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Prevalence of Various Clinical Diseases and Disorders in Goats at Kasba Upazilla, Bangladesh

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ABSTRACT

Background: Goats are considered poor man's cow because goat farming remains a profitable venture for decades but diseases and disorders are the sheer hindrances of goat rearing. Clinical studies on prevalence of diseases and disorders in goats are available, but no study has been observed based on etiology, sex and seasons in Kasba Upazilla, Bangladesh. This study was conducted to detect the incidence of clinical diseases and disorders in the study area.

Methods: During the study period of January to December 2018 a total number of 786 goats were diagnosed at Upazila Veterinary Hospital by general, physical and clinical examination. Data were assembled through a structured sheet and analyzed by using SPSS software version 12.

Result: The clinical cases were primarily categorized into six major groups (1) Viral (2) Bacterial (3) Parasitic (4) Surgical (5) Gynaeco-obstetrical (6) Systemic and other disorders. Systemic and other disorders constituted the highest percentage 26.59% in comparison to viral 19.84%, bacterial 25.19%, parasitic 17.81%, surgical cases 6.74% and gynaeco-obstetrical diseases 3.81%. Among each category of clinical cases, the highest diseases and disorders recorded were PPR 13.10%, pneumonia 15.39%, fascioliasis 5.85%, urolithiasis 3.05%, retained placenta 1.39%, diarrhea 9.54% respectively. Sex-wise disease frequency was 41.41% and 58.21% in male and female respectively, whereas season-wise most sizeable percentage was recorded in rainy season 44.69% than in winter 31.65% and summer 22.98%.

Key words: Diseases prevalence, Disorders, Goats.

INTRODUCTION

The livestock sector in Bangladesh represents a major success story in the present era of agricultural production. It is predominantly based on cattle, goats, sheep, buffalo and poultry that forms an integral component of the mixed farming system practiced in Bangladesh for centuries. Livestock contribution in agricultural gross domestic product (GDP) of Bangladesh was 13.46% (DLS 2020). Among the goat farmers, 96% of farmers used roadside grass and tree leaves whereas only 4% of farmers used cultivated fodder which was cultivated in their land in Bangladesh, 85% of farmers used mixed feed which is prepared by themselves (Kumar *et al*., 2018).

The mortality of goat is one of the severe problems confronting goat rearing in Bangladesh. Like other livestock, goats equally susceptible to various diseases or disease conditions causing debility and mortality, which leads to huge economic loss. Major clinical diseases and disorders were pneumonia (37.44%), diarrhea (21.22%), lameness (3.01%), mange (2.99%), in case of seasons, the most elevated incidence was found during the rainy season (2.26%) (Munsi *et al*., 2018). A high rate of disease prevalence happened because of the non-availability of appropriate disease controlling system in Bangladesh. Although some reports on the analysis of clinical case records of cattle and goats from Teaching Veterinary Hospital (TVH) in Chittagong Veterinary and Animal Sciences University (CVASU) (Parvez *et al*., 2014), Bangladesh Livestock Research Institute (BLRI) (Munsi *et al*., 2018), Patuakhali Science and Technology University Veterinary clinic (Rahman *et al*., 2012) but no report based on etiology, sex and season has been published from Kasba Upazila. Further information on goat diseases is needed for the provision of appropriate veterinary clinical services, disease control and animal production. Therefore an attempt has been conducted to determine the etiological incidence, seasonal variation and the influence of sex on goat diseases and disorders.

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MATERIALS AND METHODS

The study was conducted at Kasba Upazila of Bangladesh. Kasba is an Upazila of Brahmanbaria District under Chittagong Division in east-central Bangladesh. Latitude is 23° 43′ 59.88″ N and Longitude is 91° 10′ 0.12″ E. The fertile soil and good water potential provide ample scope for livestock rearing in the district. A number of 93,082 goat populations were recorded during the time of census 2011 which was 0.37% of the entire goat population of Bangladesh (BBS, 2011).

Study population and duration

The study was conducted during the period of January to December 2018. A total of 786 clinical cases were recorded and analyzed. Data were collected through two alternative methods. One was at Upazila Veterinary Hospital where farmers willingly came with the patients and complaints and the information was gathered by asking questions carefully and another method was visiting goat farms where data were enlisted with preformed datasheets.

General examination

Physical condition, behavior, posture, gait, superficial skin wound, prolapse of the uterus and vagina, salivation, nasal discharge, distension of the abdomen, locomotive disturbance, *etc*. were observed by visual examination of the patient.

Physical examination

Examination of distinct parts and systems of the body of sick goats was examined by using the procedure of palpation, percussion, auscultation, needle puncture and walking of the animals.

Clinical examination

The temperature, pulse and respiratory rate from each of these sick goats were recorded. Clinical examinations of 786 sick goats of different sex and seasons were conducted based on disease history (present and past), owner complaints, symptoms and techniques such as microscopic examination, common laboratory tests used by Rosenberger (1979). These recorded clinical cases were primarily categorized into six major groups based on the treatment required. Corneal opacity was included under systemic and other cases because the surgical intervention has never been practiced in such cases (Osmani *et al*., 2000). The data were analyzed by using SPSS software version 12 (SPSS, Inc., Chicago, IL, USA) to determine the incidence of clinical diseases/disorders.

RESULTS AND DISCUSSION

The diseases and disorders of goats are shown in Table 1. Among 786 clinical cases, viral diseases were (156) 19.84%, bacterial diseases were (198) 25.19%, parasitic diseases were (140) 17.81%, Surgical cases were (53) 6.74%, Gynaeco-obstetrical diseases were (30) 3.81%, Systemic and other disorders were (209) 26.59%. Prevalence of clinical diseases and disorders of goats concerning sex was highest in females 58.21% than males 41.41% (Table 1) in an agreement with the results of Kabir *et al*. (2010) who reported sex-wise prevalence in male and female goats were 40% and 60% respectively. Parvez *et al*. (2014) also reported frequency of diseases on female goats was higher (61.63%) than the male (38.37%). Prevalence of clinical diseases and disorders in goats due to seasonal variation revealed highest in rainy season 44.69% followed by summer 22.98% and winter 31.65% (Table 2). The study result is almost similar to the findings of Parvez *et al*. (2014) who showed the highest prevalence in the rainy season 38.80% in comparison to winter 31.43% and summer 29.77%.

Viral diseases in goats

The present study revealed a viral disease incidence of 19.84% in goats (Table 1) and supports the findings of Khan *et al*. (2018) who recorded 22.22% of viral diseases in goats. Karim *et al*. (2014) also recorded 23.74% viral diseases.

PPR: The study revealed 13.10% of PPR cases in goats (Table 1) which is lower than Khan *et al*., (2018); Kabir *et al*., (2010) who reported 22.22% and 28.69% respectively and higher than Rahman *et al*. (2012) who reported 5.2% PPR cases.

Contagious ecthyma: The incidence of contagious ecthyma in goats was 4.07% (Table 1) which is higher than Munsi *et al*. (2018) who recorded 1.63% cases.

Rabies: This study revealed 1.65% (Table 1) of rabies cases in goats didn't agree with Ehsan, (2018) who reported 0.22%.

FMD: This study recorded 1.01% (Table 1) of FMD cases in goats which is almost similar to Ehsan, (2018) who reported 1.15%. Samad, (2001) also reported 0.08% cases of FMD.

Bacterial diseases in goats

The prevalence of bacterial diseases was 25.19% in goats (Table 1). The result supports Khan *et al*. (2018) who reported 26.65% bacterial cases. Karim *et al*. (2014) also recorded 29.88% cases.

Pneumonia: In this study pneumonia recorded in goats was 15.39% (Table 1). The result is comparatively higher than Karim *et al*. (2014) who recorded 9.6% pneumonia cases. Rahman *et al*. (2012) also reported 16.8% pneumonia cases in goats.

Mastitis: The study diagnosed 7.78% of cases of mastitis in does (Table 1). The result does not agree with Munsi *et al*. (2018) who reported 1.6% mastitis cases. Kabir *et al*. (2010) also reported a lower incidence of mastitis (1.14%) in does.

Tetanus: This study recorded 2.03% cases of tetanus in goats (Table 1). The result agrees with Khan *et al*. (2018) who recorded 2.22% of cases of tetanus. Karim *et al*. (2014) also reported 0.5% tetanus cases.

Parasitic diseases in goats

The study resulted in parasitic disease incidence were 17.81% in goats (Table 1). This observation does not agree with Rahman *et al*. (2012) who recorded 20.4% parasitic infestation. Khan *et al*. (2018); Parvez *et al*. (2014) also recorded 15.54% and 15.22% cases respectively.

Myiasis: The frequency of myiasis was 4.07% (Table 1) in goats which are higher than earlier reports Munsi *et al*. (2018) who recorded 0.78% cases and lower than Khan *et al*., (2018); Rahman *et al*., (2012) who mentioned 8.88% and 16.4% respectively.

Mange: Prevalence of mange in goats was 1.78% (Table 1). Results are lower than Khan *et al*. (2018) who reported 6.66% cases. Munsi *et al*. (2018) also reported 2.99% cases of mange. The result is comparatively similar to the report of Samad, (2001) who recorded 2.11% cases.

Fascioliasis: The frequency of fascioliasis in goats at Kasba was 5.85% (Table 1) which is not comparable with Shahiduzzaman, (2014) who reported 14.29%. fasciola cases. Karim *et al*. (2014) also reported a 1.6% incidence in goats.

Strongyloidiasis: Prevalence of strongyloidiasis were 2.03% (Table 1) in goats which was less than those recorded by Morgan *et al*. (2006); Shahiduzzaman, (2014) where the author reported 6.85% and 5% prevalence in goats respectively.

Table 1: Overall prevalence of clinical diseases and disorders of study population on the basis of disease category and sex.

Diseases/Disorders	Category wise incidence of diseases and disorders No= 786		Sex wise incidence of diseases and disorders No= 786	
	Frequency	Percentage (%)	Male(%)	Female(%)
PPR	103	13.10	4.56	8.54
Contagious Ecthyma	32	4.071	2.1	1.97
Rabies	13	1.65	0.62	1.03
FMD	8	1.01	0.34	0.67
Sub total (viral diseases)	156	19.84	7.62	12.21
Pneumonia	121	15.39	7.31	8.08
Mastitis	61	7.76	2.21	5.55
Tetanus	16	2.03	0.94	1.09
Sub total (bacterial diseases)	198	25.19	10.46	14.72
Myiasis	32	4.07	1.5	2.57
Mange	14	1.78	0.68	1.1
Fascioliasis	46	5.85	2	3.58
Strongyloidosis	16	2.03	0.98	1.05
Coenuriasis	32	4.07	1.67	2.4
Sub total (parasitic diseases)	140	17.81	6.83	10.7
Abscess	11	1.39	0.61	0.78
Urolithiasis	24	3.05	2.45	0.6
Overgrown Hoof	18	2.29	0.89	1.4
Sub total (surgical cases)	53	6.74	3.95	2.78
Retained placenta	11	1.39	-	1.39
Abortion	8	1.01	-	1.01
Dystocia	3	0.38	-	0.38
Repeat breeders	8	1.01	-	1.01
Sub-total (Gynaeco-obstetrical diseases)	30	3.81	-	3.79
Bloat	23	2.92	1.12	1.8
Fever	32	4.07	1.65	2.42
Corneal opacity	37	4.70	1.87	2.83
Conjunctivitis	3	0.38	0.18	0.2
Diarrhoea	75	9.54	5	4.54
Dysentery	27	3.43	2.1	1.33
Enterotoxaemia	3	0.38	0.12	0.26
Wound	9	1.14	0.51	0.63
Sub-total (systemic and other disorders)	209	26.59	12.55	14.01
Total			41.41	58.21

Table 2: Season wise overall prevalence of clinical diseases and disorders of study population.

Disease/Disorder	Incidence (%) in goats (N=786)		
	Summer season (March-June)	Rainy season (July-October)	Winter season (November-February)
PPR	3	6.3	3.8
Contagious ecthyma	1.06	2.14	0.87
Rabies	0.5	0.5	0.65
FMD	0.17	0.58	0.26
Pneumonia	2.41	5.78	7.2
Mastitis	1.56	3.45	2.75
Tetanus	1.29	0.53	0.21
Myiasis	0.34	3.06	0.67
Mange	0.21	1.01	0.56
Fascioliasis	0.53	3.45	1.87
Strongyloidosis	0.5	1.01	0.52
Coenuriasis	0	2.8	1.47
Abscess	0.62	0.34	0.43
Urolithiasis	1.25	0.93	0.87
Overgrown hoof	1.01	0.72	0.56
Retained placenta	0.4	0.6	0.14
Abortion	0.27	0.15	0.21
Dystocia	0.1	0.16	0.12
Repeat breeders	0.28	0.36	0.25
Bloat	0.7	1	1.2
Fever	1.2	2.3	0.57
Corneal opacity	1.6	1.3	1.8
Conjunctivitis	0.12	0.14	0.12
Diarrhoea	2.1	4.7	2.74
Dysentery	1.1	1.03	1.3
Enterotoxaemia	0.12	0.15	0.11
Wound	0.54	0.2	0.4
Total	22.98	44.69	31.65

Coenuriasis: The investigation revealed an incidence of coenuriasis in goats 4.07% (Table 1). This result is comparable with Shahiduzzaman, (2014) who reported 3.57% cases of coenuriasis.

Surgical cases in goats

The prevalence of surgical cases was noted at 6.74% in goats which was less than those recordd by Parvez *et al*. (2014) where the author reported 16.84% surgical cases. Akther *et al*. (2018) also reported 4.26%.

Abscess: During the study period abscess was recorded 1.39% in goats (Table 1). The result supports Rahman *et al*. (2012) who reported 1.3% cases of abscess. Samad, (2001) reported 1.56% but Karim *et al*. (2014) showed 5.6% cases of abscess which is higher than the study result.

Urolithiasis: The present study of urolithiasis cases were recorded at 3.05% in goats (Table 1) which is much lower than Karim *et al*. (2014) reported 44.4% cases of urolithiasis. Sen *et al*. (2018) reported the prevalence of urolithiasis in goats 4.92%, incase of male it was 6.67% whereas in the female it was 0%. However, the present study reported 2.45% and o.6% cases of urolithiasis in males and females respectively (Table 1). Parvez *et al*. (2014) reported 1.37% and 0.11% urolithiasis cases in males and females respectively.

Overgrown hoof: Overgrown hoofs were recorded 2.29% (Table 1) in goats. Samad, (2001) reported 0.70% and Karim *et al*. (2014) reported 33.3% frequency of overgrown hoof.

Gynaeco-obstetrical diseases in goats

The prevalence of gynaeco-obstrical diseases was 3.81% (Table 1). Result supports (Samad, 2001) who recorded 3.67% gynaeco-obstetrical diseases in does but does not agree with Karim *et al*. (2014) who reported 0.9% gynaeco-obstetrical cases. Rahman *et al*. (2012) also recorded 1.1% cases.

Retained placenta: Prevalence of retained placenta was recorded only 1.39% in does (Table 1). The finding contradicts the report of Karim *et al*. (2014) who recorded 50% retained placenta cases.

Abortion: The incidence of abortion was 1.01% (Table 1) in does. Result supports Munsi *et al*. (2018) who reported 0.58% abortion cases.

Dystocia: Incidence of dystocia was 0.38% in does (Table 1). The study report contradicts Rahman *et al*., (2012) who recorded 20.0% dystocia cases. Munsi *et al*., (2018); Samad, (2001) reported 0.96% and 1.56% dystocia cases in does respectively.

Repeat breeders: Repeat breeders are those female ruminants that fail to conceive after three or more regularly spaced services Samad, (2000). This disorder was recorded 1.01% (Table 1) in goats. The study result does not support Rahman *et al*., (2012) who reported 20.0% repeat breeding cases. Samad, (2001) also reported 0.24%.

Systemic and other disorders in goat

The prevalence of systemic diseases and disorders in goats was 26.59% (Table 1) higher than earlier reports of Khan *et al*. (2018) who reported 22.2% cases. Karim *et al*. (2014) who recorded 29.46% systemic and other disorders in goats.

Bloat: Prevalence of bloat in goats was 2.92% (Table 1). It supports Khan *et al*., (2018) who reported 2.22% bloat cases. Rahman *et al*. (2012); Samad, (2001) also reported 2.5% and 3.98% bloat cases respectively.

Fever: Fever was recorded 4.07% in goats (Table 1). which could be well compared with Khan *et al*., (2018) who reported 4.44% cases of fever with unknown etiology. Kabir *et al*. (2010); Karim *et al*. (2014) reported 11.30% and 12.7% of goats were affected by fever respectively.

Corneal opacity: Prevalence of corneal opacity in goats was recorded 4.70% (Table 1). It could be well compared with Khan *et al*. (2018) who reported 4.44%. Kabir *et al*., (2010); Rahman *et al*. (2012) reported 7.84% and 9.9% cases of corneal opacity respectively.

Conjunctivitis: Prevalence of conjunctivitis was recorded 0.38% in goats (Table 1) which is comparable with the findings of Munsi *et al*. (2018) who reported 0.28% cases of conjunctivitis.

Diarrhea: Diarrhoea cases were 9.54% in goats (Table 1). These observations could not be compared with Khan *et al*. (2018) who reported 6.66% non-specific diarrhea in goats. The result is comparable with the report of Samad, (2001) who recorded 9.91% of diarrhea cases.

Dysentery: Prevalence of dysentry was 3.43% in goats (Table 1). Study result supports Khan *et al*. (2018) who recorded 4.44% cases. Samad, (2001) also reported 1.87% dysentery cases in goats.

Enterotoxaemia: Enterotoxaemia cases were recorded 0.38% in goats (Table 1). These observations could be well compared with Khan *et al*. (2018) who reported 0.38% cases.

Wound: Prevalence of wound was 1.14% in goats (Table 1). This finding does not agree with Rahman *et al*. (2012) who recorded 28.8% of wound cases.

CONCLUSION

The present study gives the scenario of diseases and disorders of goats in the particular study area. According to the study, goats were most susceptible to bacterial, viral, parasitic infestation and systemic diseases and disorders. Bacterial, viral diseases, Systemic and other disorders can be prevented by regular vaccination and therapeutic management. Parasitic infestation causes massive economic losses in years. So, regular anthelmintics treatment should be given to manage the parasitic diseases. The Upazilla has a border area with Agartala a state of India as a result diseases like FMD and PPR were frequently outbreaks in goats. Therefore, restriction of movement and frontier vaccination program must be undertaken. Proper planning and program should be undertaken to prevent and control diseases and disorders in goats.

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