

Prevalence of surgical diseases of cattle in stall-fed and free-range cattle in Bangladesh

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Abstract

The prevalence of surgical diseases of 2081 cattle was studied from different free-ranging (Bathan) and stall-feeding systems. The overall prevalence of surgical disease of cattle was higher (53.2%) in Bathan than in the stall-feeding (37.5%) system. In Bathan, the most prevalent surgical diseases were myiasis (13.4%) followed by navel ill (12.5%), trauma (10.8%), claw diseases (7.6%), arthritis (6.1%), horn diseases (3.4%) and teat obstruction (2.6%). In stall-feeding system, the highest prevalence (10.6%) was claw diseases and navel ill (6.6%). Navel ill, hernia, arthritis, horn diseases, urolithiasis and tail gangrene were more prevalent in male; and claw diseases, trauma, myiasis, upward patellar fixation and dislocation of hip joint were more prevalent in female cattle. Most diseases were more prevalent in summer but claw diseases, urolithiasis and teat crack were more prevalent in winter. Clean environment is needed to reduce the prevalence of such problems. (*Bangl. vet.* 2013. Vol. 30, No. 2, 62 – 69)

Introduction

Cattle are the indispensable part of the livestock sub-sector in Bangladesh. The magnitude of contribution of the livestock sector to the GDP is 2.6 % in Bangladesh (Anon, 2010). However, surgical disorders are the major causes of fatality in animals. The commonest surgical anomalies are umbilical hernia, atresia ani, navel ill, gangrenous mastitis, teat obstruction, teat crack, and lameness (Hossain *et al.*, 1986; Samad, 1998). Failure of surgical intervention provides no alternative except culling (Berge and Westhues, 1986). However, there is no data on the prevalence of surgical diseases in cattle of Milk-Vita area of Pabna-Sirajgonj districts in Bangladesh. A comprehensive survey is necessary to establish baseline information for future strategy.

Materials and Methods

Survey population

This study was conducted in Milk-Vita area of Pabna-Sirajgonj districts. The data were collected randomly from 1033 cattle in free-ranging (Bathans) and 1048 in stall-feeding systems of different villages of five Upazilas (Sub-district).

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Survey

History of the problems was taken from the owner and animal attendant (Moshal) about the surgical diseases of the animals. Some of the affected cattle were clinically examined.

Sex was considered as one of the variables for analyzing the data. On the basis of climatic conditions, the prevalence of surgical diseases in summer, rainy and winter seasons was done.

Statistical analysis

The prevalence of surgical diseases in each area was calculated. The prevalence of surgical diseases in Bathans and stall-feeding systems, in male and female, and in different seasons was compared.

Results and Discussion

The prevalence (%) of various surgical diseases of cattle in Bathans is presented in Table 1. The highest prevalence was myiasis (13.4%) followed by navel ill (12.5%), trauma (10.8%) and claw diseases (7.6%). The prevalence of myiasis was highest in Bathan and fourth highest rate was in stall-feeding system. This result is similar to the report (9.5%) of Rahman *et al.* (1972). Myiasis is more prevalent in female and in summer season (Spradbery *et al.*, 1992).

The prevalence of surgical diseases of stall-fed cattle in five Upazila is presented in Table 2. The highest prevalence of surgical diseases were claw diseases (10.6%) followed by navel ill (6.6%), trauma (4.3%) and myiasis (3.6%). Artesia ani was almost absent (0.3%). It may be due to recessive gene acquired through the practice of artificial insemination between local and high yielding animal (Singh *et al.*, 1989; Hossain, 2011).

In stall-feeding system the most prevalent surgical disease was claw diseases (10.6%), which was the fourth most common (7.6%) in Bathans (Fig. 1). It may be due to concrete floor of the animal shed and feeding of more concentrates, lack of exercise and little or no green grass/roughage. The prevalence of claw disease was higher in winter (60.4%) than summer (18.9%). White hooves are more susceptible to lameness than black hooves, and black hooves are more common in Jerseys (Chesterton *et al.*, 1989; Tranter and Morris, 1991). The occurrence of claw diseases was 8% in Mymensingh district (Das, 2004) and 11.5% in North Bengal of Bangladesh (Uddin *et al.*, 1997). The prevalence of claw disease was higher in female (73.9%) than male (26.1%). The incidence of foot diseases in female is 92.4% has been reported (Gogoi *et al.*, 1981).

Table 1. Prevalence of surgical diseases of cattle in different Bathans of Pabna-Sirajgonj districts

Name of diseases	Harni n = 355 (%)	Moddo Kawak n = 364 (%)	Itakhola n = 17 (%)	Jamadar (South) n = 81 (%)	Jamadar (North) n = 58 (%)	Total n = 1033 (%)
Hernia	1.7	3.3	3.4	2.5	1.7	2.6
Upward patellar fixation	0.3	0.8	1.1	1.2	0.0	0.7
Dermoid cyst	1.7	2.8	4.0	1.2	3.5	2.5
Navel ill	7.9	11.0	20.0	17.3	20.7	12.5
Gangrenous mastitis	0.0	0.6	1.1	1.2	0.0	0.5
Teat obstruction	2.5	1.4	1.7	7.4	6.9	2.6
Teat crack	2.0	5.5	6.9	5.0	5.2	4.5
Horn diseases	5.6	1.9	2.9	3.7	0.0	3.4
Dislocation of hip joint	1.7	1.4	2.9	0.0	1.7	1.7
Claw diseases	9.0	6.3	5.7	6.2	13.8	7.6
Fracture	0.9	0.8	0.0	1.2	0.0	0.7
Myiasis	8.7	14.3	21.7	9.9	15.5	13.4
Urolithiasis	0.0	0.3	0.6	0.0	0.0	0.2
Arthritis	2.8	6.9	8.6	11.1	7.0	6.1
Traumatic wound	10.1	11.0	12.6	9.9	8.6	10.8

n = number of study population

Table 2. Prevalence of surgical diseases of stall-fed cattle in five Upazila of Pabna-Sirajgonj districts

Name of diseases	Santhia n = 215 (%)	Bera n = 222 (%)	Shahjadpur n = 218 (%)	Faridpur n = 205 (%)	Bhangura n = 188 (%)	Total n = 1048 (%)
Hernia	3.7	2.7	3.2	2.4	1.6	2.8
Atresia ani	0.5	0.5	0.5	0.0	0.0	0.3
Upward patellar fixation	1.4	1.4	1.8	2.4	1.6	1.7
Dermoid cyst	2.3	1.8	2.8	2.0	1.6	2.1
Navel ill	7.9	5.0	7.3	5.4	7.4	6.6
Urolithiasis	0.9	0.9	0.9	0.5	0.5	0.8
Dislocation of hip joint	0.5	0.5	0.0	0.5	0.0	0.3
Horn diseases	3.7	2.7	3.2	2.0	1.6	2.7
Claw diseases	9.8	10.4	13.3	10.2	9.0	10.6
Fracture	0.5	0.5	0.0	0.0	0.0	0.2
Myiasis	4.7	3.6	3.7	3.4	2.7	3.6
Humpsore	0.5	0.0	0.5	0.5	0.0	0.3
Arthritis	3.3	1.8	3.2	4.9	4.8	3.5
Tail gangrene	0.5	0.5	0.0	0.0	0.5	0.3
Trauma	6.1	5.4	3.7	3.4	2.7	4.3
Gangrenous mastitis	0.5	0.5	0.0	0.0	0.5	0.3
Teat obstruction	2.3	2.7	3.2	3.9	3.2	3.1
Teat crack	1.4	1.4	1.4	1.5	1.1	1.3

n = number of study population

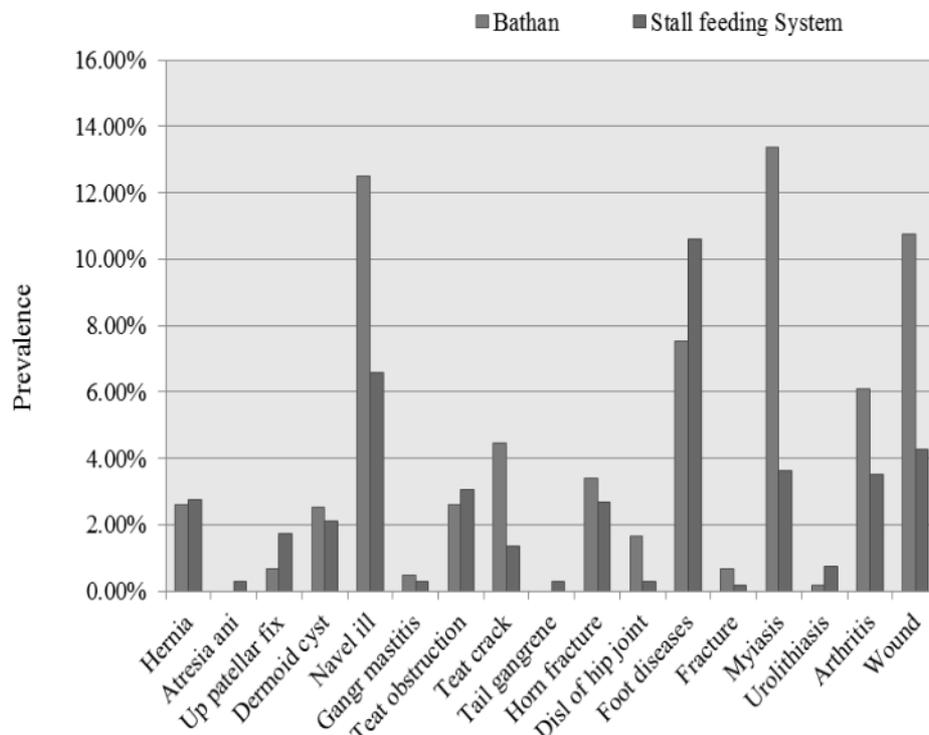


Fig. 1. Comparison of prevalence of common surgical diseases of cattle between Bathan and stall-feeding system

The prevalence of upward patellar fixation was more in stall feeding system (1.7%) than Bathan (0.7%). But Das (1986) reported the occurrence of upward patellar fixation was 1.2% in Bangladesh. Incidence of upward fixation of patella was higher (48%) in winter (Tyagi *et al.*, 1972; Sharma *et al.*, 1984), but in the present study the prevalence was highest in summer (50%). Pregnant female cattle are most often affected with upward patellar fixation (Hanson and Peyton, 1987).

The prevalence of horn diseases was 3.4% in Bathan and 2.7% in stall feeding systems, comparable with Das (1986) who reported 3.6%, but lower than the 8.2% reported by Hossain *et al.* (1986). Free ranging zebu type animals' fight, may cause higher prevalence of horn disease.

The prevalence of hernia is higher (2.8%) in stall feeding system than Bathan (2.6%). Occurrence of umbilical hernia in Bangladesh was reported by Hossain *et al.* (1986) and Das (1986) at 0.8% and 0.9%, respectively. Improvement of cattle depends on crossing local breeds with high-yielding breeds. This may cause inherited surgical diseases in this area (Rahman *et al.*, 2001). Umbilical hernia predominantly found in the summer and declines in the winter (Brem *et al.*, 1985; Rahman *et al.*, 2001; Samad *et al.*, 2002; Islam, 2005). It may be due to more calves are born in summer than the winter season in Bangladesh.

Table 3. Effects of sex on surgical diseases of stall-fed cattle

Name of diseases	Male (n = 292)		Female (n = 756)	
	Number	Prevalence (%)	Number	Prevalence (%)
Hernia	18	6.2	11	1.5
Atresia ani	2	0.7	1	0.1
Upward patellar fixation	3	1.0	15	2.0
Dermoid cyst	14	4.79	8	1.1
Navel ill	44	15.1	25	3.3
Urolithiasis	8	2.7	0	0.0
Dislocation of hip joint	0	0.0	3	0.4
Horn diseases	16	5.5	12	1.6
Claw diseases	29	9.9	82	10.9
Fracture	0	0.0	2	0.3
Myiasis	8	2.7	30	4.0
Humpsore	3	1.0	0	0.0
Arthritis	23	7.9	14	1.9
Tail gangrene	3	1.0	0	0.0
Traumatic wound	11	3.8	34	4.5
Gangrenous mastitis	0	0.0	3	0.4
Teat obstruction	0	0.0	32	4.2
Teat crack	0	0.0	14	1.9
Total diseases	182		286	
Total affected cattle	149		244	
Overall prevalence		51.0		32.3

The prevalence of navel ill was higher (12.5%) in Bathan than in stall feeding system (6.6%). It is due to unhygienic condition of the Bathan and lack of health care of newborns in the crowded population. Similar reports have been documented earlier, 6.6% prevalence in Pabna district of Bangladesh (Kibria *et al.*, 2010). The prevalence of navel ill is more in male (63.8%) than female (36.2%). It may be due to the presence of prepuce that favours the entrance of bacteria to the umbilical cord (Rings, 1995; Ganga *et al.*, 2011).

The prevalence of teat obstruction was 3.1% in stall feeding system and 2.6% in Bathan. The difference may be due to chronic mastitis, unhygienic milking and poor care of udder health (Gonzalez *et al.*, 1990). Teat crack was more prevalent in winter (57.1%). Decreased humidity in winter leads the skin of udder to crack (Radostits *et al.*, 2000; Berry and Hillerton, 2002).

Table 4. Effects of season on surgical diseases of stall-fed cattle

Name of diseases	Summer (March-June)		Rainy Season (July-October)		Winter (November-February)	
	Number	Prevalence (%)	Number	Prevalence (%)	Number	Prevalence (%)
Hernia	18	62.1	4	13.8	7	24.1
Atresia ani	1	33.3	0	0.0	2	66.7
Upward patellar fixation	9	50.0	4	22.2	5	27.8
Dermoid cyst	10	45.5	5	22.7	7	31.8
Navel ill	32	46.4	15	21.7	22	31.9
Urolithiasis	1	12.5	1	12.5	6	75.0
Dislocation of hip joint	2	66.7	1	33.3	0	0.0
Horn diseases	18	64.3	7	25.0	3	10.7
Foot diseases	21	18.9	23	20.7	67	60.4
Fracture	1	50.0	1	50.0	0	0.0
Myiasis	19	50.0	12	31.6	7	18.4
Humpsore		33.3	2	66.7	0	0.0
Arthritis	17	46.0	11	29.7	9	24.3
Tail gangrene	1	33.3	0	0.0	2	66.7
Traumatic wound	31	68.9	9	20.0	5	11.1
Gangrenous mastitis	0	0.0	1	33.3	2	66.7
Teat obstruction	13	40.6	4	12.5	15	46.9
Teat crack	4	28.6	2	14.3	8	57.1
Total	199	42.5	102	21.8	167	35.7

The prevalence of urolithiasis was higher in Bathans than stall-fed cattle. Insufficient green grass with too much concentrate is provided in stall feeding system. Vitamin A deficiency and concentrate diet predispose to urolithiasis (Singh *et al.*, 1980; Ahmed *et al.*, 1990).

Conclusions

Surgical diseases were more prevalent in Bathans than in stall-feeding system. A cleaner environment should help to maintain cattle health.

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