



Surgical Affections of Black Bengal Goats in Selected Areas of Sherpur District - A Retrospective Study

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Abstract

The occurrence of surgical affections in Black Bengal Goats was studied from January 2012 to December 2016 at two Veterinary Hospitals of Sherpur district. Effect of age, sex and seasons on various surgical affections was investigated. A total of 1280 diseased goats were registered in two selected veterinary hospitals. We observed most common surgical affections were gid disease (21.88%), wound (22.26%), sub-cutaneous cyst (13.28%), urolithiasis (8.98%), bloat (12.50%) and the fracture (7.03%) in Black Bengal goats. The occurrence of gid was highest, and fracture was lowest in both hospitals. Occurrence rate of gid (23.87%) was found highest at District Veterinary Hospital, Sherpur followed by wound (18.71%), bloat (12.90%), subcutaneous cyst (12.26%), urolithiasis (9.03%), fracture (7.74%), abscess (7.10%) and overgrown hoof (4.52%). At Nalitabari upazilla incidence of the wound was the highest (27.27%). The occurrence of gid, subcutaneous cyst, bloat, urolithiasis was found to be higher in adult in both hospitals. The occurrence of gid and subcutaneous cyst was higher in female goats. In the rainy season, the incidence of gid was higher compared to other seasons.

Keywords: Occurrence Gid Disease, Wound.

INTRODUCTION

Goat is the second important species in Bangladesh. It requires a relatively small investment and may be a good source of income for small farmers. Most of the goats in our country are Black Bengal (Amin *et al.*, 2001). Some fatal diseases like gid, urolithiasis, PPR, bloat have been the constraint in the development of this species in Bangladesh. A considerable number of surgical affections are found in goats. Surgical diseases in animals are very often associated with defects in the leather quality, decrease in production performances and even death of the animals. There is no survey work on the surgical affections in goats in Bangladesh. The common and acquired surgical affections found in goats are gid disease, subcutaneous cyst, urolithiasis, myiasis, fracture hoof deformity, wound etc. Mostly adult goats are affected by these diseases. Other surgical affection may be a complication of castration, malicious wound, hematoma due to traumatic injury, injury at the cornea, foot abscess etc. Since the diseases are acquired, it may be termed as acquired surgical affections in the goat. In addition, there are some congenital defects found in goats. A mutant gene, chromosomal aberrations or a recessive gene are claimed to be responsible (Superstein *et al.*, 1975). The incidence of various surgical affections in goats is well recognized in other countries, but

in Bangladesh, a detailed study on this aspect is very scanty. So, a comprehensive study is necessary to establish baseline information for future about the surgical affections in goat. The study had been designed to find out occurrences of surgical affections in Black Bengal goats and to investigate the risk factors (age, sex, breed and season) affecting the occurrence of surgical affections in Sherpur district of Bangladesh.

MATERIALS AND METHODS

The study was conducted to know the surgical affections of Black Bengal goat in Sherpur Sadar and Nalitabari Upazila of the Sherpur district of Bangladesh, from January 2012 to December 2016. Within this period, retrospective data were collected and analyzed.

Data Collection Procedure

Information about the affected goat was collected from two Veterinary Hospitals named, District Veterinary Hospital (DVH), Sherpur and Upazilla Veterinary Hospital (UVH), Nalitabari. The surgical cases were collected from the official register book of District and Upazilla veterinary hospitals in Sherpur district. The investigator personally visited all the

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selected Veterinary Hospitals under Sherpur district. The information on surgical disorders and season of occurrence and species, breed, age and sex of goats were collected from the datasheet recorded by the hospital authority during the study period. With the concern of Veterinary Surgeon baseline data also collected directly from the owner of the animal.

The recorded diseases were classified into two major groups: surgical and non-surgical diseases. The surgical diseases of animals were further classified based on the species, breed, sex and season. Distribution of surgical disorders among the seasons was done by observing the date of the case recorded. The period was divided into four seasons on the basis of local climatic conditions such as i) Summer (April to June); ii) Rainy (July to September); iii) Winter (October to December); iv) Spring (January-March)

Statistical Analysis

The data obtained from the questionnaire were organized and percentages of surgical disorders in different species, breed, rearing system, sex and seasons were calculated. The data collected were coded, scored, compiled, tab-

ulated and analyzed in accordance with the objective of the study by LSD and Post Hoc Test using IBM SPSS software. The percentage of surgical disorders was evaluated by using the following formula:

$$\text{The Occurrence of Surgical Disorder} = \frac{\text{Number of Surgical Affections}}{\text{Total Number of Surgical Affections}} \times 100$$

RESULTS

A total of 1280 goat were included from two veterinary hospitals in Sherpur district. The overall incidence rate of most common surgical affections at the two places is presented in Table 1. The incidence rate of gid was the higher (23.87%) at District Veterinary Hospital, Sherpur, and the incidence rate of wound was (27.72%) at Upazilla Veterinary Hospital, Nalitabari. Among the diseases observed in two hospitals, the incidence of wound was the highest (22.26%), followed by the gid, sub-cutaneous cyst, bloat, urolithiasis, fracture in Black Bengal goats.

Table 1: The overall occurrence of most common surgical affections in Black Bengal goats at two Veterinary Hospitals in Sherpur district

Name of affections	Number of surgical affections - n (%)		Total-n (%) (n=1280)
	DVH (n=775)	UVH (n=505)	
Gid	185 (23.87)	95 (18.81)	280 (21.88)
Wound	145 (18.71)	140 (27.72)	285 (22.26)
Bloat	100 (12.90)	60 (11.89)	160 (12.50)
Sub-cutaneous cyst	95 (12.26)	75 (14.85)	170 (13.28)
Urolithiasis	70 (9.03)	45 (8.91)	115 (8.98)
Fracture	60 (7.74)	30 (5.94)	90 (7.03)
Abscess	55 (7.10)	20 (3.96)	75 (5.85)
Overgrown hoof	35 (4.52)	40 (7.92)	75 (5.85)
Navel ill	20 (2.85)	-	20 (1.56)
Gangrenous mastitis	5 (0.65)	-	5 (0.39)
Actinomycosis	5 (0.60)	-	5 (0.39)

DVH-District Veterinary Hospital, Sherpur; UVH- Upazilla Veterinary Hospital, Nalitabari

The age-related variation in surgical affections is presented in Table 2. At DVH, Sherpur, the total number of young animals was 225 and adult is 550; young 155 and adult 350 at UVH, Nalitabari. In case of Gid, the incidence rate was lower in young and higher in adult in all two ar-

reas of study (29.73% in young and 72.27% in adult at DVH, Sherpur; 21.05% in young and 78.95% in adult at UVH, Nalitabari). In the case of wounds, the age variation was minor. In the case of bloat, the incidence was lower in young and higher in adult. Incidence of gid, sub-cutaneous cyst, wound,

Table 2: Occurrence of surgical affections according to age of Black Bengal goats in study areas.

Name Of Affections	Age			
	Young (<1 Year)(%)		Adult (>1 year)(%)	
	(DVH)	(UVH)	(DVH)	(UVH)
Gid	29.73	21.05	70.27	78.95
Wound	100	53.57	00	46.42
Bloat	10.00	25.00	90.00	75.00
Sub-cutaneous cyst	26.32	20.00	75.68	80.00
Urolithiasis	0	22.22	100	77.78
Fracture	25.00	33.33	75	66.67
Abscess	36.36	25.00	63.64	75.00
Overgrown hoof	28.57	12.50	71.43	87.50
Navel ill	100	0	0	0
Gangrenous mastitis	0	0	100	0
Actinomycosis	0	0	100	0

DVH-District Veterinary Hospital, Sherpur; UVH- Upazilla Veterinary Hospital, Nalitabari

Table 3: Occurrence of surgical affections according to sex of Black Bengal goats at DVH, Sherpur (n=775) and UVH, Nalitabari (n= 505)

Name of affections	Sex			
	Male (%)		Female (%)	
	(DVH)	(UVH)	(DVH)	(UVH)
Gid	18.91	36.84	81.08	63.15
Wound	44.82	39.28	55.17	60.71
Bloat	40.00	41.67	60.00	58.33
Sub-cutaneous cyst	42.10	33.33	57.89	66.67
Urolithiasis	33.33	27.50	66.66	68.50
Fracture	100	83.33	0	16.67
Abscess	45.45	50.00	54.55	50.00
Overgrown hoof	85.71	37.5	14.28	62.5
Navel ill	75.00	0	25.00	0
Gangrenous mastitis	0	0	100	0
Actinomycosis	100	0	0	0

DVH-District Veterinary Hospital, Sherpur; UVH- Upazilla Veterinary Hospital, Nalitabari

urolithiasis were lower in young animals but higher in adults.

The data on the effect of sex on surgical affections of goats are presented in Table 3. The total number of male and female goats at Districts Veterinary Hospital, Sherpur were

225 and 550; Upazilla Vet Hospital, Nalitabari 235 and 270 respectively. The incidence of gid was 18.91% in male and 81.08% in the female at DVH, Sherpur; 36.84% in male and 63.15% in female, at UVH, Nalitabari. Sex variation was less

in cases of wound, fracture, overgrown hoof. The incidence of bloat was higher in female and lower in male. The incidence of the subcutaneous cyst was lower in male and higher in female (42.10% in male and 57.87% at DVH, Sherpur, 33.33% in male and 66.67% in female at UVH, Nalitabari. The incidence of the abscess was higher in female at DVH, Sherpur; in UVH, Nalitabari the incidence of abscess in male and female was similar. Navel ill was found higher in male

than female.

Table 4 shows the occurrence of surgical affections in Black Bengal goat in various seasons at DVH, Sherpur and UVH, Nalitabari. The incidence of gid was highest in rainy season at DVH. It reveals that the incidence of the wound and the sub-cutaneous cyst was higher in rainy season, bloat was spring in all two areas.

Table 4: Seasonal distribution of various surgical affections of Black Bengal goats at two hospitals

Name of affections	Occurrence (%) of diseases in seasons							
	Summer		Rainy		Winter		Spring	
	DVH	UVH	DVH	UVH	DVH	UVH	DVH	UVH
Wound	31.03	21.43	37.93	39.29	17.24	21.43	13.79	17.86
Gid	18.92	0	43.24	0	24.32	0	13.51	0
Sub-cutaneous cyst	15.79	20.00	31.58	46.67	36.84	26.67	15.79	66.67
Bloat	10	0	35	8.33	45	50.00	10	41.67
Urolithiasis	28.57	0	14.29	0	21.43	0	35.71	0
Overgrown hoof	28.57	0	0	33.33	14.29	0	57.14	66.67
Fracture	33.33	0	41.67	0	16.67	0	8.33	0
Abscess	45.46	20	18.18	0	9.09	20	27.27	60
Horn Fracture	0	15.89	0	52.63	0	21.05	0	10.52
Footrot	0	33.33	0	11.11	0	11.11	0	44.44

DVH-District Veterinary Hospital, Sherpur; UVH- Upazilla Veterinary Hospital, Nalitabari

DISCUSSION

The incidence of the diseases varies with the species, ages, sex of the animal and season of the year (Samad und Hoque, 1986). In this investigation, the most commonly found surgical affections at two areas of Sherpur were: gid, wound, subcutaneous cyst, urolithiasis, bloat, fracture. The incidence of gid is found to be highest (23.87%) in all two areas. In Sherpur, the incidence of gid is highest. The findings of this study reveal that gid occurred more frequently in Black Bengal goat between one and three years of age i.e. in adult goats. These findings correspond to earlier investigations (Hossain, 2011). The reasons for the frequent occurrence of the disease in the above age group are not clear. The high incidence of gid in adult animals may be related to the time to complete the development of the etiological agent in the intermediate host, which was reported by Soulsby (1968).

In Black Bengal goats under subsistence-based production and semi extensive system of the management, occurrence rate of subcutaneous cyst is 2.4% during 14 months indicates endemic nature of the disease which confirm the findings of Nooruddin et al. (2000). The frequency of a dis-

ease depends on the epidemiological study design, sampling technique, sample size, nature of the commodity, the system of production and management, diagnostic technique. The finding corresponds well with the reports of Cockrem et al. (1987) and McIntosh (1978). They explained that the increased incidence of bloat in the adult goat might be associated with larger rumen volume. In the young animals, bloat is often caused by feeds like silage, corn fodder. These feeds are not digested in the underdeveloped stomach (Udall und Chow, 1969). The incidence rate of urolithiasis is higher in adult goat. We are unaware of report to support the finding. (Blood et al., 1983) stated that obstructive urolithiasis increases in occurrence with age. For the development of urolithiasis, a nidus is first formed within the urinary tract. Urolithiasis is virtually always associated with concentrate feedings.

The gid disease predominantly occurred in female animals, particularly in the pregnant does. The disease also occurred more frequently in the emaciated animals. The increased incidence of the disease in the female animals, especially in the pregnant ones, may be explained in the following way. The pregnancy as a stress, might adversely affect the an-

imal's inherent level of immunity. This suppressed immunity may be conducive for receiving infection once the animals get exposed to it. The pregnant animals require extra feeding for the foetus, and this may demand more grazing and thereby may be more vulnerable to the infection than male. The urolithiasis was found in male goats, particularly in castrates. These findings are in agreement with the earlier investigation of Matthews (1999) who explained that females could pass calculi easily through their shorter, wider urethra whereas males cannot. Castration arrests penile development so, the urethra remains narrow. Mature animals have a larger urethra than immature animals. So, it may be more likely that young castrated animals are at higher risk.

The incidence of the gid and subcutaneous cyst was found high in the rainy season. The risk factors included geographic locations, rainy season, high rainfall, relative humidity and ambient temperature (Rashid, 1999). A significant amount of disease could be reduced by avoidance of these environmental factors. The food animals are slaughtered in the market very often indiscriminately. The physical address of the study population is a riverbank under flood level, which further helps in discrimination of parasitic eggs. Moisture is required for breaking and spread of faecal mass containing segments of the tapeworm and their eggs. There are increased rainfall, relative humidity and ambient temperature during monsoon in Bangladesh. These factors independently or jointly are reported to be conducive to the development and survivability of eggs containing oncospheres in the pasture (Soulsby, 1968). No such ecological information on the parasite is available in Bangladesh. The disease is not severe, like other countries (Rashid *et al.*, 2000). Cases with 1-3 cysts affecting 1-3 sites in individual animals are recorded, but the large number of cysts affecting many sites/organs and death are reported from Sudan (Ramadan *et al.*, 1973) and Oman (EL-Sinnary *et al.*, 1999).

In the present study, bloat predominantly occurs during the autumn seasons (mid-September to mid-December). Schipper (1970) and Blood *et al.* (1983) have reported similar results. Various succulent plants might increase the incidence of bloat in goats in the autumn season. Hall und Majak (1995) found the percentage of dry matter and acid detergent fiber was lower and the concentration of chlorophyll and soluble nitrogen were higher in leguminous plants. Frothiness of the ruminal contents causes physical obstructions of the cardia and inhibits the eructation's reflex. Eventually, there is a loss of muscle tone and ruminal motility. Similar report has been presented by Radostits *et al.* (1994). We found the incidence of bloat was higher in the female than that in the male goats. Pregnancy makes the animal voracious so the sheep become vulnerable for the occurrence of bloat. Higher incidence of bloat in female may be due to the supply of a highly energetic and protein-rich diet for increased production. High energy and high protein supplement have been reported to increase the incidence of bloat (Philips *et al.*, 1996).

Fracture is the major orthopaedic condition which causes lameness in calves and goats (Ali *et al.*, 2017; Mohiuddin *et al.*, 2018). In the present study, fracture was the sixth most common surgical affection with the overall occurrence

rate of 7.03% which is in conformity with Alam *et al.* (2014) who had observed that the occurrence rate was 8% in calves. In this study, dermoid cyst, dog bites, gid disease and gangrenous mastitis were found the lower number.

The tropical environment, humidity, and heavy rainfall have made the Sherpur region a vulnerable place for the occurrence of surgical affections in goat. Wound occurred in the highest percentage. Gid, subcutaneous cyst and urolithiasis are higher in adult. According to sex variation gid and subcutaneous cyst are more in female. Gid and wound are higher in the rainy season. However, urolithiasis and bloat are higher in winter and autumn, respectively. Management practices and housing arrangement have been found to affect the occurrence of surgical affections in goat significantly. This study might be helpful to prevent these surgical affections in goats of studied areas.

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