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CLINICAL DISEASES OF RUMINANTS RECORDED AT THE PATUAKHALI SCIENCE AND TECHNOLOGY UNIVERSITY VETERINARY CLINIC

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ABSTRACT

This study was conducted at the Patuakhali Science and Technology University Veterinary Clinic, Babugonj, Barisal during the period from January 2008 to December 2011 to report the four years clinical diseases of ruminants. A total of 1241 clinical cases (793 cattle and 448 goats) were recorded and analyzed. Diagnosis of each of the clinical cases was made on clinical history, clinical signs, and faecal examination for parasitic cases. The clinical cases were primarily categorized into three major groups, namely, (1) Medicinal, (2) Gynaeco-obstetrical and (3) Surgical cases. Medicinal cases constituted highest percentage (cattle 84.1% and goats 81.0%) in comparison to gynaeco-obstetrical (cattle 4.7% and goats 1.1%) and surgical (cattle 11.2% and goats 17.9%) cases. Among the medicinal cases in cattle, highest percentage of cases was recorded with parasitic diseases (50.4%), followed by general systemic states (14.8%) and digestive disorders (14.2%). Other cases were respiratory disorders (5.5%), infectious diseases (4.6%), skin conditions (3.4%), eye disease (3.1%), urogenital disorders (1.5%), metabolic diseases (1.3%) and musculo-skeletal disorders (0.9%). In case of goats, the highest cases was recorded with digestive disorders (22.9%), followed by parasitic diseases (20.4%) and respiratory disorders (16.8%). Other Medicinal cases in goats were eye diseases (13.5%), infectious diseases (11.8%), general systemic states (9.6%), musculo-skeletal disorder (3.3%), skin diseases (0.8%) and nutritional deficiency diseases (0.8%). Among the gynaeco-obstetrical cases, anestrus (59.5%) in cattle and metritis (40.0%) in goats were recognized as the major gynaeco-obstetric problems. Traumatic wounds (cattle - 52.8%, goat - 28.8%) and castration (31.3%) in goats were recognized as the main disorders which required surgical interventions. It may be concluded that a number of diseases with various percentages have been occurring in the Babugonj upazila and this report will help to prioritize any control measures against major disease conditions reported in this study. However, it is required to estimate the prevalence of diseases in the population of that upazila to have more comprehensive information on the diseases of cattle and goat.

Key words: Clinical diseases, cattle, goat

INTRODUCTION

Livestock constitute an important part of the wealth of a country and it provides leather, and manure, meat and milk to the vast majority of the people. It plays a crucial role in the traditional economy of Bangladesh. Most of these animals under rural conditions in Bangladesh are maintained in traditional management system. Ruminants, especially cattle and goats constitute the major portion of the livestock. About 6.5% of national GDP is covered by the livestock sector, and its annual rate of productivity is 9%. About 20% of the populations of Bangladesh earn their livelihood through work associated with raising livestock. South Bengal regions of Bangladesh are low landed and flood/natural calamity affected area which encourages many diseases in livestock. Although some reports on clinical case records from Bangladesh Agricultural University Veterinary Clinic (Rahman *et al.,* 1972; Hossain *et al.,* 1986; Das and Hashim, 1996; Samad, 2001; Samad *et al.,* 2002), Haluaghat Upazila Veterinary Hospital, Mymensingh (Sarker *et al.,* 1999) and Dairy Cooperatives in Pabna district (Pharo, 1987), Trishal Upazila Veterinary Hospital, Mymensingh (Chowdhury *et al.,* 2003), Ulipur Upazila Veterinary Hospital, Kurigram (Kabir *et al.,* 2010) and Chandanaish Upazila of Chittagong district, Bangladesh (Pallab *et al.,* 2012) are available but similar report on ruminant are very limited in South Bengal regions of Bangladesh. This paper reports the four years' clinical diseases of ruminants recorded at the Patuakhali Science and Technology University Veterinary Clinic, Babugonj, Barisal.

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MATERIALS AND METHODS

This study was carried out on 1241clinically sick ruminants (cattle = 793, goat = 448) of different ages which were brought for treatment at the Patuakhali Science and Technology University Veterinary Clinic, Babugonj, Barisal over the period from January 2008 to December 2011. The animals were suspected to be affected with different diseases. The presumptive diagnosis of diseases was done on the basis of owner's complaint, clinical history, clinical signs and findings of fecal sample examination for parasitic cases. The clinical cases were primarily categorized into three major groups, such as (1) Medicinal cases (2) Gynaeco-obstetrical cases and (3) Surgical cases. The medicinal cases were categorized into major diagnostic groups that were considered sufficiently distinct so as to make clinical diagnosis accurate, such as (i) systemic states (ii) digestive disorders (iii) respiratory disorders (iv) eye diseases (v) musculo-skeletal disorders (vi) skin conditions (vii) parasitic diseases (viii) infectious diseases (ix) metabolic diseases (x) urogenital disorders and (xi) nutritional defficiency diseases. The study period was divided into three seasons on the basis of local climatic conditions viz. Summer (March to June), Rainy (July to October) and Winter (November to February). Data were organized in the Microsoft® Excel spreadsheet and percentages of disease conditions prevalent in different groups and seasons were calculated. The Chi-square goodness of fit test was done for significant differences in disease conditions among groups and seasons.

RESULTS AND DISCUSSION

Of the 793 recorded clinical cases of sick cattle, 84.1% was medicinal, 4.7% gynaeco-obstetrical and 11.2% surgical cases (Table 1). Of the 448 clinically sick goats, 81.0% had medicinal, 1.1% gynaeco-obstetrical and 17.9% surgical problems (Table 3). This observation supports the earlier report of Samad (2001) who recorded 90.76% medicinal, 5.46% gynaeco-obstetrical and 3.78% surgical cases in cattle; 76.91% medicinal, 3.67% gynaeco-obstetrical and 19.42% surgical cases in goat during 1999 to 2001 from the Bangladesh Agricultural University (BAU) Veterinary Clinic, Mymensingh. Of the 667 medicinal cases in cattle categorized into ten different groups, the highest cases was recorded with parasitic diseases (50.4%), followed by systemic states (14.8%) and digestive disorders (14.2%). Respiratory disorders were 5.5% while infectious diseases, skin conditions and eye diseases were 4.6%, 3.4% and 3.1%, respectively. The least recorded cases were musculo-skeletal disorder (0.9%), metabolic diseases (1.3%) and urogenital disorders (1.5%) (Table 1). In terms of digestive disorders and skin conditions, this observation is not consistent with the earlier report of Samad *et al.* (2002) who reported 60.55% digestive disorders and 14.92% skin conditions. It is well known that the occurrence of disease varies with different geographical locations. However, other diseases and conditions recorded by Samad *et al.* (2002) were almost similar in the occurrence with the present study. In case of goats, a total 363 medicinal cases diagnosed in nine different groups, of which highest cases was digestive disorders (22.9%), followed by parasitic diseases (20.4%), respiratory disorders (16.8%) and eye diseases (13.5%) (Table 3). Infectious diseases and systemic states accounted for 11.8% and 9.6% cases, respectively. The least recorded cases were with skin diseases (0.8%), nutritional deficiency diseases (0.8%) and musculo-skeletal disorders (3.3%).

Medicinal cases

General systemic states

Fever and malnutrition in cattle and goats, ill-thrift in cattle and food poisoning in goats were diagnosed under the general systemic states (Tables 1 and 3). It was revealed that 5.1% cattle and 4.4% goats were affected with fever of unknown etiology. The percentages of occurrence of fever in this study are comparatively lower than the earlier reports of 9.04% to 12.1% cases of fever in cattle (Pharo, 1987; Hoque and Samad, 1996; Samad, 2001; Samad *et al.,* 2002) and 10.37% fever cases in goats (Hoque and Samad, 1997). Although the fever cases was recorded in all the three seasons of the year but highest rate was recorded during rainy both in cattle (6.7%) and goats (6.3%). This observation supports the findings of Hoque and Samad (1996) and Samad *et al.* (2002) who reported higher percentage of fever in calves during rainy and summer seasons. In this study, 8.2% cases in cattle and 4.9% cases in goats with malnutrition were recorded. It has been reported earlier in Bangladesh that 3.14% calves suffer from malnutrition (Samad, 2008).

Table 1. Year-wise distribution of clinical cases of cattle recorded at the PSTU Veterinary Clinic during four years' period from 2008 to 2011

Sl No.	Diseases (Cattle)	No. (%) of cases				Overall	P-value
		2008	2009	2010	2011		
1.	**Systemic states**	**47 (20.6)**	**10 (7.1)**	**18 (11.3)**	**24 (17.3)**	**99 (14.8)**	**<0.001**
i.	Fever	12 (5.3)	5 (3.5)	10 (6.3)	7 (5.0)	34 (5.1)	
ii.	Malnutrition	25 (10.9)	5 (3.5)	8 (5.0)	17 (12.2)	55 (8.2)	
iii.	Ill thrift	10 (4.4)	0	0	0	10 (1.5)	
2.	**Digestive disorders**	**33 (14.5)**	**11 (7.8)**	**27 (16.9)**	**24 (17.3)**	**95 (14.2)**	**0.012**
i.	Bloat	4 (1.8)	3 (2.1)	2 (1.3)	6 (4.3)	15 (2.2)	
ii.	Enteritis	14 (6.1)	1 (0.7)	8 (5.0)	1 (0.7)	24 (3.6)	
iii.	Non-specific diarrhea	14 (6.1)	6 (4.3)	16 (10.1)	15 (10.8)	51 (7.6)	
iv.	Stomatitis	1 (0.4)	1 (0.7)	1 (0.6)	2 (1.4)	5 (0.8)	
3.	**Respiratory disorders**	**14 (6.1)**	**10 (7.1)**	**8 (5.0)**	**5 (3.6)**	**37 (5.5)**	**0.202**
i.	Epistaxis	1 (0.4)	2 (1.4)	0	0	3 (0.4)	
ii.	Pneumonia	13 (5.7)	8 (5.7)	8 (5.0)	5 (3.6)	34 (5.1)	
4.	**Eye diseases**	**7 (3.1)**	**8 (5.7)**	**5 (3.1)**	**1 (0.7)**	**21 (3.1)**	**0.140**
i.	Conjunctivitis	4 (1.8)	5 (3.5)	4 (2.5)	1 (0.7)	14 (2.1)	
ii.	Corneal opacity	3 (1.3)	3 (2.1)	1 (0.6)	0	7 (1.0)	
5.	**Musculo-skeletal disorder**	**3 (1.3)**	**0**	**1 (0.6)**	**2 (1.4)**	**6 (0.9)**	**0.607**
i.	Arthritis	3 (1.3)	0	1 (0.6)	2 (1.4)	6 (0.9)	
6.	**Skin conditions**	**10 (4.4)**	**6 (4.3)**	**2 (1.3)**	**5 (3.6)**	**23 (3.4)**	**0.127**
i.	Dermatitis	9 (3.9)	6 (4.3)	1 (0.6)	4 (2.9)	20 (2.9)	
ii.	Mange	1 (0.4)	0	1 (0.6)	1 (0.7)	3 (0.4)	
7.	**Parasitic diseases**	**102 (44.7)**	**78 (55.3)**	**91 (57.2)**	**65 (46.8)**	**336 (50.4)**	**0.027**
i.	Helminth infection	83 (36.4)	35 (24.8)	52 (32.7)	45 (32.4)	215 (32.2)	
ii.	Ectoparasitic infestation	8 (3.5)	37 (26.2)	34 (21.4)	20 (14.4)	99 (14.8)	
iii.	Babesiosis	3 (1.3)	2 (1.4)	0	0	5 (0.7)	
iv.	Coccidiosis	6 (2.6)	4 (2.8)	5 (3.1)	0	15 (2.2)	
v.	Stephanofilariasis	2 (0.9)	0	0	0	2 (0.3)	
8.	**Infectious diseases**	**7 (3.1)**	**13 (9.2)**	**5 (3.1)**	**6 (4.3)**	**31 (4.6)**	**0.172**
i.	Foot-and-mouth disease	1 (0.4)	2 (1.4)	1 (0.6)	5 (3.6)	9 (1.3)	
ii.	Haemorrhagic septicemia	3 (1.3)	1 (0.7)	0	1 (0.7)	5 (0.7)	
iii.	Actinobacillosis	0	1 (0.7)	1 (0.6)	0	2 (0.3)	
iv.	Papillomatosis	1 (0.4)	0	0	0	1 (0.1)	
v.	Foot rot	0	5 (3.5)	3 (1.9)	0	8 (1.2)	
vi.	Rabies	2 (0.9)	4 (2.8)	0	0	6 (0.9)	
9.	**Metabolic diseases**	**2 (0.9)**	**4 (2.8)**	**1 (0.6)**	**2 (1.4)**	**9 (1.3)**	**0.550**
i.	Mastitis	1 (0.4)	3 (2.1)	0	2 (1.4)	6 (0.9)	
ii.	Milk fever	1 (0.4)	1 (0.7)	1 (0.6)	0	3 (0.4)	
10.	**Urogenital disorders**	**3 (1.3)**	**1 (0.7)**	**1 (0.6)**	**5 (3.6)**	**10 (1.5)**	**0.221**
i.	Semen out	0	0	0	4 (2.9)	4 (0.6)	
ii.	Posthitis	2 (0.9)	1 (0.7)	1 (0.6)	1 (0.7)	5 (0.7)	
iii.	Balanoposthitis	1 (0.4)	0	0	0	1 (0.1)	
	Sub-total (Medicinal cases)	**228 (86.7)**	**141 (82.9)**	**159 (83.2)**	**139 (82.2)**	**667 (84.1)**	**<0.001**
1.	Repeat breeding	0	1 (14.3)	3 (50.0)	2 (25.0)	6 (16.2)	
2.	Anestrus	13 (81.3)	2 (28.6)	2 (33.3)	5 (62.5)	22 (59.5)	
3.	Retained placenta	0	1 (14.3)	1 (16.7)	1 (12.5)	3 (8.1)	
4.	Metritis	2 (12.5)	1 (14.3)	0	0	3 (8.1)	
5.	Uterine prolapsed	0	2 (28.6)	0	0	2 (2.7)	
6.	Dystocia	1 (6.3)	0	0	0	1 (1.1)	
Sub-total (Gynaeco-obstetrical cases)		**16 (6.1)**	**7 (4.1)**	**6 (3.1)**	**8 (4.7)**	**37 (4.7)**	**0.079**
1.	Abscess	1 (5.3)	0	0	0	1 (1.1)	
2.	Traumatic wound	13 (68.4)	14 (63.6)	9 (34.6)	11 (50.0)	47 (52.8)	
3.	Castration	0	1 (4.5)	1 (3.8)	0	2 (2.2)	
4.	Myiasis	0	4 (18.2)	12 (46.2)	6 (27.3)	22 (24.7)	
5.	Nasal polyps	0	0	0	1 (4.5)	1 (1.1)	
6.	Urolithiasis	1 (5.3)	0	0	0	1 (1.1)	
7.	Dehorning	2 (10.5)	1 (4.5)	0	1 (4.5)	4 (4.5)	
8.	Navel-ill	1 (5.3)	1 (4.5)	4 (15.4)	3 (13.6)	9 (10.1)	
9.	Upward patellar fixation	1 (5.3)	1 (4.5)	0	0	2 (2.2)	
	Sub-total (Surgical cases)	**19 (7.2)**	**22 (12.9)**	**26 (13.6)**	**22 (13.0)**	**89 (11.2)**	**0.774**
	Overall	**263**	**170**	**191**	**169**	**793**	**<0.001**

Digestive disorders

Digestive disorders (22.9%) were found to be highest among the different categories of diseases in goats. Under this category, diarrhoea was found to be the highest both in cattle and goats, followed by enteritis, bloat, stomatitis, simple indigestion and abdominal pain (Table 1 and 3). However, diarrhoea and enteritis were found to be the major digestive disorders in ruminants. Diarrhoea cases were 7.6% in cattle and 12.1% in goats (Table 1 and 3). These observations could be compared well with the 6.94% of non-specific diarrhoea in dairy cows, 8.99% in cow-calves and 12.23% in goats (Hoque and Samad, 1996, 1997). Samad (2001) reported 25.97% and 9.91% of diarrhoeal diseases in cattle and goats, respectively. Rahman *et al.* (1999) reported 4.78% of diarrhoeal diseases in cattle. Although the diarrhoeal and enteritis cases were recorded in cattle in all the seasons of the year but highest percentage was recorded during rainy (8.4%), followed by winter (7.5%) and rainy (7.3%) (Table 2). But in case of goats, highest percentage of diarrhoeal cases was recorded during winter (16.8%) followed by summer (9.4%) and rainy (10.9%) seasons and highest percentage of enteritis was recorded during summer (8.6%), followed by winter (6.5%) and rainy (3.1%) seasons (Table 4). This observations contradict with the report of Samad *et al.* (2002) who reported that diarrhoeal diseases was highest during rainy, followed by summer and lowest during winter seasons.

Respiratory disorders

Around 5.1% and 16.8% cases of pneumonia were recorded in cattle and goats, respectively, and 0.4% cases of epistaxis were recorded in cattle (Table 1 and 3). Cases of pneumonia in cattle were comparatively higher than the earlier reports of Samad (2001) and Samad *et al.* (2002) who reported 0.84% and 1.24% pneumonia in cattle, respectively. Samad (2001) reported 0.05% epistaxis in cattle. The cases of pneumonia in goats recorded in this study was about two times higher than the reports of Samad (2001) and Hoque and Samad (1997) who recorded 8.50% and 8.77% cases of pneumonia in goats, respectively. The highest percentage of pneumonia was recorded during summer, followed by winter and rainy seasons both in cattle and goats (Table 2 and 4). This observation contradicts with the report of Samad *et al.* (2002) who reported the highest percentage of pneumonia in cattle during winter (47.06%) in comparison to rainy and summer seasons.

Eye diseases

Conjunctivitis and corneal opacity in cattle and goats were recorded under this group (Table 1 and 3). Comparatively higher percentage of eye diseases was recorded in goats (13.5%) than cattle (3.1%). This observation supports the earlier report of Samad (2001) who reported the percentage of eye diseases was higher in goats (7.72%) than cattle (1.18%). Debnath *et al.* (1990) and Samad *et al.* (2002) reported 1.02% and 2.42% eye diseases in calves, respectively. The percentage of eye diseases was highest during summer (4.2%) and rainy (3.9%) seasons than winter (0.9%) in case of cattle. This observation is in agreement with the report of Samad *et al.* (2002) who reported highest percentage of eye diseases during rainy season. Similarly, in case of goats, percentage of eye diseases was highest during rainy (21.9%) followed by summer (9.4%) and winter (8.4%) seasons (Table 4).

Musculo-skeletal disorders

Arthritis was recorded in only six cattle (0.9%) and 12 goats (3.3%) (Table 1 and 3), which is in agreement with the findings of Samad (2001) who reported 0.02% and 0.31% cases of arthritis in cattle and goats, respectively. Both in cattle and goats, the highest percentage of arthritis was reported during summer, followed by winter and rainy seasons (Table 3 and 4).

Skin conditions

Dermatitis was recorded as the major skin disease of cattle and goats, followed by bee sting and mange. About 2.9% cattle and 0.6% goats were recorded as dermatitis cases (Table 1 and 3). Samad *et al.* (2002) also reported dermatitis (9.64%) as the major skin disease of calves. In goats, the percentage of dermatitis was 0.66% as reported by Samad (2001) and Rahman *et al.* (1999). The highest percentage of dermatitis was recorded in cattle during summer (4.9%) than winter (1.4%) and rainy (2.2%) seasons (Table 4). In goats, the percentage of dermatitis cases was 0.8% both in summer and rainy seasons (Table 4). There was no case of dermatitis during winter season in goats. Samad *et al.* (2002) reported the higher percentage of dermatitis in calves during summer season (47.24%).

Parasitic diseases

Parasitic diseases (50.4%) were found to be highest among the different major diagnostic groups in cattle. Under this group, helminth infection was found to be highest both in cattle and goats, followed by ectoparasitic infestation (Table 1 and 3). Pallab *et al.* (2012) reported 26.79% parasitic diseases to all clinical cases, of which 10.13% in cows, 5.22% in bulls and 11.43% in calves. Almost similar percentages of parasitic diseases were recorded during winter (53.7%), rainy (52.2%) and summer (46.9%) seasons in cattle (Table 2). In case of goats, the percentages of parasitic diseases were 23.4%, 21.9% and 16.4% during winter, rainy and summer seasons, respectively (Table 4). Shahadat *et al.* (2003) reported that the percentage of nematode infection in goats was higher during rainy and winter seasons compared to summer season.

Infectious diseases

Overall 4.6% cattle and 11.8% goats were affected with major infectious diseases (Table 1 and 3), which support the earlier reports of Debnath *et al.* (1990) and Samad *et al.* (2002) who reported 5.86% and 4.73% specific infectious diseases in calves, respectively. The major infectious diseases in cattle were foot-and-mouth disease (1.3%), haemorrhagic septicemia (0.7%), actinobacillosis (0.3%), papillomatosis (0.1%), foot rot (1.2%) and rabies (0.9%) (Table 1). This observation supports the earlier report of Samad *et al.* (2002) who reported FMD (0.56%), actinomycosis (0.05%), papillomatosis (0.19%), rabies (1.09%) in calves. Debnath *et al.* (1990) reported 0.88% FMD and 0.83% rabies in calves from different upazila veterinary hospitals of Bangladesh. In case of goats, the major infectious diseases were tetanus (1.1%), PPR (5.2%), foot rot (1.4%) and rabies (4.1%) (Table 3). Samad (2001) reported 0.31% tetanus and 4.29% rabies in goats. The highest percentage of FMD and foot rot in cattle was recorded during summer, followed by winter and rainy seasons. The percentage of haemorrhagic septicemia in cattle was higher during winter than summer and rainy seasons (Table 2). In goats, the highest percentage of PPR was recorded during summer (8.9%), followed by winter (4.7%) and rainy (2.3%) seasons (Table 4).

Metabolic diseases

Milk fever (0.4%) and mastitis (0.9%) was diagnosed in cattle under this group (Table 1). The findings support the report of Sarker *et al.* (1999) and Samad (2001) who reported clinical mastitis in 0.89% and 0.71% cows, respectively. Nooruddin *et al.* (1986) and Rahman *et al.* (1999) also reported 0.37% and 0.65% clinical mastitis in cows. Comparatively, the higher cases of clinical mastitis was recorded during summer (1.4%) than winter (0.5%) and rainy seasons (0.6%) (Table 2), which contradict with the finding of Samad (2001) who reported higher cases of clinical mastitis during summer (38.67%) and rainy (38.67%) seasons than winter (22.66%).

Urogenital disorders

Semen out (0.6%), posthitis (0.7%) and balanoposthitis (0.1%) were recorded in cattle. Samad (2001) recorded 0.31% of balanoposthitis in young bulls. However, Hossain *et al.* (1986) and Nooruddin *et al.* (1986) recorded 3.9% and 1.44% cases of posthitis in cattle, respectively. Posthitis was recorded in all the seasons of the year (Table 2). Samad (2001) reported higher percentage of posthitis during rainy (42.42%), followed by summer (30.30%) and winter (27.28%) seasons.

Nutritional deficiency disease

Vitamin B1 deficiency was reported in 0.8% goats (Table 3) and this observation could not be compared due to lack of similar inland reports.

Gynaeco-obstetrical cases

Repeat breeding

This disorder was recorded in 16.2% cattle and 20.0% goats (Table 1 and 3). The findings support the observations of Rahman *et al.* (1975) and Hossain *et al.* (1986) who reported 22.0% and 63.0% of repeat breeding cases in cattle, respectively. However, Rahman *et al.* (1999) reported lower percentage (0.64%) of repeat breeding in cattle, and Samad (2001) reported 1.26% in cattle and 0.24% in goats. The highest number of repeat breeding in cattle was during winter (20.0%), followed by summer (15.8%) and rainy (12.5%) seasons (Table 2).

Table 2. Season-wise distribution of clinical cases of cattle recorded at the PSTU Veterinary Clinic during four years' period from 2008 to 2011

Sl No.	Diseases (Cattle)	No. (%) of cases				P-value
		Winter	Summer	Rainy	Overall	
1.	**Systemic states**	**36 (17.9)**	**32 (11.1)**	**31 (17.4)**	**99 (14.8)**	**0.809**
i.	Fever	8 (3.9)	14 (4.9)	12 (6.7)	34 (5.1)	
ii.	Malnutrition	20 (9.9)	16 (5.6)	19 (10.7)	55 (8.2)	
iii.	Ill thrift	8 (3.9)	2 (0.7)	0	10 (1.5)	
2.	**Digestive disorders**	**27 (13.4)**	**42 (14.6)**	**26 (14.6)**	**95 (14.2)**	**0.079**
i.	Bloat	4 (1.9)	4 (1.4)	7 (3.9)	15 (2.2)	
ii.	Enteritis	7 (3.5)	15 (5.2)	2 (1.1)	24 (3.6)	
iii.	Non-specific diarrhea	15 (7.5)	21 (7.3)	15 (8.4)	51 (7.6)	
iv.	Stomatitis	1 (0.5)	2 (0.7)	2 (1.1)	5 (0.8)	
3.	**Respiratory disorders**	**11 (5.5)**	**18 (6.3)**	**8 (4.5)**	**37 (5.5)**	**0.118**
i.	Epistaxis	2 (0.9)	0	1 (0.6)	3 (0.4)	
ii.	Pneumonia	9 (4.5)	18 (6.3)	7 (3.9)	34 (5.1)	
4.	**Eye diseases**	**2 (0.9)**	**12 (4.2)**	**7 (3.9)**	**21 (3.1)**	**0.028**
i.	Conjunctivitis	0	8 (2.8)	6 (3.4)	14 (2.1)	
ii.	Corneal opacity	2 (0.9)	4 (1.4)	1 (0.6)	7 (1.0)	
5.	**Musculo-skeletal disorder**	**2 (0.9)**	**3 (1.0)**	**1 (0.6)**	**6 (0.9)**	**0.607**
i.	Arthritis	2 (0.9)	3 (1.0)	1 (0.6)	6 (0.9)	
6.	**Skin conditions**	**3 (1.4)**	**16 (5.6)**	**4 (2.2)**	**23 (3.4)**	**0.001**
i.	Dermatitis	2 (0.9)	14 (4.9)	4 (2.2)	20 (2.9)	
ii.	Mange	1 (0.5)	2 (0.7)	0	3 (0.4)	
7.	**Parasitic diseases**	**108 (53.7)**	**135 (46.9)**	**93 (52.2)**	**336 (50.4)**	**0.018**
i.	Helminth infection	67 (33.3)	77 (26.7)	71 (39.9)	215 (32.2)	
ii.	Ectoparasitic infestation	36 (17.9)	44 (15.3)	19 (10.7)	99 (14.8)	
iii.	Babesiosis	1 (0.5)	4 (1.4)	0	5 (0.7)	
iv.	Coccidiosis	3 (1.5)	10 (3.5)	2 (1.1)	15 (2.2)	
v.	Stephanofilariasis	1 (0.5)	0	1 (0.6)	2 (0.3)	
8.	**Infectious diseases**	**7 (3.5)**	**18 (6.3)**	**6 (3.4)**	**31 (4.6)**	**0.264**
i.	Foot-and-mouth disease	2 (0.9)	6 (2.1)	1 (0.6)	9 (1.3)	
ii.	Haemorrhagic septicemia	3 (1.5)	1 (0.3)	1 (0.6)	5 (0.7)	
iii.	Actinobacillosis	0	1 (0.3)	1 (0.6)	2 (0.3)	
iv.	Papillomatosis	0	1 (0.3)	0	1 (0.1)	
v.	Foot rot	1 (0.5)	6 (2.1)	1 (0.6)	8 (1.2)	
vi.	Rabies	1 (0.5)	3 (1.0)	2 (1.1)	6 (0.9)	
9.	**Metabolic diseases**	**3 (1.5)**	**5 (1.7)**	**1 (0.6)**	**9 (1.3)**	**0.045**
i.	Mastitis	1 (0.5)	4 (1.4)	1 (0.6)	6 (0.9)	
ii.	Milk fever	2 (0.9)	1 (0.3)	0	3 (0.4)	
10.	**Urogenital disorders**	**2 (0.9)**	**7 (2.4)**	**1 (0.6)**	**10 (1.5)**	
i.	Semen out	0	4 (1.4)	0	4 (0.6)	
ii.	Posthitis	2 (0.9)	2 (0.7)	1 (0.6)	5 (0.7)	
iii.	Balanoposthitis	0	1 (0.3)	0	1 (0.1)	
Sub-total (medicinal cases)		**201 (89.7)**	**288 (78.0)**	**178 (89.0)**	**667 (84.1)**	**<0.001**
1.	Repeat breeding	2 (20.0)	3 (15.8)	1 (12.5)	6 (16.2)	
2.	Anestrus	8 (80.0)	8 (42.1)	6 (75.0)	22 (59.5)	
3.	Retained placenta	0	2 (10.5)	1 (12.5)	3 (8.1)	
4.	Metritis	0	3 (15.8)	0	3 (8.1)	
5.	Uterine prolapse	0	2 (10.5)	0	2 (2.7)	
6.	Dystocia	0	1 (5.3)	0	1 (1.1)	
Sub-total (Gynaeco-obstetrical cases)		**10 (4.5)**	**19 (5.1)**	**8 (4.0)**	**37 (4.7)**	**0.062**
1.	Abscess	0	1 (1.6)	0	1 (1.1)	
2.	Traumatic wound	7 (53.8)	27 (43.5)	13 (92.9)	47 (52.8)	
3.	Castration	1 (7.7)	1 (1.6)	0	2 (2.2)	
4.	Myiasis	1 (7.7)	21 (33.9)	0	22 (24.7)	
5.	Nasal polyps	0	1 (1.6)	0	1 (1.1)	
6.	Urolithiasis	1 (7.7)	0	0	1 (1.1)	
7.	Dehorning	1 (7.7)	2 (3.2)	1 (7.1)	4 (4.5)	
8.	Navel-ill	2 (15.4)	7 (11.3)	0	9 (10.1)	
9.	Upward patellar fixation	0	2 (3.2)	0	2 (2.2)	
Sub-total (Surgical cases)		**13 (5.8)**	**62 (16.8)**	**14 (7.0)**	**89 (11.2)**	**<0.001**
Overall		**224**	**369**	**200**	**793**	**<0.001**

Anestrus

This disorder was recorded in 59.5% cattle (Table 1). No case was recorded in goats during this study period (Table 3). However, Rahman *et al.* (1999) reported the reduced number of anestrus cases (0.83%) in cattle, and Samad (2001) reported 0.86% in cattle and 0.47% in goats. The highest number of cases in cattle was recorded during winter (80.0%), followed by rainy (75.0%) and summer (42.1%) seasons (Table 2).

Retained placenta

This disorder was recorded only in 8.1% cows (Table 1) and no case was recorded in does (Table 3). The finding is in conformity with the report of Hossain *et al.* (1986) who reported 9.1% cases of retained placenta in cows but contradicts with the reports of Rahman *et al.* (1999) and Samad (2001) who reported 0.37% and 0.50% cases of retained placenta in cows, respectively. The cases of retained placenta were 10.5% and 12.5% in summer and rainy seasons, respectively (Table 2).

Metritis

Metritis was recorded in 8.1% cows and 40.0% does (Table 1 and 3). Ali *et al.* (1997) reported 21.3% metritis complex from a dairy farm and Islam *et al.* (1998) reported 5.66% metritis in cows at different government AI centres from Bangladesh. However, Samad (2001) reported very low percentage of metritis (0.10%) in cows. Metritis in cattle was recorded only in summer season (15.8%) (Table 2).

Uterine prolapse

Uterine prolapse was recorded in 2.7% cows and 20.0% in does (Table 1 and 3). Islam *et al.* (1998) reported 1.89% uterine prolapse in cows. In does, Samad (2001) reported 0.08% cases of uterine prolapse from Bangladesh. In this study, the cases of uterine prolapse were recorded only in summer season both in cows and does (Table 2 and 4).

Dystocia

Dystocia was recorded only in one cow (1.1%) and one doe (20.0%) (Table 1 and 3). Samad (2001) reported 0.02% and 1.56% dystocia cases in cows and does, respectively. The dystocia case was recorded only in summer season both in cows and does (Table 2 and 4).

Surgical cases

Abscess

Abscess was recorded in 1.1% cattle and 1.3% goats (Table 1 and 3). This observation supports the reports of Hossain *et al.* (1986) who recorded 1.2% cases of abscess in cattle, and of Samad (2001) who reported 1.56% abscess cases in goats. Abscess was recorded only in summer season both in cattle and goats (Table 2 and 4).

Traumatic wound

Traumatic wound was found in 52.8% cattle and 28.8% goats (Table 1 and 3). Hossain *et al.* (1986) reported 45.2% traumatic injury in cattle. However, Samad (2001) reported 0.77% and 2.73% traumatic wounds in cattle and goats, respectively.

Castration

Castration was recorded in 2.2% bull calves and 31.3% male kids (Table 1 and 3). Hossain *et al.* (1986) recorded 1.9% castration cases in bull calves while Samad (2001) recorded 0.02% and 2.03% castration cases in bull calves and male kids, respectively.

Myiasis

Myiasis was recorded in 24.7% cattle and 16.4% goats (Table 1 and 3). The highest number of myiasis cases was observed during summer (cattle 33.9% and goats 22.0%) in comparison to winter (cattle 7.7% and goats 7.1%) seasons while no case was recorded in rainy season both in cattle and goats (Table 2 and 4). Samad (2001) also recorded the highest myiasis cases in cattle and goats during summer season in comparison to winter season.

Table 3. Year-wise distribution of clinical cases of goats recorded at the PSTU Veterinary Clinic during four years' period from 2008 to 2011

Sl No.	Diseases (Goat)	No. (%) of cases				Overall	P-value
		2008	2009	2010	2011		
1.	**Systemic states**	**9 (7.1)**	**8 (8.9)**	**10 (13.2)**	**8 (11.4)**	**35 (9.6)**	**0.957**
i.	Fever	4 (3.1)	2 (2.2)	4 (5.3)	6 (8.6)	16 (4.4)	
ii.	Malnutrition	5 (3.9)	5 (5.6)	6 (7.9)	2 (2.9)	18 (4.9)	
iii.	Food poisoning	0	1 (1.1)	0	0	1 (0.3)	
2.	**Digestive disorders**	**32 (25.2)**	**14 (15.6)**	**21 (27.6)**	**16 (22.9)**	**83 (22.9)**	**0.025**
i.	Bloat	2 (1.6)	2 (2.2)	3 (3.9)	2 (2.9)	9 (2.5)	
ii.	Simple Indigestion	1 (0.8)	0	1 (1.3)	1 (1.4)	3 (0.8)	
iii.	Enteritis	18 (14.2)	4 (4.4)	0	0	22 (6.1)	
iv.	Diarrhoea	9 (6.9)	7 (7.8)	17 (22.4)	11 (15.7)	44 (12.1)	
v.	Abdominal pain	0	0	0	2 (2.9)	2 (0.6)	
vi.	Stomatitis	2 (1.6)	1 (1.1)	0	0	3 (0.8)	
3.	**Respiratory disorder**	**32 (25.2)**	**11 (12.2)**	**10 (13.2)**	**8 (11.4)**	**61 (16.8)**	**<0.001**
i.	Pneumonia	32 (25.2)	11 (12.2)	10 (13.2)	8 (11.4)	61 (16.8)	
4.	**Eye diseases**	**10 (7.9)**	**14 (15.6)**	**10 (13.2)**	**15 (21.4)**	**49 (13.5)**	**0.638**
i.	Conjunctivitis	2 (1.6)	7 (7.8)	1 (1.3)	3 (4.3)	13 (3.6)	
ii.	Corneal opacity	8 (6.3)	7 (7.8)	9 (11.8)	12 (17.1)	36 (9.9)	
5.	**Musculo-skeletal disorder**	**6 (4.7)**	**2 (2.2)**	**1 (1.3)**	**3 (4.3)**	**12 (3.3)**	**0.198**
i.	Arthritis	6 (4.7)	2 (2.2)	1 (1.3)	3 (4.3)	12 (3.3)	
6.	**Skin conditions**	**1 (0.8)**	**1 (1.1)**	**0**	**1 (1.4)**	**3 (0.8)**	**1.000**
i.	Dermatitis	1 (0.8)	1 (1.1)	0	0	2 (0.6)	
ii.	Bee sting	0	0	0	1 (1.4)	1 (0.3)	
7.	**Parasitic diseases**	**25 (19.7)**	**29 (32.2)**	**11 (14.5)**	**9 (12.9)**	**74 (20.4)**	**0.001**
i.	Helminth infection	21 (16.5)	22 (24.4)	9 (11.8)	6 (8.6)	58 (15.9)	
ii.	Ectoparasitic infestation	1 (0.8)	7 (7.8)	0	1 (1.4)	9 (2.5)	
iii.	Babesiosis	1 (0.8)	0	1 (1.3)	0	2 (0.6)	
iv.	Coccidiosis	2 (1.6)	0	1 (1.3)	2 (2.9)	5 (1.4)	
8.	**Infectious diseases**	**11 (8.7)**	**10 (11.1)**	**13 (17.1)**	**9 (12.9)**	**43 (11.8)**	**0.846**
i.	Tetanus	0	2 (2.2)	1 (1.3)	1 (1.4)	4 (1.1)	
ii.	PPR	8 (6.3)	0	8 (10.5)	3 (4.3)	19 (5.2)	
iii.	Foot rot	0	1 (1.1)	2 (2.6)	2 (2.9)	5 (1.4)	
iv.	Dog bite	3 (2.4)	7 (7.8)	2 (2.6)	3 (4.3)	15 (4.1)	
9.	**Nutritional deficiency disease**	**1 (0.8)**	**1 (1.1)**	**0**	**1 (1.4)**	**3 (0.8)**	**1.000**
i.	Vitamin B1 deficiency	1 (0.8)	1 (1.1)	0	1 (1.4)	3 (0.8)	
Sub-total (medicinal cases)		**127 (81.9)**	**90 (71.4)**	**76 (82.6)**	**70 (82.4)**	**363 (81.0)**	**<0.001**
1.	Repeat beeding	0	1 (50.0)	0	0	1 (20.0)	
2.	Metritis	1 (100.0)	0	1 (50.0)	0	2 (40.0)	
3.	Uterine prolapsed	0	1 (50.0)	0	0	1 (20.0)	
4.	Dystocia	0	0	1 (50.0)	0	1 (20.0)	
Sub-total (Gynaeco-obstetrical cases)		**1 (0.6)**	**2 (1.7)**	**2 (2.2)**	**0**	**5 (1.1)**	**0.819**
1.	Abscess	1 (3.7)	0	0	0	1 (1.3)	
2.	Traumatic wound	6 (22.2)	6 (25.0)	6 (42.9)	5 (33.3)	23 (28.8)	
3.	Castration	14 (51.9)	7 (29.2)	1 (7.1)	3 (20.0)	25 (31.3)	
4.	Myiasis	3 (11.1)	0	4 (28.6)	5 (33.3)	12 (15.0)	
5.	Nasal polyps	0	1 (4.2)	0	0	1 (1.3)	
6.	Fracture	0	6 (29.2)	2 (14.3)	1 (6.7)	9 (11.3)	
7.	Gid disease	1 (3.7)	1 (4.2)	0	0	2 (2.5)	
8.	Congenital defects	2 (7.4)	3 (12.5)	1 (7.1)	1 (6.7)	7 (8.8)	
Sub-total (Surgical cases)		**27 (17.4)**	**24 (20.7)**	**14 (15.2)**	**15 (17.6)**	**80 (17.9)**	**0.098**
Overall		**155**	**116**	**92**	**85**	**448**	**<0.001**

Table 4. Season-wise distribution of clinical cases of goats recorded at the PSTU Veterinary Clinic during four years' period from 2008 to 2011

Sl. No.	Diseases (Goat)	No. (%) of cases			Overall	P-value
		Winter	Summer	Rainy		
1.	**Systemic states**	**11 (10.3)**	**11 (8.6)**	**13 (10.2)**	**35 (9.6)**	**0.892**
i.	Fever	4 (3.7)	4 (3.1)	8 (6.3)	16 (4.4)	
ii.	Malnutrition	6 (5.6)	7 (5.5)	5 (3.9)	18 (4.9)	
iii.	Food poisoning	1 (0.9)	0	0	1 (0.3)	
2.	**Digestive disorders**	**30 (28.0)**	**26 (20.3)**	**27 (21.1)**	**83 (22.9)**	**0.855**
i.	Bloat	3 (2.8)	1 (0.8)	5 (3.9)	9 (2.5)	
ii.	Simple Indigestion	0	1 (0.8)	2 (1.6)	3 (0.8)	
iii.	Enteritis	7 (6.5)	11 (8.6)	4 (3.1)	22 (6.1)	
iv.	Diarrhoea	18 (16.8)	12 (9.4)	14 (10.9)	44 (12.1)	
v.	Abdominal pain	1 (0.9)	1 (0.8)	0	2 (0.6)	
vi.	Stomatitis	1 (0.9)	0	2 (1.6)	3 (0.8)	
3.	**Respiratory disorder**	**14 (13.1)**	**26 (20.3)**	**21 (16.4)**	**61 (16.8)**	**0.167**
i.	Pneumonia	14 (13.1)	26 (20.3)	21 (16.4)	61 (16.8)	
4.	**Eye diseases**	**9 (8.4)**	**12 (9.4)**	**28 (21.9)**	**49 (13.5)**	**0.002**
i.	Conjunctivitis	2 (1.9)	5 (3.9)	6 (4.7)	13 (3.6)	
ii.	Corneal opacity	7 (6.5)	7 (5.5)	22 (17.2)	36 (9.9)	
5.	**Musculo-skeletal disorder**	**2 (1.9)**	**7 (5.5)**	**3 (2.3)**	**12 (3.3)**	**0.174**
i.	Arthritis	2 (1.9)	7 (5.5)	3 (2.3)	12 (3.3)	
6.	**Skin conditions**	**1 (0.9)**	**1 (0.8)**	**1 (0.8)**	**3 (0.8)**	**1.000**
i.	Dermatitis	0	1 (0.8)	1 (0.8)	2 (0.6)	
ii.	Bee sting	1 (0.9)	0	0	1 (0.3)	
7.	**Parasitic diseases**	**25 (23.4)**	**21 (16.4)**	**28 (21.9)**	**74 (20.4)**	**0.607**
i.	Helminth infection	18 (16.8)	15 (11.7)	25 (19.5)	58 (15.9)	
ii.	Ectoparasitic infestation	3 (2.8)	3 (2.3)	3 (2.3)	9 (2.5)	
iii.	Babesiosis	0	2 (1.6)	0	2 (0.6)	
iv.	Coccidiosis	4 (3.7)	1 (0.8)	0	5 (1.4)	
8.	**Infectious diseases**	**14 (13.1)**	**23 (17.9)**	**6 (4.7)**	**43 (11.8)**	**0.006**
i.	Tetanus	1 (0.9)	3 (2.3)	0	4 (1.1)	
ii.	PPR	5 (4.7)	11 (8.9)	3 (2.3)	19 (5.2)	
iii.	Foot rot	2 (1.9)	3 (2.3)	0	5 (1.4)	
iv.	Rabies	6 (5.6)	6 (4.7)	3 (2.3)	15 (4.1)	
9.	**Nutritional deficiency disease**	**1 (0.9)**	**1 (0.8)**	**1 (0.8)**	**3 (0.8)**	**1.000**
i.	Vitamin B1 deficiency	1 (0.9)	1 (0.8)	1 (0.8)	3 (0.8)	
Sub-total (medicinal cases)		**107(87.7)**	**128 (70.3)**	**128(88.9)**	**363(81.0)**	**0.297**
1.	Repeat beeding	0	1 (25.0)	0	1 (20.0)	
2.	Metritis	1 (100.0)	1 (25.0)	0	2 (40.0)	
3.	Uterine prolapsed	0	1 (25.0)	0	1 (20.0)	
4.	Dystocia	0	1 (25.0)	0	1 (20.0)	
Sub-total (Gynaeco-obstetrical cases)		**1 (0.8)**	**4 (8.9)**	**0**	**5 (1.1)**	**0.180**
1.	Abscess	0	1 (3.0)	0	1 (1.3)	
2.	Traumatic wound	6 (42.9)	10 (20.0)	7 (43.8)	23 (28.8)	
3.	Castration	4 (28.6)	14 (28.0)	7 (43.8)	25 (31.3)	
4.	Myiasis	1 (7.1)	11 (22.0)	0	12 (15.0)	
5.	Nasal polyps	1 (7.1)	0	0	1 (1.3)	
6.	Fracture	1 (7.1)	7 (14.0)	1 (6.3)	9 (11.3)	
7.	Gid disease	0	2 (4.0)	0	2 (2.5)	
8.	Congenital defects	1 (7.1)	5 (10.0)	1 (6.3)	7 (8.8)	
Sub-total (Surgical cases)		**14(11.5)**	**50(27.5)**	**16 (11.1)**	**80 (17.9)**	**<0.001**
Overall		**122**	**182**	**144**	**448**	**0.002**

Nasal polyps

This study recorded 1.1% and 1.3% nasal polyps in cattle and goats, respectively (Table 1 and 3). However, the recorded nasal polyps in ruminants could not be compared due to lack of similar inland reports. Nasal polyps were recorded only in summer season (1.6%) but in case of goats, the case was recorded only in winter season (7.1%) (Table 2 and 4).

Urolithiasis

Urolithiasis was recorded only in 1.1% cattle (Table 1). Samad (2001) reported very low percentage (0.02%) of obstructive urolithiasis in cattle. Urolithiasis was recorded only in winter season (7.7%) (Table 2).

Dehorning

Only 4 (4.5%) cattle were brought for treatment with broken or overgrown horn during this four years' study period (Table 1). Hossain *et al.* (1986) reported 0.9% dehorning cases in cattle and Samad (2001) reported 0.65% and 0.08% dehorning cases in cattle and goats, respectively.

Navel-ill

Navel-ill was recorded only in 10.1% cattle (Table 1). This observation supports the report of Das and Hashim (1996) who reported 6.40% navel-ill in calves. However, Samad (2001) recorded 0.79% and 0.62% navel-ill cases in calves and kids, respectively. The highest cases were recorded during winter (15.4%) and summer (11.3%) seasons (Table 2).

Upward patellar fixation

This case was recorded only in 2 (2.2%) cattle (Table 1). Cases were recorded only in summer season (3.2%) (Table 2). However, the recorded cases in cattle could not be compared due to lack of similar inland reports.

Fracture

Fracture was recorded in 11.3% goats (Table 3). Hossain *et al.* (1986) and Samad (2001) recorded 8.2% and 1.1% fracture cases among surgical conditions in goats.

Gid disease

Gid disease was recorded only in two goats (2.5%) (Table 3). Samad (2001) recorded 5.38% gid disease in goats. The occurrence of gid disease was found only in summer season (4.0%) (Table 4).

Congenital defects

This study recorded a total of 7 goats (1.9%) with congenital defects at PSTU Veterinary Clinic during four years' period (Table 3). Comparatively higher percentage of cases was recorded during summer (3.8%) than winter (0.9%) and rainy (0.8%) seasons (Table 4). This observation partially supports the findings of Samad (2001) who reported higher number of congenital defects in calves during summer (38.89%) and rainy (38.89%) seasons than winter (22.22%) season.

The knowledge derived from this study will increase clinicians' understanding about the clinical cases of cattle and goats in a particular area and subsequently will help to take necessary preventive measures of the diseases.

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