

Occurrence and Associated Risk Factors of Clinical Diseases of Farm Animals Presented to Gondar University Veterinary Clinic

¹Sefinew Alemu and ¹Bider Zegeye

¹Department of Veterinary Clinical Studies, Faculty of Veterinary Medicine,
University of Gondar, Gondar, Ethiopia, P.O. Box 196

Abstract: A retrospective study was conducted to determine occurrence and associated risk factors of clinical diseases of farm animals presented to Gondar University Veterinary Clinic during the years 2007 to 2009. Of the total 1966 clinical cases, septicemia, parasitic cases, pneumonia, reproductive tract problems, metabolic disorders, wounds, clinical mastitis and dermatitis were common cases with frequency of 33.2, 22.4, 15.7, 5.0, 4.2, 4.1, 3.0 and 2.6% of the total cases, respectively. Clinical cases of cattle and goats were presented at frequency of 53 and 1.7%, respectively. Higher proportion of female animals (67.9%) was presented compared to that of the males and adult animals (84.2%) compared to that of young animals (15.8%), as clinical cases. However, cases of conjunctivitis, cellulitis and colic cases were not observed in young animals. Clinical cases of local breed cattle were more frequent than that of crossbreed cattle. Cases of nervous problems were not recorded in local breed cattle. In conclusion, most of the cases were associated with septicemia and parasites than that of non infectious agents. Therefore, during prevention of farm animal diseases, priority should be given for parasitic and infectious problems and emphasis should be given for female animals, local breed cattle and adult farm animals.

Key words: Cattle • Clinical • Gondar • Retrospective • Septicemia

INTRODUCTION

Even though there have been notable successes in the control of livestock diseases, some still pose problems both in developed and developing countries. In Ethiopia, timely recognition of the diseases followed by acquisition of the pharmaceuticals are lacking due to shortage of infrastructure facilities to support health services delivery. Consequently, in the country majority of disease intervention consists of mass inoculations following outbreaks [1]. Unlike the epidemiological approach for disease management, Veterinary clinicians and veterinarians in teaching institutions invariably try to cure Veterinary diseases on individual animals which involve physical examination and generation of a list of differential diagnosis [2]. It tends to be unreliable and subjective [3]. If a disease is not on the initial list of differentials based on its prevalence, it tends not to become the final diagnosis. Diseases may be omitted from the list when the clinician is not familiar with them [4]. It is concerned with

the frequency and cause of disease and therefore depends on best available studies [3].

In clinical practice, up-to-date information about diagnosis, therapy and prevention [5], is required to establish good diagnostic decision. Clinicians should have clinical knowledge, previous experience of a disease and be familiar with types of organisms that may produce infections and the relative prevalence of each of those organisms in the area starting from the most to the least probable hypothesis [2]. All these indicated clinicians unwittingly use a combination of clinical and epidemiological approaches in their day-to-day works. As the Veterinary Clinic of the University of Gondar is a teaching Veterinary Clinic, information and insights regarding clinical diseases of farm animals presented to the University Veterinary Clinic has fundamental value for students and practitioners in and around Gondar. Therefore, this work was done to study occurrence and associated risk factors of clinical diseases of farm animals presented to Gondar University Veterinary Clinic.

MATERIALS AND METHODS

Origin of Study Animals: The area where study animals were originated was Gondar town and its surroundings. The study area has sub-humid agro-climatic zone with daily temperature of 22-30.7°C and receives rainfall from June to September with mean annual rainfall of 1172mm. In the area, there were 78123 cattle, 25067 sheep, 21515 goats and 9588 equines (horse, donkey and mules) [6].

Study Subjects: Clinically sick farm animals' species including cattle, sheep, goats, horses and donkeys were the study subjects. In Gondar town, animals were kept in semi-intensive management system; feed with concentrates and hay; water available free throughout the day time. Sheep and goats were left to graze road sides. Most cattle are indigenous zebu and Holstein-Zebu crossbred kept for dairy purpose; most of them were females. In the surroundings of Gondar, animals were kept close to the village and allowed to graze native pastures. Animals trekked for watering once in a day. Crop residues were given for oxen and cows when there is scarcity of pasture to graze at the late dry season. However, supplementary feeding after work for oxen, for milking cows, before and after packing for equines and for fattening of sheep and goats was not uncommon. Most cattle were the indigenous zebu breeds of both sexes kept mainly for breeding for the purpose of replacing draught oxen.

Study Design: It was retrospective study conducted on 1966 clinical cases of farm animals presented to University of Gondar Veterinary Clinic during 2007 to 2009. Number of cases was collected based on the species of animals, age and breed (for cattle only). Animals less than or equal to three years of age were considered as young while those above three years of age were considered as adults.

Clinical cases of bloat, clinical mastitis, colic, diarrhea, hernia, keratoconjunctivitis, septicemia and tumor were taken as separate problems. Other cases were grouped into the following ten major categories. Cases of hematoma and omphalitis were categorized under cellulites. Orf, dermatophilosis, dermatophytosis and otitis categorized as cases of dermatitis. Cases associated with consumption of foreign materials like eating of polyethylene plastic materials, cases associated with traumatic reticuloperitonitis and esophageal obstruction were categorized into problems associated with foreign bodies. Cases which discharge pus without intervention or following paracentesis or minor surgery

like localized purulent lesions, actinobacillosis and actinomycosis were considered localized abscess. Cases of hypocalcemia, acidosis, simple indigestion and pregnancy toxemia were grouped as metabolic disturbances. Cases of tetanus, coenurosis and cowdriosis were categorized into cases of nervous disturbances. Internal parasites including strongyles, lungworms, trypanosomiasis, nasal bot, babesiosis, fasciolosis, ascariasis and coccidiosis and external parasites including ticks and mange mites were grouped into problems associated with parasites. Aspiration pneumonia, pasteurilla pneumonia, verminous pneumonia, CCPP, CBPP and other pneumonia associated with unpredictable causes were categorized into problems of pneumonia. Cases due to metritis, abortion, retained fetal membrane, vaginal prolaps, cystitis, uterine torsion, pyometra, dystocia and orchitis were categorized into problems of reproductive tract. Cases of saddle sour, yoke sore, mechanical injury and any wound produced due to any trauma were categorized into cases of wound.

Data Management and Analysis: The data were entered and managed in MS Excel work sheet. Proportion of different farm animals' health problems was expressed as percentage by dividing total number of animals positive to a specific health problem to the total number of animals which showed clinical disease.

RESULTS

Of the total 1966 clinical cases presented to University of Gondar Veterinary Clinic during the three years period, the highest cases (653 of 1966) were due to septicemia followed by parasitic cases (440 of 1966) while the lowest number of cases (3 of 1966) was due to cellulites. Cattle and sheep were presented as cases of septicemia at highest frequency, 343 of 1041 and 246 of 747, respectively (Table 1).

When the number of animals presented to Gondar University Veterinary Clinic was compared among sex groups, higher proportion of female animals visited the clinic than the males during the three years period in almost all types of cases (Figure 1). Except mastitis which affects only female animals, all cases recorded in both sex groups.

Of the total 1966 clinical cases presented to the Veterinary Clinic during the three years period, 84.2% (1655 of 1966) were adults while the rest 15.8% (311 of 1966) were young. Conjunctivitis, cellulitis and colic cases were not observed in young animals (Table 2).

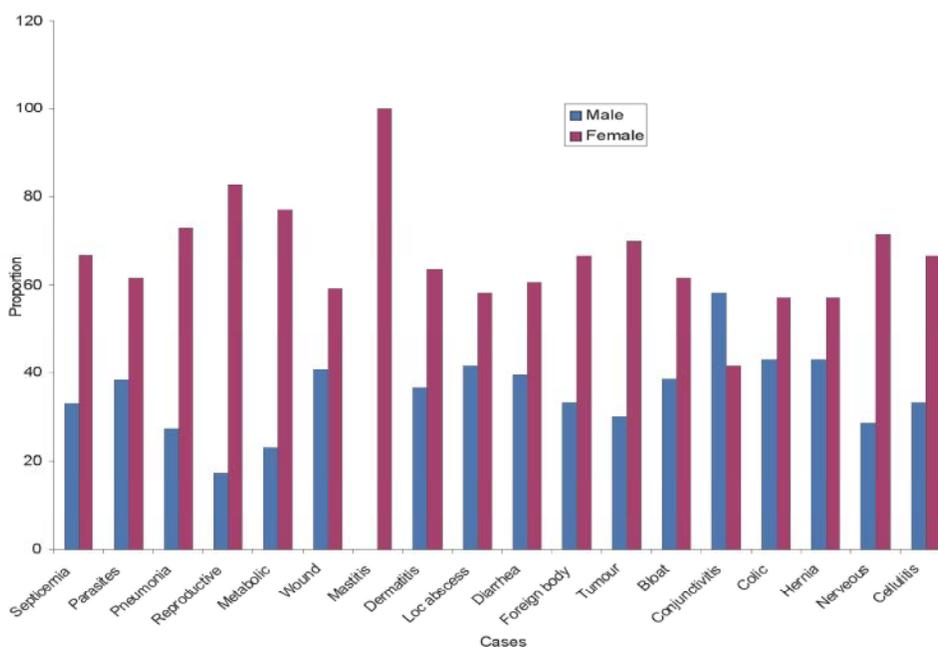


Fig. 1: Proportion of clinical cases of male and female farm animals presented to University of Gondar Veterinary Clinic during the years 2007-2009.

Table 1: Number of clinical cases of sheep equines cattle and goats presented to Gondar University Veterinary Clinic during the years 2007-2009

Type of cases	Species of animals affected			
	Sheep (%)	Equine (%)	Cattle (%)	Goats (%)
Septicemia	246 (32.9)	49 (33.8)	343 (32.9)	15 (45.5)
Parasitic cases	146 (19.5)	36 (24.8)	253 (24.3)	5 (15.2)
Pneumonia	207 (27.7)	8 (5.5)	95 (9.1)	2 (6.1)
Reproductive tract problems	32 (4.3)	10 (6.9)	50 (4.8)	6 (18.2)
Metabolic disorders	18 (2.4)	3 (2.1)	60 (5.8)	2 (6.1)
Wound	8 (1.1)	18 (12.4)	55 (5.3)	-
Clinical mastitis	16 (2.1)	-	43 (4.1)	1 (3)
Dermatitis	25 (3.3)	1 (0.7)	26 (2.5)	-
Localized abscess	6 (0.8)	4 (2.8)	38 (3.7)	-
Diarrhea	22 (2.9)	2 (1.4)	19 (1.8)	-
Foreign body	2 (0.3)	-	25 (2.4)	-
Tumor	6 (0.8)	3 (2.1)	10 (0.9)	1 (3)
Bloat	4 (0.5)	2 (1.4)	7 (0.7)	-
Conjunctivitis	4 (0.5)	-	8 (0.8)	-
Colic	-	5 (3.4)	2 (0.2)	-
Hernia	2 (0.3)	1 (0.7)	4 (0.4)	-
Nervous disturbances	2 (0.3)	3 (2.1)	1 (0.1)	1 (3)
Cellulitis	1 (0.1)	-	2 (0.2)	-
Total	747	145	1041	33

Table 2: Types of clinical cases between adult and young age group of farm animals presented to University of Gondar Veterinary Clinic during the years 2007-2009

Type of cases	Total no. of cases	Age group	
		Adult (%)	Young (%)
Septicemia	653	549 (84)	104 (15.9)
Parasitic cases	440	365 (83)	75 (17)
Pneumonia	312	258 (82.7)	54 (17.3)
Reproductive tract problems	98	93 (94.9)	5 (5.1)
Metabolic disorders	83	67 (80.7)	16 (19.3)
Wound	81	74 (91.4)	7 (8.6)
Clinical mastitis	60	50 (83.3)	10 (16.7)
Dermatitis	52	43 (82.7)	9 (17.3)
Localized abscess	48	40 (83.3)	8 (16.7)
Diarrhea	43	30 (69.8)	13 (30.2)
Foreign body	27	23 (85.2)	4 (14.8)
Tumor	20	19 (95)	1 (5)
Bloat	13	11 (84.6)	2 (15.4)
Conjunctivitis	12	12 (100)	-
Colic	7	7 (100)	-
Hernia	7	5 (71.4)	2 (28.6)
Nervous disturbances	7	6 (85.7)	1 (14.3)
Cellulitis	3	3 (100)	-
Total	1966	1655 (84.2)	311 (15.8)

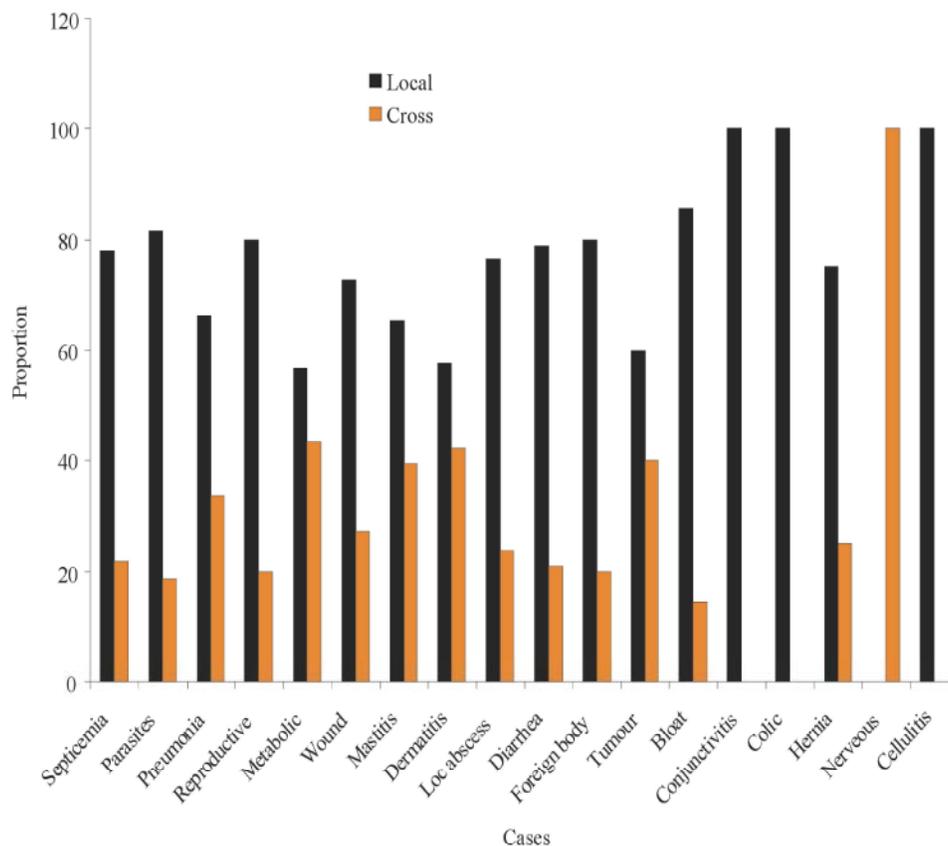


Fig. 2: Proportion of clinical cases between local and cross breeds of cattle presented to University of Gondar Veterinary Clinic during the years 2007-2009.

Except nervous complications, the different types of clinical cases were observed at higher frequency in local breeds of cattle compared to that of the cross breed cattle (Figure 2).

DISCUSSION

Frequent occurrence of septicemia followed by parasitic cases, pneumonia and problems associated with reproductive tract might be associated with endemic occurrence of various known or unknown infectious agents in the study area. Poor management practices related to housing and feeding conditions and/or presence of other concurrent diseases which influence level of immunity might have contribution and favor latent infections and other saprophytic bacterial and viral agents to cause septicemia. As cases with fever, dry muzzle, increased pulse and respiratory rates, congested mucous membrane, rough hair coat and disturbance in appetite tentatively diagnosed as septicemia, the method of diagnosis routinely practiced in the clinic might contribute for highest number of cases of septicemia.

Highest proportion of parasitic cases was in agreement with many previous works. Abebe and Esayas [7] reported ovine and caprine gastro-intestinal helminthosis with prevalence of 95.6 and 100% by fecal and postmortem examination, respectively. The causes of higher proportion of pneumonia might be associated with poor housing system in the study area that exposes animals to various stresses such as cold, wind, rain and dust favor establishment of some infectious agents in the lower respiratory tract [8], The difference in the number of clinical cases of the different species might be associated with the number of population of farm animals in the study area or difference in care given for species or difference in natural immunity. Higher proportion of female animals visited the clinic than the males during the three years period which might be associated with higher male to female ratio in the population. However, it might also be partly associated with the low level of immunity of female animals. Resistance to infection of female animals is abrogated at the time of parturition and during early lactation. This periparturient relaxation of resistance results in the females' cause suppression of immunity [9], Therefore, these animals might frequently visit the clinic during the three years.

Large proportion of clinical cases observed in adult animals might be explained from the point of differences in management practices. Calves are not often driven with older age groups to grazing and watering points which contributes to reduce the chance of exposure to disease

agents hence get infection/infestation less. Adult are more likely to be moved towards the field contaminated by feces of adult animals discharging parasite larvae with their excreta. Higher number of local breed cattle was presented as clinical cases compared to the cross breed might be due difference in management practice in the two breeds of cattle.

In conclusion, most of the cases were associated with septicemia and parasites than that of non infectious agents. The cases of cattle were most frequent during the three years. Female and adult animals were most affected by clinical diseases. In cattle higher number of local breed cattle was affected in almost all types of cases. Therefore, priority should be given for parasitic and infectious problems in the study area more care should be given for female and adult animals and for local breed cattle.

REFERENCES

1. Rashid, M. and R. Shank, 1994. United Nations Development Programme Emergencies Unit for Ethiopia: Technical Report: Rough Guide to Animal Diseases in Ethiopia.
2. Faccini, F.P., 2008. An Epidemiological approach to Diagnostic Process - Medstudents – Epidemiology. Meds (1). Htm 3/16/2008 11:48:14 Am.
3. Thrusfield, M., 2005 Veterinary Epidemiology. 3rded. Oxford: Blackwell Science Ltd., pp: 20-30.
4. Domenech, J., 1990. Epidemiology of animal diseases in Africa: approach strategies and role of Veterinary laboratories. Rev Elev. Med. Vet. Pays. Trop., 43(2): 149-54.
5. Pfeiffer, U.D., 2002. Veterinary Epidemiology: An Introduction, the Royal Veterinary College, University of London, United Kingdom. pp: 3.
6. CSA, 2008. North Gondar zone finance and economic development department annual statistical bulletin pp: 10-42.
7. Abebe, W. and G. Esayas, 2001. Survey of ovine and caprine gastro-intestinal helminthosis in eastern part of Ethiopia during the dry season of the year. Revue Méd. Vét., 152: 379-384.
8. Lopez, A., 1995. Respiratory System. In: W.W. Carlton and M.D. McGavin, (eds): Thomson's Special Veterinary Pathology. 2nd ed., Zachary Eds. Mosby. pp: 116-174.
9. Craig, T.M., 1998. Epidemiology of internal parasites, effect of climate and host on reproductive cycle on parasite survival: Small ruminant for the mixed animal practitioner; Western Veterinary conference. Las Vegas, Nevada.