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An overview of surgical diseases of food animals in the coastal areas of Bangladesh

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ABSTRACT

This study was conducted to observe the surgical affections of food animals in coastal areas of Bangladesh. From 3 distrcits (Khulna, Satkhira and Bagerhat) a total of 42646 clinically affected animals were found in this survey. Among the total affected animals, 17,323 from Khulna, 14,918 were from Satkhira and 10,405 were from Bagerhat of which 5987 animals of different ages and sexes were surgically affected (cattle = 3576, goat=2599 sheep=16, buffalo= 7, pig=4). The overall occurrence of surgical disorders in the selected coastal areas is 14.04%. The overall surgical disorder is found 14.04%. Among the total hospital cases of selected 3 districts, the proportion of surgical disorders is higher (15.40%) in Khulna followed by 15.10% and 10.22% in Satkhira and Bagerhat, respectively. The study reveals that the most common surgical affections in the study area are navell ill navel ill/joint ill (25.87 %), followed by foot diseases (15.83 %), myiasis (10.97 %), wound (11.64 %), teat crack and teat obstruction (9.01 %). The occurrence of surgical disorders in cattle (56.13%) was higher than goat (43.41%), sheep (0.26%), buffalo (0.11%) and pig (0.06%). The highest incidence of surgical disorder was found in summer season (40.48 %) followed by Rainy season (33.15 %) and winter season (24.16 %) (Table 4). The highest incidence of surgical disorder is found in female animals (54.97%) than male animals (45.03%). The highest incidence of surgical disorder was found in local breeds (51.46%) than cross bred animals (48.54%). The older aged animals (above 3 years of age) are more susceptible (39.40%) to surgical disorders than younger animals. The highest incidence of surgical disorder was found in open rearing system (64.29%) than confined method of rearing system (35.71%). Information gathered from this study will increase the understanding of clinical cases of surgical origin. Surgical affections are considered as the prime cause of disability of the food animals. Most of the surgical cases may be curable if necessary surgical means are taken in time. The present report will be a tool for the policy maker to improve the livestock by correction of the surgical disorders of food animals.

INTRODUCTION

Surgical disorders of animals are major threat for our economy and failure of surgical intervention provides nothing alternatives except culling (Berge and Westhues, 1986). It is caused by various violences and one of the violances is falling from a high altitude (Hossain et al., 1986). Wound is a surgical disorder and is reported to be most common surgical affections in animals (Hossain *et al.*, 1986). A wound may lead to serious consequences if not treated at proper time (Harpal and Kuldip, 1993; Mashhood et al., 2006). A wound is either simple with superficial injury or complicated with involvement of deeper structures like muscles, bones, tendons, nerves, vessels (Leaper et al., 1995). External violence produces open wound in the skin and the incidence is more common in ruminants (Nooruddin and Dey, 1990). Fracture of bones is a feature of accidental surgical affection where ribs are more vulnerable (Hossain et al., 1986, Duan et al., 2013). Surgical affection like hernia, atresia ani, navel ill, myiasis, foot diseases, lameness, fracture are the diseases reported to be great loss to the people of Bangladesh (Hossain et al., 1986). Navel ill is the most significant surgical disorder found in Bangladesh (Sarker et al, 2014). Umbilical hernia

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is predominantly found in the summer and declines in the winter (Brem et al., 1985; Rahman et al., 2001; Samad et al., 2002; Islam, 2005). Myiasis is the surgical disease caused by the invasion of a living tissue by fly larvae. Some flies may lay eggs in open wounds, other larvae may invade unbroken skin and thus causes myiasis (John et al., 2006). Clinically myiasis can affect the skin, ocular, auricular or nasal canal or oral cavity and anus (Mendivil and Shamman, 1979). The occurrence of atresia ani is the second highest along the surgical affection of calves in Bangladesh (Das and Hashim, 1996). Repeated occurrence of lameness reduces yields and performances in cow (Bowley, 1993). Navel ill or joint ill acts as source of infection leading to septicemia in neonate due to failure of transfer of maternal immunity to the fetus (Esiutin and Girin, 1975). Urolithiasis can cause significant economic losses due to urethral obstruction; rupture of the urethra or bladder or death (Parker, 1981). High concentrate feed with inadequate water and low green forage and vitamin A deficiency may lead to the formation of urolithiasis in bovine (Singh and Somvanshi, 1980).

In Bangladesh, the acquired surgical affections of food animals are included as umbilical abscess, navel ill, myiasis, dermoid cyst and wounds/accidents/injury (Hossain et al., 1986). It has been reported that some congenital defects are caused by genetic or environmental factors (Saunders et al., 1974; Clark et al., 1975). Unfortunately, a detailed study on this aspect has not yet been carried out in coastal area of Bangladesh. Therefore, comprehensive study is necessary to establish baseline information for future study and researches of the surgical affections of food animals in the coastal Areas of Bangladesh.

MATERIALS AND METHODS

Study Location

Due to some practical problems and limitation of logistics the study was conducted in different districts in the coastal areas Khulna, Satkhira and Bagerhat of Bangladesh. The data were collected randomly from the selected smallholder farmers who maintain the majority of the animals adjunct to crop agriculture, having significant dependence on livestock with little or no outside labor that provides subsistence but little for saving, capital investment or for the purchase of external agricultural inputs. The study was conducted from April 2014 to March 2015.

Data collection and analysis

Cattle, goat, sheep, buffalo and pig are the main species among foods animals in this study. Information about the affected animals was collected from Veterinary Hospitals of the three districts. The surgical cases were also collected from the official register book of upazila veterinary hospitals in selected districts. The investigator personally visited all the selected upazila veterinary hospitals under each area. The information on surgical disorders was collected from the data sheet recorded by the hospital authority during the study period. The data for surgical disorder were collected against breed, age, sex and seasons. With the concern of veterinary surgeon baseline data also collected directly from the owner of the animal. The data collected were coded, scored, compiled, tabulated and analyzed in accordance with the objective of the study by LSD and Post Hoc Test using SPSS® software.

RESULTS AND DISCUSSION

A total of 42646 clinically affected animals were found in this survey. Among the total affected animals, 17,323 from Khulna, 14,918 were from Satkhira and 10,405 were from Bagerhat. Among these, 5987 animals of different ages and sexes were surgically affected (cattle = 3576, sheep=16, buffalo= 7, pig=4).

The surgical disorders observed in food animals at different veterinary hospitals in the study areas are shown in the Table 2 and Figure 1. The overall of surgical disorders is found 14.04%. Among the total hospital cases of selected 3 districts, the proportion of surgical disorders is higher (15.40%) in Khulna followed by 15.10% and 10.22% in Satkhira and Bagerhat respectively.

Table 1
Occurrences of surgical affections of food animal recorded in selected districts of coastal areas in the south-western Bangladesh.

Districts	Total Food Animals Population (N=2344259)	Total clinical Cases (n=42646)	Total Surgical cases (n=5987)	Incidence (%)	Prevalence (%)
Khulna	953091	17323	2669	15.4	0.28
Satkhira	875077	14918	2254	15.01	0.25
Bagerhat	516091	10405	1064	10.22	0.2
Total	2344259	42646	5987	40.63	0.73

Figure 1
Traumatic wound in goat, b. Navel ill in calf, c. Wound by Actinomycosis affection in heifer, d. Surgical dressing of wound of Actionomycosis affection in heifer, e. Dermatitis affection in goat, f. Surgical correction of foot rot in cattle.

Navel ill/Joint ill, umbilical hernia, foot disease, wound, fractures, teat obstruction gangrenous mastitis, myiasis, atresia- ani, dermoid cyst , upward patellar fixation, horn affections, urolithiasis, gid disease, vaginal prolapse, and tail gangrene were the most common and more prevalent in these stuy areas. The rarely occurred diseases were *Schistosoma reflexus*, knuckling of fetlock, hydrocephalus, dermatitis and lameness. These recorded surgical disorders that were observed in food animals in are shown in Table 2, Figure 1.

It is found that the highest occurrence is found in navel ill/joint ill (25.87%), followed by foot diseases (15.83%), myiasis (10.97%), wound (11.64%), teat crack and teat obstruction (9.01%) (Table 2).

Table 2
Distribution of surgical diseases of food animals in the coastal areas of Bangladesh.

Name of surgical affections	Khulna n=17323	Satkhira n=14918	Bagerhat n=10405	Total n=42646	Total Percentage
Navel ill/Joint ill	647	554	348	1549	25.87
Foot diseases	439	458	232	1129	18.86
Myiasis	235	284	138	657	10.97
Wounds	367	253	77	697	11.64
Teat crack and teat obstruction	276	232	32	540	9.01
Vaginal prolapse	145	92	33	270	4.50
Fracture	134	104	28	266	4.44
Urolithiasis	126	69	78	273	4.55
Gangrenous mastitis	106	53	14	173	2.88
Bloat/Tympany	18	27	35	80	1.33
Absces	55	41	14	110	1.83
Umbilical hernia	23	18	9	50	0.83
Horn affection	24	26	3	53	0.88
Upward patellar fixation	22	7	7	36	0.61
Atresia ani	23	14	7	44	0.73
Severe Dystocia	13	7	3	23	0.38
Dog bite wound	5	9	1	15	0.25
Dermoid cyst	1	2	1	4	0.06
Glaucoma/damaged eye	2	1	1	4	0.06
Dermatitis	2	2	1	5	0.08
Gid disease	2	1	0	3	0.05
Gangrenous tail and leg	1	0	1	2	0.03
Schistosoma reflexus	2	0	0	2	0.03
Knuckling of fetlock	0	0	1	1	0.016
Hydrocephalus	1	0	0	1	0.016
Total	2669 (15.40%)	2254 (15.10%)	1064 (10.22%)	5987 (14.04)	100.00

n=Animal are brought to the hospitals

Effect of surgical disorders in different species of animal in coastal areas is shown in Table 3. This study revealed that the occurrence of surgical disorders in cattle (56.13%) was higher than Goat (43.41%), sheep (0.26%), buffalo (0.11%) and pig (0.06%). The highest incidence of surgical disorder was found in summer season (40.48%) followed by Rainy season (33.15%) and winter season (24.16 %) (Table 4).The highest incidence of surgical disorder is found in female animals (54.97%) than male animals (45.03%). The highest incidence of surgical disorder was found in local breeds (51.46%) than cross bred animals (48.54%) (Table 4). The older aged animals (above 3 years of age) are more susceptible (39.40%) to surgical disorders than younger animals. The highest incidence of surgical disorder was found in open rearing system (64.29%) than confined method of rearing system (35.71%) (Table 5).

Table 3
Distribution of surgical disorders in different species of Food animals in Coastal region of Bangladesh.

Name of surgical affections	Species						Total %
	Cattle (n=3361)	Goat (n=2599)	Sheep (n=16)	Buffalo (n=7)	Pig (n=4)	Total (5987)	
Navel ill/Joint ill	955 (15.75%)	594 (9.92%)	0	0	0	1549	25.87
Foot diseases	586 (9.78%)	534 (8.91%)	9 (0.15%)	0	0	1129	18.87
Wounds	375 (6.26%)	275 (4.59%)	1 (0.016%)	2 (0.03%)	4 (0.06%)	657	10.97
Myiasis	369 (6.16%)	325 (5.42%)	1 (0.016%)	2(0.03%)	0	697	11.64
Teat crack and teat obstruction	431 (7.19%)	109 (1.82%)	0	0	0	540	9.01
Vaginal prolapse	218 (3.64%)	52 (0.87%)	0	0	0	270	4.5
Urolithiasis	0	266 (4.44%)	0	0	0	266	4.44
Fracture	14 (0.23%)	259 (4.42%)	0	0	0	273	4.55
Gangrenous mastitis	150 (2.5%)	23 (0.38%)	0	0	0	173	2.88
Bloat/Tympany	49 (0.81%)	31 (0.51%)	0	0	0	80	1.33
Abscess	50 (0.83%)	57 (0.95%)	0	3 (0.05%)	0	110	1.83
Umbilical hernia	39 (0.65%)	11 (0.18%)	0	0	0	50	0.83
Horn affection	49 (0.81%)	4 (0.06%)	0	0	0	53	0.88
Upward patellar fixation	36 (0.60%)	0	0	0	0	36	0.61
Atresia ani	15 (0.25%)	28 (0.47%)	1 (0.016%)	0	0	44	0.73
Severe Dystocia	13 (0.21%)	10 (0.17%)	0	0	0	23	0.38
Dog bite wound	2(0.03%)	11 (0.18%)	2(0.03%)	0	0	15	0.25
Dermoid cyst	1 (0.016%)	3 (0.05%)	0	0	0	4	0.06
Glaucoma/damaged eye	3 (0.05%)	1 (0.016%)	0	0	0	4	0.06
Dermatitis	0	3 (0.05%)	2(0.03%)	0	0	5	0.08
Gid disease	0	3 (0.05%)	0	0	0	3	0.05
Gangrenous tail and leg	2(0.03%)	0	0	0	0	2	0.03
Schistosoma reflexus	2(0.03%)	0	0	0	0	2	0.03
Knuckling of fetlock	1(0.016%)	0	0	0	0	1	0.016
Hydrocephalus	1(0.016%)	0	0	0	0	1	0.016
Total	3361(56.13%)	2599 (43.41%)	16(0.26%)	7 (0.11%)	4 (0.06%)	5987	100

Table 4
Distribution of surgical disordersin different Seasons, Sex and Breeds of Food animalsin the Coastal region of Bangladesh.

Diseases	Seasons			Sex		Breed	
	Summer (%)	Rainy (%)	Winter (%)	Male (n=2696)	Female (n=3291)	Local Breed (n=3081)	Cross Breed (n=2906)
Navel ill/Joint ill	877 (14.64)	606 (10.12)	66 (1.10)	1336 (22.32)	213 (3.56)	1010 (16.87)	539 (9.00)
Foot diseases	239 (3.99)	558 (9.32)	332 (5.54)	471 (7.87)	658 (10.99)	397 (6.63)	732 (12.23)
Myiasis	235 (3.93)	284 (4.74)	138 (2.30)	208 (3.47)	449 (7.50)	395 (6.60)	262 (4.38)
Wounds	367 (6.12)	253 (4.22)	77 (1.28)	225 (3.76)	472 (7.88)	489 (8.17)	208 (3.47)
Teat crack and teat obstruction	66 (1.10)	132 (2.20)	342 (5.71)	0 (0.00)	540 (9.02)	187 (3.12)	353 (5.90)
Vaginal prolapse	160 (2.67)	7 (0.11)	103 (1.72)	0 (0.00)	270 (4.51)	67 (1.12)	203 (3.39)
Fracture	248 (4.14)	14 (0.23)	4 (0.06)	200 (3.34)	66 (1.10)	92 (1.54)	174 (2.91)
Urolithiasis	1 (0.06)	0 (0.0)	272 (4.54)	81 (1.35)	192 (3.21)	205 (3.42)	68 (1.14)
Gangrenous mastitis	146 (2.43)	13 (0.21)	14 (0.23)	0 (0.00)	173 (2.89)	18 (0.30)	155 (2.59)
Bloat/Tympany	11(0.18)	27 (0.45)	42 (0.70)	15 (0.25)	65 (1.09)	27 (0.45)	53 (0.89)
Absces	65 (1.08)	41 (0.68)	4 (0.06)	14 (0.23)	96 (1.60)	84 (1.40)	26 (0.43)
Umbilical hernia	30 (0.5)	11 (0.18)	9 (0.15)	42 (0.70)	8 (0.13)	8 (0.13)	42 (0.70)
Horn affection	34 (0.56)	16 (0.26)	3 (0.05)	38 (0.63)	15 (0.25)	48 (0.80)	5 (0.08)
Upward patellar fixation	7 (0.11)	7 (0.11)	17 (0.28)	15 (0.25)	21 (0.35)	13 (0.22)	23 (0.38)
Atresia ani	33(0.55)	6 (0.10)	5 (0.08)	31 (0.52)	13 (0.22)	15 (0.25)	29 (0.48)
Severe Dystocia	5 (0.08)	4 (0.06)	14 (0.23)	0 (0.00)	23 (0.38)	3 (0.05)	20 (0.33)
Dog bite wound	5 (0.08)	0 (0.0)	10 (0.16)	7 (0.12)	8 (0.13)	12 (0.20)	3 (0.05)
Dermoid cyst	1 (0.06)	2 (0.33)	1 (0.06)	2 (0.03)	2 (0.03)	2 (0.03)	2 (0.03)
Glaucoma/damaged eye	2 (0.33)	1 (0.06)	1 (0.06)	4 (0.07)	0 (0.00)	2 (0.03)	2 (0.03)
Dermatitis	2 (0.33)	2 (0.33)	1 (0.06)	3 (0.05)	2 (0.03)	4 (0.07)	1 (0.02)
Gid disease	2 (0.33)	1 (0.06)	0 (0.0)	1 (0.02)	2 (0.03)	2 (0.03)	1 (0.02)
Gangrenous tail and leg	1 (0.06)	0 (0.0)	1 (0.06)	1 (0.02)	1 (0.02)	1 (0.02)	1 (0.02)
Schistosoma reflexus	2 (0.33)	0 (0.0)	0 (0.0)	1 (0.02)	1 (0.02)	0 (0.00)	2 (0.03)
Knuckling of fetlock	0 (0.0)	0 (0.0)	1 (0.06)	1 (0.02)	0 (0.00)	0 (0.00)	1 (0.02)
Hydrocephalus	1(0.06)	0 (0.0)	0 (0.0)	0 (0.00)	1 (0.02)	0 (0.00)	1 (0.02)
Total	2424 (40.48)	1985 (33.15)	1447 (24.16)	2696 (45.03)	3291 (54.97)	3081 (51.46)	2906 (48.54)

Table 5
Distribution of surgical affections on the Age and Rearing System of different food animals in the Coastal region of Bangladesh.

Name of affections	Age			Rearing system	
	<1 year (n=1736)	1-3 years(n=1892)	>3 years(n=2359)	Open system(n=3849)	Confined system (n=2138)
	Number (%)	Number (%)	Number (%)	Number (%)	Number (%)
Navel ill/Joint ill	1279 (21.36)	270 (4.51)	0 (0.00)	1106 (18.47)	443 (7.40)
Foot diseases	75 (1.25)	418 (6.98)	636 (10.62)	437 (7.30)	692 (11.56)
Myiasis	145 (2.42)	184 (3.07)	328 (5.48)	498 (8.32)	159 (2.66)
Wounds	57 (0.95)	213 (3.56)	427 (7.13)	609 (10.17)	88 (1.47)
Teat crack and teat obstruction	0 (0.00)	88 (1.47)	452 (7.55)	413 (6.90)	127 (2.12)
Vaginal prolapse	0 (0.00)	72 (1.20)	198 (3.31)	167 (2.79)	103 (1.72)
Fracture	32 (0.53)	229 (3.82)	5 (0.08)	1 (0.02)	265 (4.43)
Urolithiasis	4 (0.07)	220 (3.67)	49 (0.82)	259 (4.33)	14 (0.23)
Gangrenous mastitis	0 (0.00)	69 (1.15)	104 (1.74)	162 (2.71)	11 (0.18)
Bloat/Tympany	3 (0.05)	32 (0.53)	45 (0.75)	12 (0.20)	68 (1.14)
Absces	48 (0.80)	43 (0.72)	19 (0.32)	86 (1.44)	24 (0.40)
Umbilical hernia	39 (0.65)	11 (0.18)	0 (0.00)	10 (0.17)	40 (0.67)
Horn affection	0 (0.00)	13 (0.22)	40 (0.67)	45 (0.75)	8 (0.13)
Upward patellar fixation	0 (0.00)	11 (0.18)	25 (0.42)	7 (0.12)	29 (0.48)
Atresia ani	44 (0.73)	0 (0.00)	0 (0.00)	6 (0.10)	38 (0.63)
Severe Dystocia	0 (0.00)	8 (0.13)	15 (0.25)	4 (0.07)	19 (0.32)
Dog bite wound	4 (0.07)	5 (0.08)	6 (0.10)	13 (0.22)	2 (0.03)
Dermoid cyst	1 (0.02)	1 (0.02)	2 (0.03)	3 (0.05)	1 (0.02)
Glaucoma/damaged eye	2 (0.03)	1 (0.02)	1 (0.02)	2 (0.03)	2 (0.03)
Dermatitis	0 (0.00)	2 (0.03)	3 (0.05)	4 (0.07)	1 (0.02)
Gid disease	0 (0.00)	1 (0.02)	2 (0.03)	2 (0.03)	1 (0.02)
Gangrenous tail and leg	0 (0.00)	0 (0.00)	2 (0.03)	2 (0.03)	0 (0.00)
Schistosoma reflexus	2 (0.03)	0 (0.00)	0 (0.00)	1 (0.02)	1 (0.02)
Knuckling of fetlock	0 (0.00)	1 (0.02)	0 (0.00)	0 (0.00)	1 (0.02)
Hydrocephalus	1 (0.02)	0 (0.00)	0 (0.00)	0 (0.00)	1 (0.02)
Total	1736 (29.00)	1892 (31.60)	2359 (39.40)	3849 (64.29)	2138 (35.71)

In this study, umbilical hernia, atresia ani and dermoid cyst are the congenital surgical affections. Among the acquired disorders, myiasis, foot diseases, navel ill, wound, fractures, upward patellar fixation, horn affections, fracture, urolithiasis, teat obstruction, teat crack, gangrenous mastitis, wounds, dermatitis, abscess, gid disease, vaginal prolapse, and tail gangrene are the most common and more prevalent in coastal part of Bangladesh. The rarely occurred disease were knuckling of fetlock, hydrocephalus and lameness. These results are supported by previous study Arju et al. (2014), who reported 57.48% in cattle, 40.18% in goat, 1.40% in pig and

0.93% sheep in Chittagong region. Arju et al., (2014), reported that (46.96%) of cases in the summer followed by the rainy season (32.01%) and the winter (21.01%). The highest incidence (51.46%) of the cases has been observed in the local animal followed by the cross bred animal (48.54%) in the present study. The highest incidence (64.29%) of the cases has been also observed in open and semi-intensive rearing system followed by the intensive i.e. confined rearing system (35.71%). This result is supported by the previous study Sarker et al., (2014) who reported surgical affections are more prevalent in open rearing system than stall feeding system. The pertinent finding of this study evidenced that the percentage of surgical disorders was higher in female (54.97%) than that of male (45.03%). These results are in agreement with earlier report (Sarker et al., 2014, Kader et al., 2002, Rahman et al., 2001., Kabir, 2003).

Navel ill/Joint ill

Navel ill/joint ill is the highest occurrence (25.87%) of surgical affections recorded in coastal region of Bangladesh (Table 3) which is nearly similar with report (25.1%) of Sarker et al., (2014). The incidence of navel ill was only found in cattle (15.75%) (Table 3). This observation supports the report of Das and Hashim (1996) who reported 6.40% navel-ill in calves. The high percentage of this affection is recorded during summer (14.64%) and rainy season (10.12%) and lower rate (1.10%) in winter season (Table 3). The high temperature of summer helps in the growth and multiplication of bacteria in navel region. The occurrence of navel ill is more in male (22.32%) than female (3.56%). It may be due to presence of penis, preputial opening, preputial sheath and flow of urine near the umbilicus (in the navel area) and urine may be major factor for navel ill in male calves (Rings, 1995; Ganga et al., 2011). The navel infection as a source of infection leads to joint ill and septicemia in neonates due to failure of transfer of maternal immunity to the fetus and cause death of calf (Esiutin et al., 1975). The percentage of navel ill is higher (18.47%) in open rearing system than confined rearing system (7.40%) (Table 5). This observation supports the report of Sarker et al., (2014) who reported higher incidence (12.49%) in open rearing system than stall feeding system (6.58%). It is due to unhygienic condition, poor care and management system and lack of proper care of newborns. Similar reports have been documented earlier, 6.56% prevalence in Pabna district of Bangladesh (Kibria et al., 2010). The occurrence of navel ill is higher (21.36%) in food animals under one year of age (Table 5). The high incidence of navel is due to unhygienic management of newborn (Sarker et al., 2014).

Foot Disease

Foot disease is the second most common surgical disorder in animal in coastal part of Bangladesh. The overall incidence of foot disease is 15.83% (Table 3). This result is similar to earlier records (11.3%) of Sarker et al., (2014). The incidence of foot diseases is higher in the rainy season (9.32%) and winter (5.54%) than summer season (3.99%). The affection rate of foot diseases was found in higher in cross breed animals (12.23%) than local breed (6.63%). It is found that incidence of foot disease is higher in older animals than younger animals (Table 4). The affection of foot diseases was found in higher percentage (11.56%) in confined rearing system and lower percentage (7.30%) in open rearing system (Table 5). These results are supported by earlier study of Sarker et al., (2014). It may be due to concrete flooring, feeding of more concentrate diet, lack of exercise and green grass in confined feeding system (Tranter and Morris, 1991). Heavy weight of cows may cause chronic laminitis, sub-acute laminitis and heel horn erosion (Sarker et al., 2014). White hooves are more susceptible to lameness than black hooves, and black hooves are more common for Jerseys (Chesterton et al., 1989).

Myiasis

Myiasis is the third prevalent surgical disorder in coastal areas of Bangladesh. The occurrence of myiasis (11.64%) is found in food animals in study (Table 3). In this study, cattle are the animals which are mostly affected (6.16%) than other food animals. This result is nearly similar with the earlier report of myiasis (9.5%) of Rahman et al., (1972) but dissimilar with report (0.5%) of Mia and Haque (1967). The higher rate of myiasis has been reported in the rainy (4.74%) and summer

season (3.93%) and lower rate in winter (2.30%) (Table 4). Samad (2001) also recorded the highest myiasis cases in cattle and goats during summer season in comparison to winter season. The affection rate of myiasis is higher in female (7.50%) than male (3.47%) (Table 4). It may be due to the higher percentage of parturition in summer season and vulva region remains moist. For this reason female animals are more prone to flies infestation and thus myiasis may be occurred in higher rate. This result is supports the earlier investigations of myiasis 11.6% in male and 14.0% in female (Sarker et al., 2014). The occurrence of myiasis is found higher (8.32%) in open and semi-intensive rearing system and lower (2.66%) in confined rearing system (Table 5). The occurrence of myiasis is also found higher (6.60%) in local breed than cross breed animals (4.38%) (Table 4). Most of the local breed animals are reared in open and semi open system. On the other hand most of the cross breed animals are reared in confined system with extra care and management. In free rearing system, animal are prone to traumatic wound and there may be more chance of myiasis affection (Sarker et al., 2014).

Wound

Wound affection is found 10.97% in coastal areas of Bangladesh (Table 3). This result is similar with the report of Arju et al. (2014) who reported 11.57% wounds in animal in plain land. But this result is dissimilar with Samad (2001) who reported 0.77% wounds in animal. The occurrence of wound is slightly higher (6.26%) in cattle than goat (0.016%), and very low percentage found in other food animals like sheep, buffalo and pig.

Urolithiasis

Urolithiasis is recorded 4.44% in food animals in this present investigation (Table 3). This result is similar with the report of Arju et al., (2014) who reported 6.2 urolithiasis in cattle in Chittagong Hill tract region. The percentage of urolithiasis is higher in female (3.21%) than male (1.35%). Probably it may be due to structural difference of urinary tract % (Arju et al., 2014). This result also agrees with the findings of urolithiasis in Pabna by Kibria (2010). The occurrence of urolithiasis is higher in winter (4.54%) than rainy season (0.00%) and summer (0.06%) (Table 4). It may be due to less drinking of water in winter season (McIntosh, 1978; Arju et al., 2014). This result is agreeable with recent findings in Pabna district of Bangladesh (Kibria, 2010). High concentrate feed with inadequate water and low green forage and vitamin A deficiency may lead to the formation of urolithiasis in bovine (Singh and Somvanshi, 1980). Green grass is one of the sources of vitamin A and green grass is available in hill tracts.

Fracture

Fracture is recorded 4.55% in food animal among total diseased population in South-Western part of Bangladesh (Table 3). This result is revealed by the previous investigator (Arju et al., 2014) who recorded 4.23% in animal among total diseased population in Chittagong hill tracts region. It is the major cause of fatality in animals if the animals are not treated in time. Incidence of fracture in animals is reported earlier (Hossain et al., 1986; Samad, 2001). In this study the higher occurrence in summer (4.14%) than rainy season (0.23%) and winter season (0.06%). Animal are free ranged in summer and there is very possibility of fighting each other and greater chance of road accident. This result is supported by Arju et al. (2014). When treating fractures in immature animals, protection by bone plate is important for healing of immature bone (Lewis et al., 2001).

Teat crack and teat obstruction

Teat crack and teat obstruction is another most common surgical disorder which is recorded 9.01% in south-western region of Bangladesh (Table 3). In this study, it is found that the occurrence of teat crack and teat obstruction is higher in winter season (5.71%) than rainy season (2.20%) and in summer season (1.10%). Humidity is the determinant for skin health, and humidity is lower in winter that causes in teat crack (Radostits, 2000).

Vaginal Prolapse

The occurrence of clinical vaginal prolapse is recorded 4.50% in coastal region of Bangladesh (Table 3) which is fairly agree with that of 5.2% as reported by Mandali et al. (2004). The lower

prevalence rate of vaginal prolapse may be attributed to the available of calcium supply with feed and less chance to occurred hypocalcaemia. The occurrence of clinical vaginal prolapse is higher in summer (2.67%) than winter (1.72%) and very lower percentage (0.11%) in rainy season in case of both crossbred and local breed food animals. It may be due to high environmental temperature in summer that increase the elasticity of perineal muscle helpful for prolapsed, and in addition majority of the parturition take place in summer.

Mastitis

The pertinent finding of this study evidenced the occurrence of gangrenous mastitis 2.88% in food animals in the selected area. These results are in agreement with earlier report (Kader et al., 2002; Rahman, 2004; Kabir, 2003). In this study the occurrence of gangrenous mastitis is slightly higher (2.59%) in crossbred animals than that of local breeds (0.30%). This result is consistent with the findings of Rahman (2004). It may be due to high yielding crossbred cows are more prone to udder infection than the low producing ones (Slettbakk et al., 1995; Radostits et al., 2000. The similar result was observed in a study conducted in West Bengal of India where sub-clinical mastitis was 62.8%, 44.7% and 1.9% in Holstein Friesian x Hariana, Brown Swiss x Hariana, and Hariana, respectively (Roy et al., 1989).

Occurrence of mastitis in this study varied depending on the age and parity of the cow. However, more affection was observed with advancing of age and parity. These studies are agreeable with the findings of previous investigators (Slebttbakk et al., 1995; Radostits et al., 2000; Quaderi, 2005). Husain, (2007) showed that older cows of 14 years of age had 61% sub-clinical mastitis which correlates with the present findings.

Bloat/Tympani

Bloat/Tympani is recorded another most common surgical disorder of food animal, (especially for ruminants) in coastal part of Bangladesh. The occurrence of Bloat/Tympani (1.33%) is found in food animals in study (Table 3). This result is supported by the earlier report of (2.75%) of Morris et al., (1997). The bloat is predominantly occurred in cattle (0.81%) than other food animals (Table 3). It is probably due to larger ruminal structures which contain larger volume of rumen fluid (Morris and Carruthers, 1991). The higher rate of bloat/tympani has been reported in the winter (0.70%) and rainy season (0.45%) and lower rate in summer (0.18%) (Table 4). The affection rate of bloat/tympani is higher in female (1.09%) than male (0.25%) (Table 4). It may be due to supply of highly energetic and protein-rich diet for increased production. High energy and high protein supplement have been reported to increase the incidence of bloat in animals (Phillips et al., 1996). The highest proportionate incidence (0.75%) of bloat was found in the adult animals (above 3 years) followed by 0.53% and 0.05% in 1-3 years and less than 1 year respectively. Similar findings have been reported by McIntosh et al (1988). They explained that the increased incidence of bloat in the adult cattle may be associated with larger rumen volume. In the young animals of up to six months bloat is often caused by feeds like silage, corn fodder, alfalfa, straw etc. These feeds are not digested in undeveloped stomach (Udall, 1964).

Abscess

In this present study, the occurrence of abscess is recorded 1.83% in South-Western region of Bangladesh (Table 3). Abscess was recorded 0.83% in cattle and 0.05% in buffalo (Table 3). This observation is supported by the reports of Hossain et al. (1986) who recorded 1.2% cases of abscess in cattle, and 1.56% abscess cases in goats (Samad, 2001). Incidence of abscess recorded in summer season (1.08%) is higher. It may be due to high environmental temperature in summer season and most of the animals remain in stress condition which is more favourable for pyogenic infection.

Umbilical hernia

In this present study, the occurrence of umbilical hernia is recorded 0.83% in South-Western region of Bangladesh (Table 3). This result is supported by previous report of Arju et al., (2014). This surgical disorder is recorded only in animal that are less than one year of old. Umbilical hernia has

been reported as a common surgical affection in new born calves (Frank, 1981; O'Connor, 1982). The occurrence of umbilical hernia is the highest in cross-bred calves (Rahman et al., 2001). Umbilical hernia is a dangerous affection causing serious pain and discomfort when it is incarcerated and strangulated.

Horn affections

In this investigation the occurrence of horn affection is reported 0.88% in the coastal areas that is comparable with findings of previous works of Das (1986). The occurrence of horn affection is found higher in open rearing system (0.75%) than confined system (0.13%). In open rearing system, sometime animals are reared freely in the grazing land and sometimes also keep in barn at night without any controlling with rope. Every time the animals are fighting with each other for dominancy and there may higher chance of horn affections. This result is supported by previous study of Sarker et al., (2014).

Upward patellar fixation

In this present study, the occurrence of upward patellar fixation is recorded 0.61% in the coastal region of Bangladesh (Table 3). Das (1986) reported the occurrence of upward patellar fixation is 1.2% in Bangladesh. The occurrence of upward patellar fixation was more in confined rearing system (0.48%) than open rearing system (0.12%) This condition is accomplished by local breed, unavailability of green grass, lower nutrients supply in intensive care system (Curtis, 1961). Upward patellar fixation is higher (0.42%) in aged animal. This study reveals the higher occurrence of upward patellar fixation is found in winter season (0.28%) followed by rainy season (0.11%) and summer season (0.11%). It may be due to less movement, long time remain confined in stall and lower blood supply in cold period of winter. Incidence of upward fixation of patella is higher in winter (Tyagi *et al.*, 1972; Sharma et al., 1984). Mostly pregnant female cattle are affected with upward patellar fixation (Hanson et al., 1987).

Atresia ani

Atresia ani is recorded 0.73% in the study area. The lower incidence of atresia ani in Bangladesh has been reported 0.6% and 0.1% (Das, 1986; Tana, 1988). Hossain (2011) reported that male calves are more frequently affected with atresia ani than that of female. Atresia ani is regarded to be hereditary and the causal factor may be due to single autosomal recessive gene (Singh et al., 1989). In this study atresia ani is higher (0.63%) in confined rearing system than open rearing system (0.10%) in food animals. This result is supported by previous investigator, Sarkar et al., (2014) who reported 0.29% atresia ani in stall fed (confined rearing system) cattle but absent in Bathan (open rearing system).

Dystocia

The occurrence of severe dystocia that need to surgical correction is recorded 0.38% in coastal region of Bangladesh (Table 3).This result is supported by previous reports of Arju et al (2014). Similarly Kanuyaa et al., (2000) recorded 1.7% and Nix et al., (1998) reported 0.91%. However, the current finding fairly agrees to the other previous reports on the occurrences of dystocia is 6.9% (Bellows et al., 1996) and 10.8% (Verma and Mishra, 1984). This variation in the occurrence of severe dystocia may influence by factors such as age and parity as well as breed of the sire (Morrow, 1986). Inseminating cows with semen collected from large sized bulls without considering the size and age of cows are the major cause of severe dystocia in food animals.

Dog bite wound

Surgical affection in food animals due to dog bite is recorded 0.25% in the study area. This result is lower than 12.32% of Arju et al., (2014). The higher number of cases in hills and plain land may be due to high density of animal population along with dog. Dog in the rural and urban area of South-Eastern Bangladesh, become wild and frequently attack the livestock. So the dog bite is a risk factor for rearing of livestock. Wild animals like jackals and foxes, which reside in or near the forest frequently come in contact with grazing animal (Yadav, 2012).

The occurrences of knuckling of fetlock, hydrocephalus, glaucoma/damaged eye, expulsion of intestine through navel point, gangrene of tail and leg, dermatitis , atresia ani and gid disease are recorded as the insignificant cases in the study area on the basis of history recorded in veterinary hospitals and by the data collection on survey method. People living in remote rural area from the upazila are unable to contact and could not bring the diseased animal in the hospital. However, the data collected from this study on survey method could help the veterinarian to treat and prevent the affections. The knowledge derived from this study will increase clinicians understanding about the clinical cases especially surgical cases of food animals in coastal part of Bangladesh. In this study area, the surgical affections are considered as the prime cause of disability of the food animals. Most of the surgical cases may be curable if necessary measures are taken in time. Present report on these affections will be a tool for the policy maker of livestock to improve the health of food animals in the reported area.

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