

CHAPTER-I

INTRODUCTION

Bangladesh is an agricultural country. Livestock has been an important component of mixed farming system practiced in Bangladesh for centuries. This refutation of standard slanders against the goat is based on the reports and policy discussions of the headquarters of FAO of United Nation, main channel of aid and advice of developing countries. From time to time, changes in economic condition or agricultural techniques deprive goat of its usefulness in an area where it has long played an important role. On the other hand, when encounter an organized propaganda campaign against goats, prominent official demanding the extermination of goats and laws directing against goat keeping, we are indeed an economic preparation for their owners in the country concerned.

Goat plays a potential role in the subsistence economy of Bangladesh, where they are generally raised by the poor farmers and distressed women with very little capital investment. The importance of goat and its disease emphasized for their versatile production profile and valuable contribution like meat and milk industrial raw materials as skin fibers, and manure, Socio-economic relevance as security by incoming generation and human nutrition (Hossain *et al.*, 1998).

The goat suffers with various diseases, which are caused by bacteria, viruses, parasites and other non-infectious agents. These diseases are considered to be main limitation to production in the small ruminant industry. So it is impotent to diagnosis and treatment of these diseases to relief the animal from suffering. The diagnosis of the goat diseases only based on the clinical symptoms is most difficult, as many diseases resemble one another. The important clinical symptoms and pathological observation of common diseases have been given. Treatment is given on the basis of effectiveness and practical experience but not complete. The farmers may take some steps, as recommended, to prevent further deterioration in the condition of the animal, until it is brought under the supervision of a goat health specialist. It is observed that the seriousness can be prevented or minimized if timely preventive health care has been adopted in

goat farming. More over Bangladesh is a moderately hot and humid country. The geo-climatic condition of Bangladesh is suitable for the development and survival of various organisms. Among them virus (PPR), bacteria (pneumonia, mastitis, diarrhea), parasites and some other disorders are very common. Parasites pose a significant threat to the health of small ruminants. Parasites can damage the gastrointestinal tract, and result in reduced reproductive performance, reduced growth rates; less productive animals in terms of meat, fiber and milk; and even death. (Hepworth, Kate, M. Neary, and T. Hutchens. August 2006). Considering these important demands the present study was under taken the following objectives:

1. To know the clinic-pathological features of various diseases of goat.
2. To know the therapeutic management of such types of diseases.

CHAPTER-II

MATERIALS AND METHODS

Study area

The study was carried out at Upazilla Veterinary Hospital Nazirpur, Pirojpur in Bangladesh to know the clinical and pathological feature and therapeutic management of various diseases of goat.

Study population

Total 1269 goats were study populations that were conducted at Upazilla Veterinary Hospital Nazirpur, Pirojpur during the time of 1st November 2017 to 30th March 2018.

Source of population

Upazilla Veterinary Hospital Nazirpur, Pirojpur Bangladesh with history and clinical sign of various diseases was the source population.

Duration of study

The study was conducted from 1st November 2017 to 30th March 2018 directed 22 weeks.

Data collection

About 1269 goats of different ages and sex were registered from different areas of Upazilla Veterinary Hospital Nazirpur, Pirojpur, Bangladesh. Collected data includes clinical history (age, sex, breed, owners' condition, management etc.), clinical examination findings (temperature, respiration, lacrimation, salivation, dehydration, diarrhoea, mucous membrane, gait, posture etc.) and therapeutic management (drug used with dose, route and duration of administration).

Data analysis

All the data were analyzed using Microsoft Excel 2010 to calculate the proportionate prevalence of the diseases.

CHAPTER-III

RESULT

Prevalence of clinical diseases and disorders of study population

The number and percentage of clinical diseases and disorders were recorded during 22 weeks of goat represented in tables. Total 1269 affected goats were brought to Upazilla Veterinary Hospital Nazirpur Upazilla, Pirojpur. Bacterial, viral , parasitic, surgical case, reproductive case and other diseases were 18.67%, 18.83%, 24.27%, 7.64%,1.49% and 29.07% respectively.

Table 1. Prevalence of clinical diseases and disorders of study population on the basis of category of disease

Category of Disease	Name of disease	Total (%)
Viral diseases	PPR	222 (92.88%)
	Rabies	5 (2.09%)
	Pox	2 (0.83%)
	Contagious ecthyma	10 (4.14%)
Bacterial diseases	Pneumonia	34 (14.34%)
	Tetanus	14 (5.9%)
	Colibacillosis	5 (2.1%)
	Salmonellosis	2 (0.84%)
	Mastitis	47 (19.83%)
	Pink eye	5 (2.10%)
	Bacterial diarrhoea	53 (22.36%)
	Abscess	21 (8.86%)
	URT	47 (19.83%)
	Fot rot	6 (2.53%)
	Listeriosis	3 (1.26%)

Category of Disease	Name of disease	Total (%)
Other disorders	Bloat.	25 (6.7%)
	Indigestion.	32 (8.6%)
	Acidosis.	70 (18.97%)
	Alkalosis.	1 (0.27%)
	Corneal opacity.	12 (3.25%)
	Common cold.	68 (18.42%)
	Fibrous osteodystrophy.	11 (2.98%)
	In appetite.	70 (18.97%)
	Nutritional deficiency	75 (20.32%)
	Enteritis	5 (1.35%)
Parasitic cases	Mange	6 (1.94%)
	Tick	31 (10.06%)
	Myasis	166 (53.8%)
	Tricostrongylus	21 (6.8%)
	Fascioliosis	7 (2.27%)
	Moniziasis	4 (1.29%)
	Ascariasis	7 (2.27%)
	Paramohistomum	6 (1.94%)
	Strongylus	8 (2.59%)
	Coenurosis	1 (0.32%)
	Mixed	51 (16.55%)
Reproductive cases	Retained Placenta	2 (10.52%)
	Dystocia	3 (15.78%)
	Anestrus	14 (73.68%)
Surgical cases	Hoof enlargement	67 (69.02%)
	Urolithiasis	30 (30.92%)

Clinical findings and therapeutics management of some important goat diseases at Upazilla Veterinary Hospital Nazirpur:

Some important diseases of goat that were handled during the UVH placement are described below

(A) Mastitis:

Clinical sign-

The risk of developing mastitis increases with poor sanitary conditions, systemic infection, or trauma inflicted by offspring. Mastitis can occur as an acute or chronic condition, and may be localized to a single gland or both. Severe inflammation, swelling, heat and pain, goat become restless due to pain in touch.

- a. Milk became watery and brown fluid with flakes.
- b. Redness of udder and teat with fever.





Figure 1: (A) Acute clinical mastitis (B) Clotted milk (C) Collection of milk for CMT Test
(D) Color of milk after test

Treatment:

1. Apply a commercially intramammary infusion.
2. The uses of antibiotics or corticosteroids are recommended in some cases. Antibiotics like benzylpenicillin, cloxacillin, amoxicillin plus clavulanic acid, cephalonium.
3. Glucocorticoids, administration of dexamethasone in the mammary gland has been reported to reduce swelling.

In addition, intramammary infusing with ointments used to treat mastitis among dairy cows is effective among goats as well. However, observe tissue irritation after administration intramammary antibiotics.

(B) Foot rot:

Clinical sign: Foot scald infects only the area between the toes and often clears up quickly with treatment or with improving environmental conditions. Virulent footrot is much more of a problem, as the bacteria enter the hoof and digest the hard, horny tissue of the sole that protects the fleshy tissue of the hoof. Virulent footrot in sheep and goats causes much economic loss and increased management effort. Once it infects a herd/ flock, it is difficult to eradicate.

- a. Lameness is the cardinal sign.
- b. There is elevation of body temperature.
- c. The skin of the interdigital space shows ulcerative changes.

- d. Affected animals may kick on the ground and disincline to move or try to move on two legs due to pain.

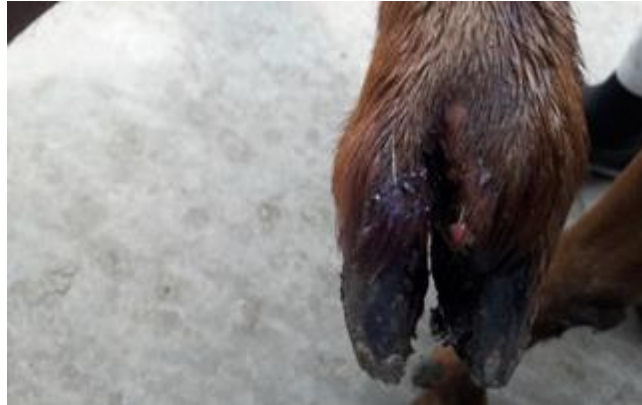


Figure 2: Typical foot lesion on Foot rot

Treatment

1. Streptomycin and procain penicillin.
2. Sodium sulphadimidin .
3. Procain penicillin G.
4. Erythromycin or oxytetracycline .
5. 5% copper sulphate, 2% formalin and crystal violet in the wound.
6. Antibiotic ointment can be used in the wound.

(C) Pink eye:

Clinical sign -

- a. Swollen of eye.
- b. Redness of eye.
- c. Lacrimation.



Figure 3: Pink eye.

Treatment:

1. Eye drop. Ciprocin / Ophthaphrnicol.
2. Wash with normal saline.

(D) PPR (peste des petis ruminants):

It is called 3D diseases for having symptom of diarrhea, dyspnea, and death

Initially manifested by a febrile syndrome, characterized by—

- a. High fever (107-108°F).
- b. Dried exudates on muzzle, rhinitis and conjunctivitis.
- c. Hind quarter is soiled with liquid feces.
- d. Ulceration on lips and tongue and respiratory distress.

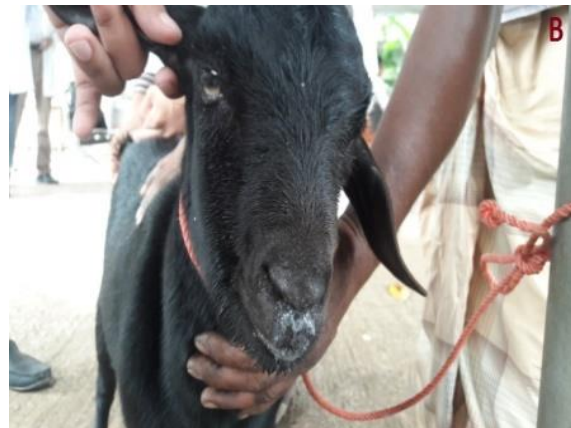


Figure 4: (A) Diarrhea (B) Nasal discharge

Treatment:

1. Gentamysin.
2. Suphonamide.
3. In case of respiratory complication with profuse diarrhoea ceftriaxone can be used.
4. Antihistaminic.
5. Use electrolytes saline.

(E) Coenurus:

The clinical sign which helped to diagnosis were

- a. Partial blindness in one eye.
- b. Dullness and clumsiness
- c. Head pressing, ataxia, incomplete mastication and
- d. Periodic epileptiform convulsion was found.



Figure 5: (A) Selected area for surgery (B) Surgical removal of cyst

Treatment:

1. Anthelmintic.
2. Surgical removal.

(F) Myiasis:

Clinical sign:

- a. Wounds that may become infested by screwworms include those caused by engorged ticks, bites of vampire bats, castration, dehorning, branding, wire cuts, sore mouth in sheep, shedding of the velvet in deer, and a multitude of other causes. Navels of newborn mammals are a common site for screwworm infestation.

- b. Early stages of the larvae feeding in a wound are very difficult to see; only slight movement may be observed. As the larvae feed, the wound is gradually enlarged, becoming wider and deeper.
- c. Usually by this stage, additional screwworm flies have deposited eggs, resulting in a multiple infestation. A sero sanguineous discharge often exudes from the infested wounds, and a distinct odor may be detected. In some cases, the openings in the skin may be small with extensive pockets of screwworm larvae beneath.
- d. Animals usually display discomfort, may go off feed, and produce less milk.



Figure 6: (A) Lesion with maggot (B) Myiasis on tail

Treatment:

1. Myiasis is treated with topical application of an approved larvacide directly into the infested wound.
2. Oil of turpentine used locally with a view to remove maggot.
3. Antibiotic therapy with local dressing is also important.

(G) Corneal opacity:

Clinical sign-

- a. Cloudiness of one or both eye.
- b. Blindness.



Figure 7. (A) Sub conjunctival injection



Figure 7. (B) Cloudiness of eye

Treatment

1. Autohemotherapy.
2. Sub conjunctiva injection of dexamethasone prevent the fibrosis and cloudiness gradually recovered.

CHAPTER-IV

DISCUSSION

According to area the proportionate prevalence 18.83% of major viral diseases were recorded at Upazilla Veterinary Hospital, Nazirpur Upazilla, Pirojpur. Out of 1269 goats 239 goats were affected with viral diseases. Among this 92.88% were peste des petis ruminant, Muddy floor and poor drainage system are most vulnerable risk factor to develop disease and this disease is highly contagious (Islam *et al.*, 2001).

The prevalence of goat pox was 0.83% which is lower than the prevalence given by (Babaloo and Schiuron, 1976) who reported 31.7% prevalence of goat pox. The prevalence of contagious ecthyma was 4.14% and rabies were 2.09% which is higher than the prevalence given by (Hossain *et al.*, 1979) who reported 0.5% prevalence of rabies in goat. To minimize the disease incidence therapeutic management must be required although viral drugs are uncommon. In case of PPR salphonemide intravenous injection is effective and it helps to recover although mortality rate high. On other cases antibiotic required to prevent secondary infection.

Out of 1269 goats 237 goats were affected with bacterial diseases. Among these the prevalence found in bacterial diarrhea was 22.36% which is supported by the finding of (Amin and Samad, 1987). The prevalence of opacity was 3.25% which is supported by the finding of (Prasad *et al.*, 1980). The prevalence of mastitis was 19.83% which is supported by the finding of (Rahman and Samad, 1984) but a systemic study on this disease has not yet been in Bangladesh. The annual financial loss due to bovine mastitis has been estimated to be Rs.52.9 croppers (Singh and Baxi, 1982). Therefore research would be required to control this disease in Bangladesh.

The prevalence of pneumonia was 14.34% which is higher than the prevalence given by (Hossain *et al.*, 2001) who stated 7.5% prevalence of pneumonia. Heavy rainfall and cold environmental condition are predisposing factor for pneumonia. Other bacterial disease has more or less same prevalence.

Therapeutic management included antibiotic treatment to prevent further complication. Route depends upon the type of diseases. In choice of antibiotic must be careful about effectiveness, dose, toxicity and safety margin.

Out of 1269 goats 310 goats were affected with parasitic diseases. Among this highest prevalence found in ectoparasitic infestation; Myiasis 53.8%, Tick 10.60% and Mange 1.94% which is higher than the prevalence given by Nooruddin *et al.*, (1987) who stated 2.3% prevalence in ectoparasitic infestation in goat. The prevalence of gastro-intestinal parasite infection was 16.2% which supports the report of (Rahman and Ahmed, 1974).

Reproductive problems goats have an impact on successful fertility (Bhuiyan *et al.*, 1998).

The prevalence of retention of placenta was 10.2% which is lower than the report of (Dewan and Rahman, 1987; Samad *et al.*, 1989) who reported the prevalence of retention of placenta 24.2% and 39.1% respectively. The prevalence of dystocia was 15.78% and anestrus was 73.68%.

Most of the case about fracture Urolithiasis and Hoof trimming. The prevalence of urolithiasis was 30.92% which is higher than the prevalence given by (Mia, 1967; Hossain *et al.*, 1979, Dewan and Das, 1988) who reported the prevalence of urolithiasis was 3.9% in goats. The clinical incidence of urinary obstruction in goats due to urolithiasis have been reported from Bangladesh. The high incidence of urolithiasis observed in urban area (Dhaka city) due to excessive feeding of wheat bran which is very rich in phosphate has been reported by (Mia, 1967). The clinical occurrence of urinary obstruction due to urolithiasis in castrated goats (Blood *et al.*, 1989) have been reported from Mymensingh.

The prevalence of hoof enlargement was 69.02% of goats which is higher than the prevalence given by (Ali *et al.*, 1976) who reported 3.9% hoof enlargement in goats. Similar atresia ani cases in kids. Among anomalies, atresia ani is a frequent occurrence in our country but occasionally this condition was associated with defects of other body systems like tailless ness, supernumerary limbs (Hossain, 1987; Samad and Hoque, 1986).

Clinical examination revealed that 6.7% goats had clinical diseases of alimentary tract (Bloat), 8.6% was recorded as simple indigestion, 18.97% was acidosis, 18.97% was inappetence.

Disorder included common cold 18.42%, corneal opacity 3.25%. Nutritional deficiency
Prevalence 20.32% most specifically, Fibrous osteodystrophy 2.98%.

CHAPTER-V

CONCLUSION

The study was conducted at Upazilla Veterinary Hospital Nazirpur Upazilla, Pirojpur in Bangladesh to know clinico-pathological investigation and therapeutics managements of common goat diseases. According to the investigation, the common diseases were PPR, Contagious ecthyma, Pneumonia, viral diarrhea, Foot rot and Lice and Tick infestation are most common. Parasitic infestation was high due lack of proper use of anthelmintic. Poor management, inadequate drugs, lack of awareness of farmers, malpractice of farming enhances the high incidence and prevalence of diseases and disorders.

Following recommendation should be taken into consideration in order to control the incidence of diseases. To control of the viral like PPR, pox an efficacious vaccine will be most important prerequisite. So vaccination program will be very much effective to control diseases. But affected animal have to be treated to minimize suffering. Maintenance of strict bio security program and give some ideas on bio security and different goat diseases to the farmer and also farm workers. Arrangement of training program on for the livestock officer's to make them know about the modern technologies developed by the researchers.

CHAPTER-VI

REFERENCE

Ali MR, Uddin M, Das PM, Baki MA and Sobhan M A (1987). Pathological investigation of the respiratory disorders in Black Bengal goats. *Bang. Vet. J.*4:1-4.

An outbreak of peste des petits ruminants of Black Bengal goats in Mymensingh, Bangladesh. Department of pathology , Faculty of Veterinary science, Bangladesh Agricultural University, Mymensingh, Bangladesh.

Babaloa AR, Schillorn WS and van CM (1976). An investigation on the incidence of Goat pox. *Bang. Vet. J.* 9 (1-4)

Bhuiyan, Ahmed MU, Mian AS and Rahman A (1970). Studies on the diseases of goats in Bangladesh. *Tropical Animal health production*: 842

Bhuiyan, Amin MR and Islam MR (1998). Effect of successful fertility in goats due to reproductive disorder. *Bang. Vet. J.* 17: 20-23.

Debnath NC (1995), peste des petits ruminants (PPR).An overview proceeding of the BSVER symposium on eradication of Rinderpest and related disease. 2 Dec. 1995, Dhaka. PP(9-13).

External Parasites (Lice, Keds, and Mites).(2008)” Pipestone Veterinary Services.. www.pipevet.com

Frody G (1959). The incidence of liver fluke and gastro intestinal parasites goat in Kenya. *Bull. Epzi. Dis Afr*, 7: 179-182.

F Hopkins, Fred, W. Gill, and M. Powell.(2008). Foot Rot in Sheep. University of Tennessee Extension AS-B-300. *AO Year book vol*; 8,1995.

Garrels G (1975). Gastrointestinal parasite infestation of goat some village of Dhaka and Tangail district in Bangladesh. *Bang. Vet. J.* 9 (1-4): 9-10 .

- Hannan MA, Ahmed MD and Haq MM (1985). Observation of production loss due to indigestion of goats. *Journal pathology*. 37: 14-19.
- Hepworth, Kate, M. Neary, and T. Hutchens.(August 2006). *Managing Internal Parasitism in Sheep and Goats*. Purdue Extension Publication AS-573-W.
- Hossain MA, Shahidullah M, and Ali MA (1986). A report on surgical diseases and reproductive disorders reported at the Veterinary Hospital of Bangladesh Agricultural University, Mymensingh. *Bang. Vet. J.* 20: 1-5.
- Jones, Thomas, R. Hunt, and N. King(1997). Enterotoxemia Type C. *Veterinary Pathology*.
- Koul GL, Somvansha S and Biswas JC (1988). Mortality pattern in Black Bengal goats. *Indian Vet. J.* 65: 847-849.
- Leite -Browning ,M.L,DVM, extention animal scientist Alabama A'&'M' university ,december 2006; *Studies on pneumonia in Goat* , Aces publications, UNP-0091,causes of infectious abortion in Goat,aces publications.UNP-0079
- Mia AS (1967). Urinary calculi in farm animals and its surgical treatment.
- Mia, Taimur MJFA and Nanday P (1967). The distribution and Epidemiology of Urolithiasis of goat. *Bang. Vet. J.* 41: 50-54
- Morrow. O.A (1986). *Current Therapy in Theriogenology V 2 2nd Edition*. W. B. Saunders Company. Philadelphia.
- Mondol, Bhuiyan MA and Chowdhury SMZH (1974). prevalence of Corneal opacity observed in urban area in Mymensingh. *Bang. Vet. J.* 19: 50-61.
- Nooruddin M, Haque MH, Barik MA and Islam SMN (1987). Prevalence of skin diseases in Black Bengal goats. *Bang. Vet. J.* 4: 5-9
- Qadir ANMA (1981). An observation on the seasonal influence on gastrointestinal nematode infects in goat under farm conditions.

- Qadir ANMA (1981). A preliminary study on the epidemiology of fascioliasis in goats. *Bang. Vet. J.* 15: 7-12.
- Rahman A and Razzak (1973). Correlation of *Fasciola gigantica* infection with faecal eggs counts in Black Bengal goat. *Bang. Vet. J.* 8: 1-3.
- Rahman A, Chowdhuri SS, Gupta PP and Yadav CL (1975). Observation of liver due to *Fasciola gigantica* infections in goat. Bangladesh Agricultural University. *Bang. Vet. J.* 6: 27-32.
- Rahman A, Howlander and Jahans (1972). Fluke infestations of goat in some selected villages of Bangladesh. *Bang. Vet. J.* 7: 45-47.
- Rahman MM and Samad MA (1984). A note on the incidence of mastitis in Black Bengal goats. *Bang. Vet. J.* 8: 11.
- Rahman MM, Samad M, and Majibur R (1984). Examination of goat in some areas associated with bacterial diseases of Bangladesh.
- Raser CM (1986). Peste des petits ruminants (PPR). The marck veterinary manual 6th edition U.S.A: 402-403.
- Reader and Obi RS (1999). Prevalence of peste des petits ruminants of goat in rural area of Dhaka. *Ind. Vet. Med. J.* 13:50-51
- Richard YP and Adams MP (1982). Sulphur drug used in peste des petits ruminants for prevention of bacterial infection. *Ame. Vet. J.* 61: 50-53.
- Samad, M.A. (2000). Veterinary practitioners guide, LEP publication.07 pp (231-268).
- Scharko, Patty (2008). Goat Health Management Tips. University of Kentucky Extension.
- Slatter,Douglas, (1985). Test book of small animal surgery,2nd edition, vol.pp-(433-435).

CHAPTER-VII

BIOGRAPHY



Md. Rahabul Islam, Son of Md. Shafiqul Islam and Rojina Akter. I passed Secondary School Certificate (SSC) examination from Collectorate School and College, Rangpur, Dinajpur in 2009 and then Higher Secondary Certificate (HSC) examination from Rangpur Government College, Rangpur, Dinajpur in 2011. I enrolled my internship program for Doctors of Veterinary Medicine (DVM) Degree in Chittagong Veterinary and Animal Sciences University (CVASU), Bangladesh. I have immense interest to work on enrichment of veterinary profession in Bangladesh.