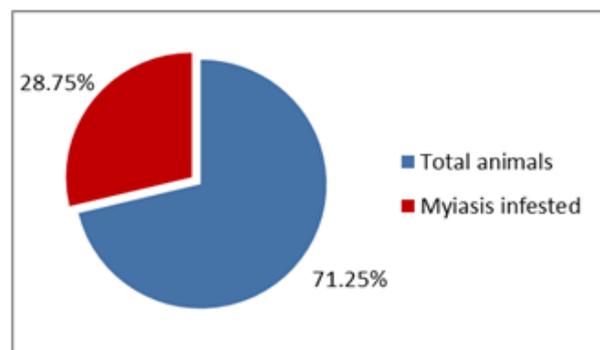
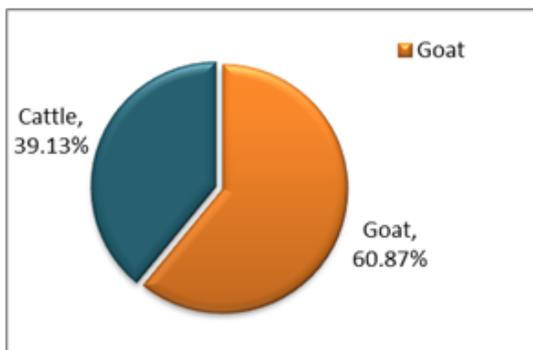


Figure 2. Species wise distribution of myiasis **Figure 3.** Overall occurrence of myiasis in Babuganj Veterinary Hospital during March 2014 to May 2015.

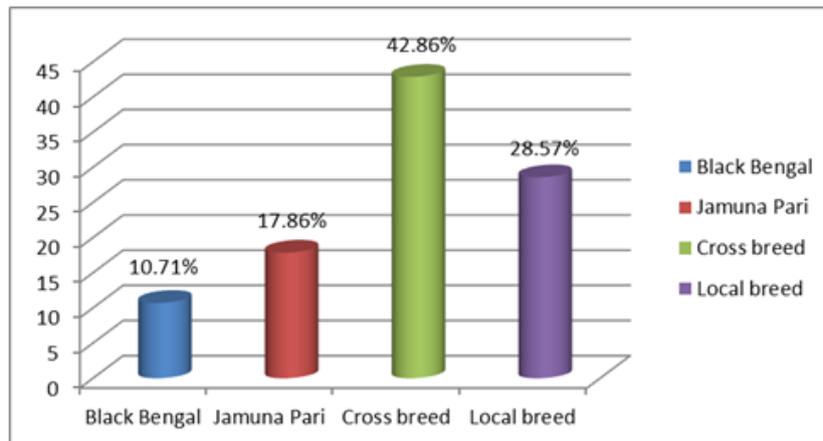


Figure 4. Breed wise distribution of myiasis in goats

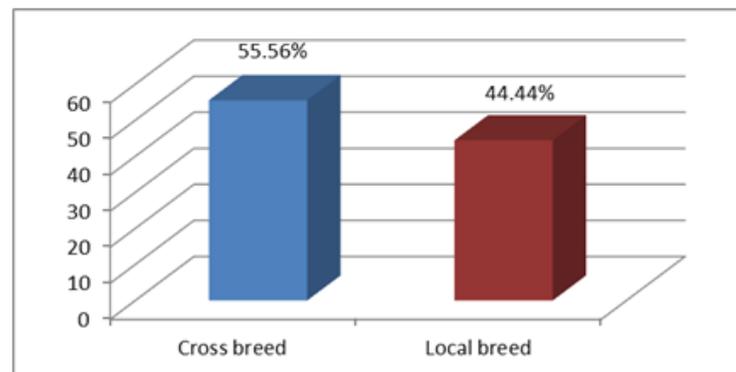


Figure 5. Breed wise distribution of myiasis in cattle

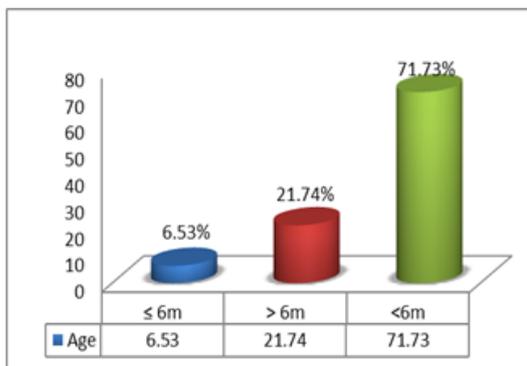


Figure 6. Age-wise distribution of myiasis in goat

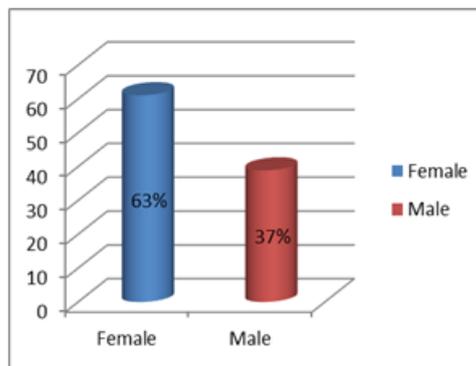


Figure 7. Sex wise distribution of myiasis in goat

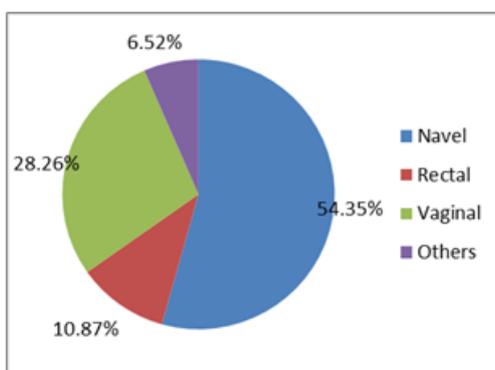


Figure 8. Common sites of myiasis in different cattle and goats

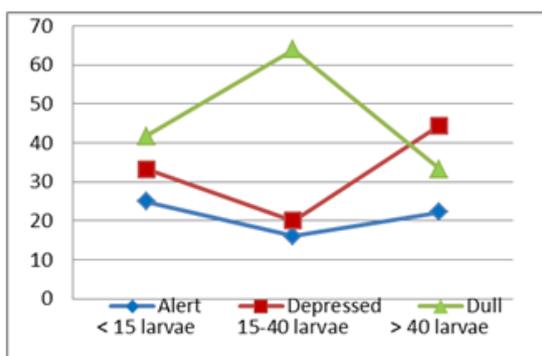


Figure 9. Distribution of myiasis according to the demeanour of animals

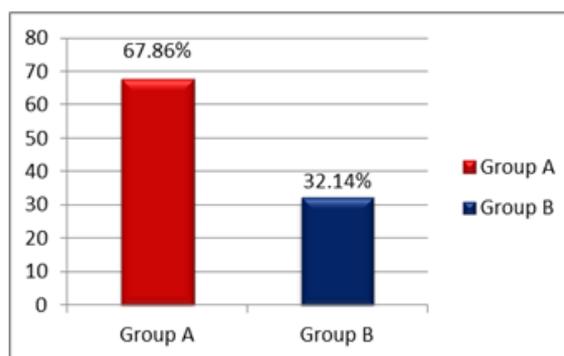


Figure 10. Recovery percentage of two treatment protocol

CONCLUSION

Myiasis is very common and widely distributed disease at Babuganj Upazilla. Animals at high risk should be managed properly to avoid wound and special attention on wound management should be given after surgery (castration, amputation of tail, hernia, etc.) and parturition to prevent myiasis.

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CONFLICT OF INTEREST

The authors declare that they have no conflict of interest.

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