



Surgical affections: A comparative scenario of Chittagong region

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ABSTRACT

A survey was conducted to determine the occurrence of surgical disorders in five upazila veterinary hospitals (UVH) in Chittagong region. A total of 12,642 sick animals of different UVH were investigated in this study. The overall occurrence of surgical disorders was found 6.59% in Chittagong region where as 6.65% in hill tracts and 6.33% in plain land. The common surgical disorders recorded were myiasis (1.21%), tympany (1.13%), navel ill (0.99%), traumatic wound (0.79%), dog bite (0.73%), foot diseases (0.59%), abscess (0.32%), urolithiasis (0.27%), fracture (0.23%) and upward patellar fixation (0.11%). Out of 834 surgically affected animals, 51.32% were from hill tracts and 48.68% from plain land. The cases were higher in cattle (57.48%) than goat (40.18%), sheep (0.93%) and pig (1.40%). The percentage of surgical disorders was higher in female (60.28%) than in male (39.71%). The highest occurrence of surgical disorders was in summer season (16.96%) followed by rainy season (32.01%) and winter season (21.03%). It reveals that the highest occurrence of surgical disorder is claimed by myiasis (18.69%) in hill tracts. The results imply that surgical disorders affecting the animal population in these areas is a great threat for animal rearing. It could be mitigated by prompt surgical intervention of these defects.

Key words: Surgical disorder, animal, Chittagong, Bangladesh

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INTRODUCTION

Though livestock is an important component of the lifestyle of the tribal people, they do not know the modern rearing system of animal. Hill is one of the high altitudes where the incidence of falling is common. Fracture of bones is a feature of accidental surgical affection where ribs are more vulnerable (Duan et al., 2013). Surgical disorders are the major causes of fatality in animals if the animals are not treated in time. However, surgical disorders are major threat for our economy and failure of surgical intervention provides no alternatives except culling (Berge and Westhues, 1986). The surgical disorders hinder the growth, performance and economic value (Hossain et al., 1986). Surgical affection like hernia, atresia ani,

navel ill, myiasis, humpsore, foot diseases, lameness and fracture are the diseases reported to be great loss to the people of Bangladesh (Hossain et al., 1986). External violence produces open wound in the skin and the incidence is more common in ruminants (Nooruddin and Dey, 1990). Healing of wound is one of the most complex biological events in living objects (Gillitzer and Goebeler, 2001) and wound may lead to serious consequences (Mashhood et al., 2006). Myiasis constitutes a major threat to the development of livestock industry and may occur all the year round in the tropics (Millikan, 1999). The occurrence of atresia ani is the second highest along the surgical affection of calves in Bangladesh (Das and Hashim 1996). In addition lameness in cattle is a serious problem and causes

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significant economic losses (Bowley, 1993). Contamination of umbilicus is a source of infection leading to septicemia and navel ill in neonates. Urolithiasis can also cause significant economic losses due to urethral obstruction; rupture of the urethra or bladder or death (Parker, 1981). However, the database information on occurrence of various surgical disorders in animal is not well organized in different geographic locations. A comprehensive database survey is necessary to establish a base line information for future study of the surgical disorders in animal at hill tracts. The present study was undertaken to make a comprehensive scenario of surgical affection in Chittagong region of Bangladesh.

MATERIALS AND METHODS

Study area

The study was conducted from October 2012 to September 2013 in five upazila veterinary hospital of greater Chittagong region. These upazilas are Kaptai, Kaokhali, Rangamati Sadar, Sitakunda and Rangonia. Among these, three upazila (Kaptai, Kaokhali, Rangamati Sadar) are included in mountain area and two upazila (Sitakunda and Rangonia) are in plain land.

Study population

Cattle, goat, sheep, pig, are the main species in this study. From the five upazila, a total of 12,642 clinically affected animals were included in this survey. Among these, 6,425 animals were from hill tracts and 6,217 from plain land. After thorough clinical examination, 834 animals (cattle = 517, goat = 307, sheep=4, pig=6) of different ages and of either sexes were found surgically affected.

Data collection

Information about the patients was collected from five upazila veterinary hospitals of Chittagong region. All the data were collected from the patient register record of veterinary hospital. The patient register recorded the name of surgical disorder, species, breed, age, sex and season of the year.

Case classification

Clinical case records of 12,642 animals from different age were considered. The recorded diseases were classified into two major groups: surgical and non-surgical diseases. The surgical diseases of animal were further classified based on species, sex and season. In the species cattle, goat, sheep and pigs were included. Male and female animals were discriminated during data collection. The study period was divided into three seasons on the basis of local climatic conditions as the summer season (March to June), the rainy season (July to October) and the winter season (November to February). Distribution of surgical disorders among season was recorded by observing date of the case record. The effect of season on surgical disorders on animal was studied.

Data analysis

The data were checked manually for obvious inconsistencies, recording errors or missing data. The potential errors were evaluated and corrected. Data with suspicious values were excluded. Data were organized in the Microsoft excel spreadsheet and percentages of surgical disorders in different species and seasons were calculated. The percentages of surgical disorders were evaluated by using following formula:

Percentage (%) of surgical disorder =

$$\frac{\text{Number of surgical affection}}{\text{Total number of affection}} \times 100$$

RESULTS AND DISCUSSION

The surgical disorders observed in animal at the different veterinary hospitals in Chittagong region are shown in the table 1. Rangonia is more prone to have surgical disorders (7.55%). In hill tracts the highest percentage of disorders is myiasis (18.69%) followed by navel ill (13.79%), wound (12.38%), foot diseases (6.35%), upward patellar fixation (1.89%) and fracture (4.43%) (table 2). Animals are reared in semi-intensive or free rearing system in forest area at hill tracts and are

easily exposed to flies. Moreover bushes are suitable place for the propagation of flies. The huge number of flies contributes to the production of large number of maggots. As with fleas and ticks, maggot is a threat to livestock at hill tracts area (Kaul, 2011). Wound affection is found 0.79% in Chittagong region in the total diseased population. This result is corresponding

with Samad (2001) who reported 0.77% wounds in animal. In case of myiasis, both in plain and hill tracts area, the affection rate is nearly equal to that of 1.18% and 1.23%, respectively. This result is supported by previous investigator which was 3.63% (Sarker et al., 2013). The present study reveals that the rate of myiasis is higher in summer season than in cold season (table 3).

Table 1
Overall occurrence of surgical disorders in five veterinary hospitals in Chittagong region

Name of surgical disorders	Occurrence in veterinary hospital							Grand Total n=12642
	Hill tract				Plain area			
	Kaptai n=2115	Kaokhali n=2054	Rangamati Sador n=2256	Total n=6425	Sitakunda n=2574	Rangonia n=3643	Total n= 6217	
Wound	21 (0.99%)	13 (0.63%)	19 (0.84%)	53 (0.82)	21 (0.81%)	26 (0.71%)	47 (0.76)	100 (0.79%)
Fracture	6 (0.28%)	5 (0.24%)	8 (0.35%)	19 (0.29)	3 (0.12%)	8 (0.22%)	11 (0.17)	30 (0.23%)
Myiasis	26 (1.23%)	23 (1.12%)	31 (1.37)	80 (1.23)	29 (1.12%)	45 (1.24%)	74 (1.18)	154 (1.21%)
Navel ill	27 (1.28%)	17 (0.83%)	25 (1.11%)	69 (1.06)	17 (0.66%)	39 (1.07%)	56 (0.87)	125 (0.99%)
Abscess	5 (0.24%)	5 (0.24%)	6 (0.27%)	16 (0.25)	9 (0.35%)	15 (.41%)	24 (0.38)	40 (0.32%)
Tympany	25 (1.18%)	19 (0.93%)	30 (1.33%)	74 (1.14)	18 (0.69)	51 (1.39%)	69 (1.04)	143 (1.13%)
Retained placenta	2 (0.09%)	2 (0.09%)	3 (0.13%)	7 (0.10)	3 (0.116%)	8 (0.22%)	11 (0.17)	18 (0.14%)
Urolithiasis	5 (0.24%)	7 (0.34%)	5 (0.22%)	17 (0.27)	6 (0.23%)	11 (0.30%)	17 (0.27)	34 (0.27%)
Upward patellar fixation	3 (0.14%)	3 (0.15%)	2 (0.09%)	8 (0.13)	1 (0.04%)	5 (0.14%)	6 (0.09)	14 (0.11%)
Atresia ani	0 (.00%)	1 (0.05)	0 (.00%)	1 (0.02)	0 (.00%)	2 (0.05%)	2 (0.03)	3 (0.02%)
Foot diseases	15 (0.71%)	11 (0.54%)	14 (0.62%)	40 (0.62)	13 (0.51%)	22 (0.60%)	35 (0.56)	75 (0.59%)
Hernia	0 (.00%)	0 (.00%)	1 (0.04%)	1 (0.01)	1 (0.04%)	1 (0.03%)	2 (0.04)	3 (0.02)
Dog bite	19 (0.90%)	15 (0.73%)	8 (0.35%)	42 (0.66)	9 (0.35%)	41 (1.13%)	50 (0.74)	92 (0.73%)
Gid disease	0	1 (0.05)	0	1 (0.02)	1 (0.04)	1 (0.01)	2 (0.03)	3 (0.02)
Total	154 (7.28%)	122 (5.93%)	152 (6.74%)	428 (6.65)	131 (5.1%)	275 (7.55%)	406 (6.33)	834 (6.59%)

Table 2
Comparison of surgical disorders of animal between hill tracts and plain land

Name of surgical affections	Chittagong region		Hill tracts (%)		Plain land	
	Total	%	Total	%	Total	%
Wound	100	11.99	53	12.38	47	11.57
Fracture	30	3.60	19	4.43	11	2.71
Myiasis	154	18.47	80	18.69	74	18.2
Navel ill	125	14.99	69	16.12	56	13.79
Abscess	40	0.48	16	3.73	24	5.91
Tympany	143	17.15	74	17.28	69	16.99
Retained placenta	18	2.16	7	1.63	11	2.71
Urolithiasis	34	4.08	17	3.97	17	4.18
Upward patellar fixation	14	1.68	8	1.89	6	1.48
Atresia ani	3	0.36	1	0.23	2	0.49
Foot diseases	75	10.22	40	9.35	35	8.62
Hernia	3	0.36	1	0.23	2	0.49
Dog bite	92	11.03	42	9.81	50	12.32
Gid disease	3	0.36	1	0.23	2	0.49
Total	834	100	428	51.32	406	48.68

Table 3
Seasonal occurrence of surgical affections in animals at hill tracts of Bangladesh

Name of affections	Summer Season		Rainy Season		Winter Season		Total
	Number	(%)	Number	(%)	Number	(%)	
Wound	31	58.49	14	26.42	8	15.09	53
Fracture	10	52.63	7	36.84	2	10.53	19
Myiasis	42	52.5	29	36.25	9	11.25	80
Navel ill	35	50.42	17	24.63	17	24.63	69
Abscess	8	50.00	3	18.75	5	31.25	16
Tympany	27	36.48	36	48.64	11	14.86	74
Retained placenta	4	57.14	2	28.57	1	14.28	7
Urolithiasis	2	11.76	3	17.64	12	70.58	17
Upward patellar fixation	4	50.00	2	25.00	2	25.00	8
Atresia ani	0	0.00	0	0.00	1	100.00	1
Foot diseases	12	30.00	18	45.00	10	25.00	40
Hernia	1	100.00	0	0.00	0	0.00	1
Dog bite	24	57.14	6	14.29	12	28.57	42
Gid disease	1	100.00	0	0.00	0	0.00	1
Total	201	46.96	137	32.01	90	21.03	428



Figure 1

This figure is the representative of the surgical affection in animals of Chittagong region- a) complete fracture in the metatarsal of a goat; b) myiasis in vagina and base of the tail; c) affection in the foot of a goat; d) chronic wound in the ear of a cow; e) abscess in the knee joint of the forelimb of a goat; f) dog bite wound in the abdomen of a calf.

Surgical affection like hernia, atresia ani, navel ill, myiasis, humpsore, foot diseases, lameness and fracture are the diseases reported to be great loss and representative of surgical affections are illustrated in figure1. Chronic surgical disorders require extra care and financial involvement. Moreover, failure of surgical intervention provides no alternatives except culling (Berge and Westhues, 1986). The fracture in hill tracts is about twice (4.43%) than the plain land (2.72%) among the recorded surgical cases (table 2). Most fractures are the result of trauma such as being hit by a car, falling from height, being stepped on or from a fight. This study reveals the higher occurrence in summer (52.63%) and rainy season (36.84%) than winter season (10.53%) shown in table 3. Animal are free ranged in summer and there is very possibility of fighting each other and falling from the top of the hill.

Navel ill is the third prevalent surgical disorder in both hill tracts and plain land. Navel ill is recorded

only 0.99% in calf in Chittagong region. In Bangladesh the occurrence of navel ill in different region are near about 1% (Samad, 2001; Hossain et al., 1986). In this study, shown in table 2, occurrence of navel ill is higher (16.12%) in hill tracts than plain area (13.79%). This datum is closely related to 12.5% which is narrated by Sarker et al. (2013). It is due to unhygienic management of newborn after birth and illiteracy among tribal people.

Retained placenta is recorded only 0.14 % in cows and no report in doe shown in table 4. The lower rate of retained placenta is found in other parts of Bangladesh (Rahman et al., 1999; Samad, 2001). The case is higher in plain land than hill tracts. Green grass and plenty of plant leaves is found in hill tracts which may contain several mineral and vitamin. This diet may have some component which could help for expulsion of placenta. The nutritional management of mature cows minimizes the occurrence of retained placenta (Guard, 1999).

Table 4

Occurrence of surgical disorders in different species of animal at hill tracts

Name of surgical affection	Species				
	Cattle	Goat	Sheep	Pig	Total
Wound	60.38	30.18	1.89	7.55	12.38
Fracture	52.63	47.37	0	0	4.43
Myiasis	46.25	53.75	0	0	18.69
Navel ill	100	0	0	0	16.12
Abscess	62.5	37.5	0	0	3.73
Bloat	52.70	44.59	2.70	0	17.28
Retained placenta	100	0	0	0	1.63
Urolithiasis	17.64	82.35	0	0	3.97
Upward patellar fixation	100	0	0	0	1.89
Atresia ani	100	0	0	0	0.23
Foot diseases	35.0	57.5	2.5	5.0	9.35
Hernia	100	0	0	0	0.23
Dog bite	35.71	64.28			9.81
Gid disease	0	100	0	0	0.23
Total	57.48	40.18	0.93	1.40	100

Urolithiasis, the formation of stones in the urinary tract of animal, is recorded 0.27% in animal. Samad (2001) reported very low percentage (0.02%) of obstructive urolithiasis in animal. The percentage of urolithiasis is higher in plain land (4.18%) than hill tracts (3.97%) in goat. This result is agreeable with recent findings in plain land of Pabna (Kibria, 2010). It may be due to unavailability of green grass and too much concentrate diet feeding or imbalanced intake of minerals (Hesse et al., 2009). These feed stuffs have high levels of phosphorous and magnesium but relatively

low level of calcium and potassium predispose this disease condition.

Foot disease is one of the common surgical disorders in animal in hill tracts (9.35%). The incidence of foot diseases is higher in the rainy season than summer due to foot and mouth disease outbreak, muddy land, thorn in hill, less exercise, unhygienic floor (Huang et al., 1995). It is reported that prevalence of foot disease is higher in male than in female (Noman et al., 2013) according to table 5.

Table 5

Occurrence of surgical on surgical affections in different sexes of animal at hill tracts

Name of surgical affections	Male		Female	
	Number	%	Number	%
Wound	19	11.18	34	13.17
Fracture	7	4.11	12	4.65
Myiasis	22	12.94	58	22.48
Navel ill	42	24.71	27	10.46
Abscess	7	4.12	9	3.49
Tympany	23	13.52	51	19.77
Retained placenta	0	0.00	7	2.71
Urolithiasis	17	10.00	0	0.00
Upward patellar fixation	1	0.59	7	2.71
Atresia ani	1	0.59	0	0.00
Foot diseases	16	9.41	24	9.30
Hernia	1	0.59	0	0.00
Dog bite	15	8.82	27	10.46
Gid disease	0	0.00	1	0.38
Total	170	39.71	258	60.28

Surgical affection in domestic animal due to dog bite is 9.81% in hill tract and 12.32% in plain land in Chittagong region. The higher number of cases found in plain land than hill tracts due to high density of stray dog. Wild animals like jackals and foxes, who reside in the forest, frequently come in contact with grazing animal (Yadav, 2012). The occurrence of hernia, atresia ani, gid disease is very insignificant in case history recorded in veterinary hospitals. People living in remote forest from the upazila are unable to contact and cannot bring the diseased animal in the hospital. Various surgical disorders were common in hill tracts of

Bangladesh. Control measures against major disorders reported in this region should be taken into consideration in order to prevent the losses from treatment and death of the affected animals.

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