

Retrospective Study of Prevalence and Pattern of Surgical Conditions Presented at the Ashanti Regional Veterinary Clinic, Kumasi, Ghana

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Abstract: Case records of animal patients presented for surgery at the Ashanti regional veterinary clinic, Kumasi, Ghana, within a seven year (1997-2013) period were studied for surgical disease prevalence and pattern among animal species. The age, sex and breeds, as well as, quarterly distribution of surgical cases were also evaluated. A gradual increase in numbers and types of surgical conditions were observed across the years studied, with the least prevalence in 2007 (2.6%) and the highest in 2013 (29.2%). Wounds /trauma cases were highest (41.0%) and vaginal prolapse least (0.1%) among surgical cases managed. Most surgical conditions were in canine species (96.0%), while the rest (3.8%) were in feline (2.4%), equine (0.5%), caprine (0.4%) and ovine (0.4%) species. Among the twenty-one dog breeds presented for surgical management, the local breed (mongrel) had the highest occurrence (40.2%) of surgical conditions, while the poodle (0.1%), Daschund (0.1%) and Labrador (0.1%) had the least. Male dogs (57%) were presented more for surgery than females (35%). Also, younger dogs (57%) had more surgeries than adult dogs (35%). Most surgical cases were presented in the fourth quarter (October–December) (31.4%) and the least in the second quarter (April –June) (18.5%). The implications of the data to regional, national and global planning and training of Veterinarians on animal surgical disease management were discussed.

Key words: Surgical Conditions • Animals • Kumasi • Ghana

INTRODUCTION

Data on animal population that access a veterinary medical facility are vital tools for local, national, or global health strategic planning [1, 2]. Information obtained could be useful in management of prevalent animal disease conditions [1,3], patients' follow-up [4], research [5] and training of animal health professionals for effective service delivery [6]. The paucity of such data in sub-Saharan Africa had impeded evidence based clinical practice [7, 2] and research in the region.

Ghana has been experiencing a gross shortage of veterinary professionals for veterinary service delivery over the years [8]. This was due to lack of veterinary schools to train professionals in the country and the government's inability to sustain foreign training of veterinary professionals due to lack of funds [8].

Recently, (2009) one veterinary school each was established in University of Ghana, Accra and Nkrumah University of Science and Technology Kwame (KNUST), Kumasi. This development has also attracted foreign veterinary specialty professionals for students' training and clinical service delivery. The Ashanti Region Veterinary Clinic (ARVC), in Kumasi, currently serves as a training center for clinical students from KNUST school of Veterinary medicine and a referral center for medical and surgical cases from private clinics within the city and neighboring towns and regions.

Surgery is an active skill and equipment based specialty that uses sutures, incisions, excision, manipulation, or other invasive procedures, as well as, local, regional, or general anaesthesia for patient management [9]. Surgery lays heavy demand on space, equipment and personnel proficiencies for patient management and could be used as an index of high profile

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clinical veterinary practice especially in poor resource settings as obtained in many developing countries of Africa and Asia.

There is, therefore, the need to provide information on the current burden of surgery cases at the ARVC along species, breed, sex and pattern of cases flow across the quarters of the year. This information could be relevant for National and global planning as there is no such clinically relevant information in literature from Kumasi, Ashanti region, Ghana. This paper therefore reports the pattern of cases presented for surgery at the Ashanti region veterinary clinic which also doubles as clinical training centre for Nkrumah University of Science and Technology Kwame, School of Veterinary Medicine, Kumasi, Ghana.

MATERIALS AND METHODS

Clinic: The Ashanti Regional Veterinary Clinic (ARVC) is a major animal health delivery facility located in Kumasi city, Ghana. At the establishment of the School of Veterinary Medicine (SVM), Kwame Nkrumah University of Science and Technology (KNUST), Kumasi, Ghana, in 2009, this facility was upgraded to cater for clinical training of SVM students. The increased numbers of professionals for patient management and growing popularity due to improved patient management skill and facilities have enhanced yearly increase in clientele and case referrals from neighboring cities and regions of the country.

Hospital Records: Case records of animal patients presented for surgery at the ARVC within a seven year period (1997-2013) were studied. Further analysis and grouping of canine species to capture surgical disease prevalence and pattern among breeds, including the age, sex, as well as, yearly and quarterly distribution of surgical cases were further performed.

Data Analysis: All data of surgical conditions, including further grouping / categorizations in canine species were analysed and presented with descriptive statistics using Microsoft Excel for windows 2010 version.

RESULTS

Yearly Burden of Surgical Conditions: A yearly gradual increase in number and types of surgical procedures was observed between 2007 and 2013 (Table 1). The year 2007 had the least occurrence (2.6%) of surgeries, while 2013 witnessed the highest occurrence (29.2%).

■ Canine ■ Feline ■ Ovine ■ Equine ■ Caprine ■ Bovine

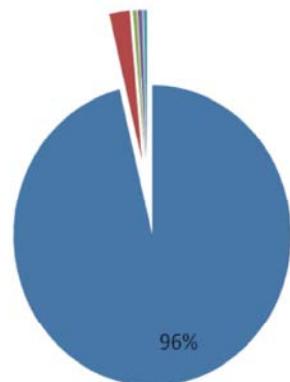


Fig. 1: Distribution of animal species presented for surgery at the Ashanti Regional Veterinary Clinic, Kumasi, Ghana between 2007 and 2013

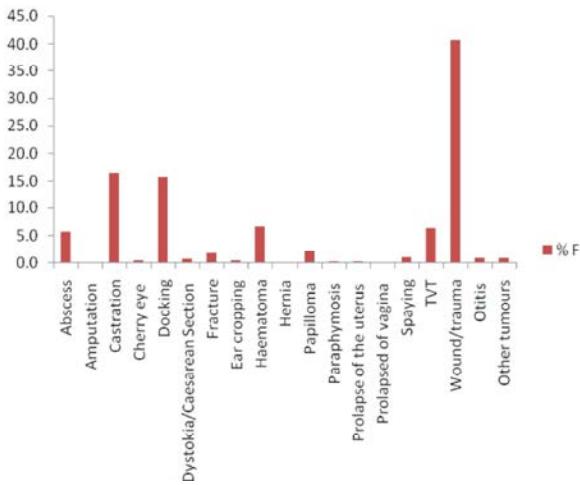


Fig. 2: Percentage distribution of surgical cases in canine presented at the Ashanti Regional Veterinary Clinic, Kumasi, Ghana between 2007 and 2013

Distribution of Animal Species Presented for Surgery: Five species, namely: canine, feline, ovine, caprine and equine, featured in the surgical case records. The bovine and porcine species had no record of surgical management in this facility during the period studied. The canine species had the highest occurrence among species presented (96%), followed by feline (2.4%), equine (0.5%), caprine (0.4%) and ovine (0.4%) (Figure 1).

Surgical Conditions in Canine Species: Wound/trauma had the highest occurrence (41.0%) while vaginal prolapse had the least occurrence (0.1%) among surgical conditions presented within the period studied (Figure 2).

Table 1: Distribution and percentage increase in surgical conditions in animal species presented at the Ashanti Regional Veterinary Clinic, Kumasi Ghana between 2007 and 2013

Condition	2007	2008	2009	2010	2011	2012	2013	Total
Abscess	2	10	4	0	11	18	23	68
Ampputation	0	0	0	0	1	0	1	2
Castration	12	13	16	4	48	44	51	188
Cherry eye	0	1	0	3	0	0	0	4
Tail Docking	2	3	30	25	23	61	36	180
Dystokia/Caesarean Section	0	1	0	0	3	2	4	10
Ear cropping	0	0	0	0	3	3	1	7
Fracture	0	5	4	3	3	7	0	22
Haematoma	0	1	7	19	6	12	28	73
Hernia	0	0	0	0	0	0	2	2
Papilloma	0	2	0	0	0	4	17	23
Paraphimosis	0	1	1	0	0	0	0	2
Uterine prolapse	0	0	0	1	0	0	1	2
Vaginal prolapse	0	0	0	0	1	0	0	1
Spaying	0	1	1	1	4	1	5	13
TVT	1	7	4	8	8	21	18	67
Wound/trauma	12	44	48	74	48	90	145	461
Otitis	0	0	0	0	0	7	1	8
Other tumours	1	3	1	1	1	1	1	9
Total	30	92	116	139	160	271	334	1142
% occurrence	2.6	8.1	10.2	12.2	14.0	23.7	29.2	
% Increase	---	67.4	20.7	16.5	13.1	41.0	18.9	

Table 2: Quarterly distribution of surgical conditions in dogs presented at the clinic between 2007 and 2013

Conditions	1 st quarter	2 nd quarter	3 rd quarter	4 th quarter	Total	Percentage
Abscess	6	17	16	23	62	5.69
Amputation				1	1	0.09
Castration	44	26	50	59	179	16.4
Cherry eye			3	1	4	0.37
Tail docking	64	32	31	44	171	15.7
Dystokia/Caesarean Section	1	2	3	2	8	0.73
Fracture	3	2	8	7	20	1.84
Ear cropping			1	3	4	0.37
Haematoma	12	13	26	21	72	6.61
Hernia				1	1	0.09
Papilloma	15	1	2	5	23	2.11
Paraphimosis				2	2	0.18
Prolapse of the uterus	1			1	2	0.18
Prolapsed of vagina				1	1	0.09
Spaying	1	2	2	6	11	1.01
TVT	18	7	23	20	68	6.24
Wound/trauma	74	99	127	143	443	40.7
Otitis	2	1	3	2	8	0.73
Other tumours	4		5		9	0.83
Total	245	202	300	342	1089	100

Distribution of Canine Breeds Presented for Surgery: The local breed of dogs (mongrel), had the highest occurrence of surgical procedures, while the Poodle (0.1%), Daschund (0.1%) and Labrador (0.1%) had the least occurrence (Figure 3).

Sex and Age Distribution of Dogs Presented for Surgery: More male dogs (57%) were presented for

surgery than females (35%). Also, younger dogs (< 1 year) (57%) had more surgeries than adult dogs (> 1 year) (35%) (Figures 4 and 5).

Quarterly Distribution of Surgical Conditions: Most surgical cases (31.4%) were presented in the fourth quarter of the year (October–December) and the least (18.5%) in the second quarter (April –June) (Table 2).

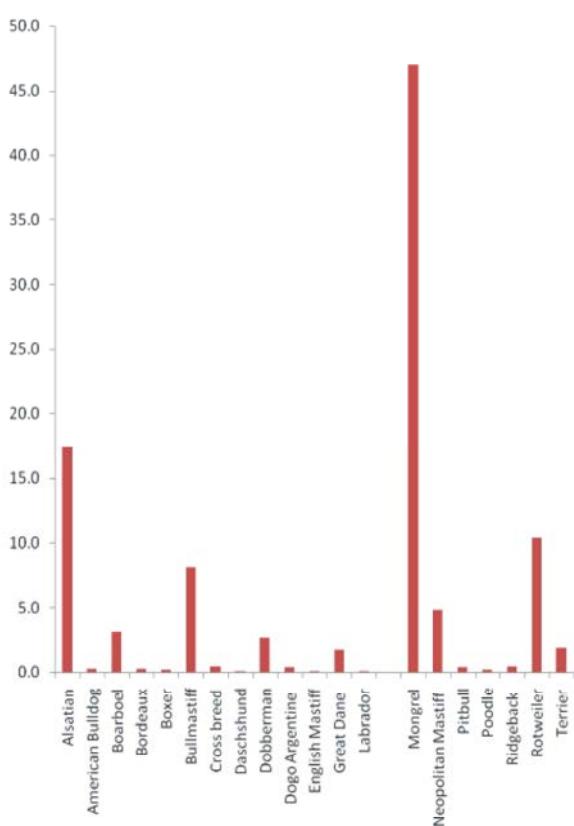


Fig. 3: Percentage distribution of canine breeds presented for the various surgical conditions between 2007 and 2013 at the Ashanti Regional Veterinary Clinic, Kumasi, Ghana

■ Male ■ Female ■ Unspecified

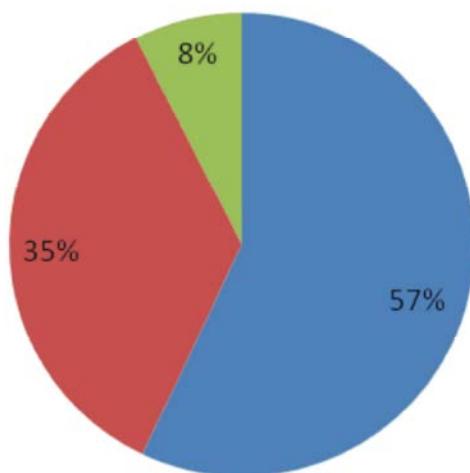


Fig. 4: Percentage sex distribution of species presented for surgery at the Ashanti Regional Veterinary Clinic, Kumasi, Ghana between 2007 and 2013

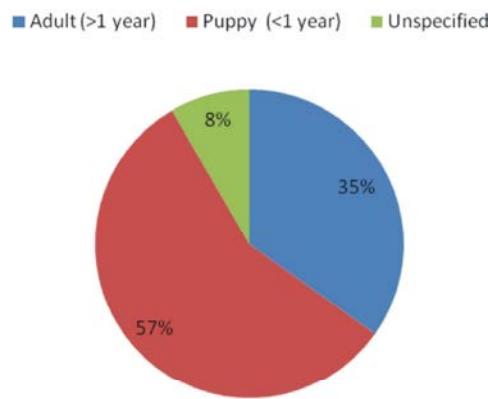


Fig. 5: Percentage age distribution of patients presented for surgery between 2007 and 2013

DISCUSSION

Retrospective study of clinic case records serves a valuable role in estimation of a health facility's disease burden [10], communication among clinicians on patients' conditions [11] and planning on health facilities management and personnel development [6]. The result of this study reveals an annual average increase of surgical cases by 24.4% and heightened the need to plan for further facility expansion at the ARVC, to cater for the constant yearly increase in patient burden as overcrowded medical facilities have been associated with nosocomial infections, poor patient management and rise in patient mortality [12]. This facility received more canine species (96%) for surgery, than other species. The urban location of the facility may have accounted for this skewed result. Kumasi, being the second largest city in Ghana, has a high dog population for companionship [13, 14] and security [15, 16]. Besides, the proven skills of the surgeons/clinicians and available facilities for patients' management, may have strengthened dogs owners' confidence to present their dogs for surgery. The lower numbers of feline species presented for surgery may be associated with the culture of phobia for cats keeping among African, as some folktales associated cats with witchcraft [17]. The few ovine (0.4%) and caprine (0.4%) patients may also be associated with the location of the clinic, as most ovine and caprine species are kept in rural communities. Besides, most sheep and goat owners may prefer to curl the animals for food when surgery is needed, to evade the cost of surgery which may exceed the actual value of the animal [18]. The few equine cases (0.5%) were also a factor of location as Kumasi is known for low equine population compared with Accra where the Police, Army and Polo stables exist. Result of distribution of

common surgical condition in canine species reveal a prevalence of wound / trauma cases (47%). Wound / trauma cases have been reported to be high among dogs in cities due to automobile accidents, dog bites following fights and injuries from intruders and attackers [19, 20]. Castration, which is next in ranking among most prevalent procedure (16.6%), has also been reported in literature as among the most frequently performed procedure in veterinary practice [18, 21]. Apart from dogs meant for breeding purposes, most dog owners prefer their dogs castrated to reduce dog roaming habits for mating opportunities. The result also shows that tail docking (15.2%) is still a common practice in Ghana as in many African countries. Most dog owners prefer their dogs' tails amputated to improve their cosmetic appearance and in conformity with tradition associated the breed [22]. Tail docking may also be indicated in cases of severe injury or neoplasm, although such cases are very few [22].

The distribution of dog breed presented for surgery shows a highest occurrence of the local breed (Mongrel) (47.0%), followed by the Alsatian (17.4%), Rottweiler (10.4%), Bull Mastiff (8.7%), Neapolitan Mastiff (4.8%) and Doberman (2.7%). The Poodle (0.1%), Daschund (0.1%) and Labrador (0.1%) had the least occurrence. However, a summation of percentage occurrence of exotic breeds in comparison with the local breeds shows evidence of dog owners' preference for the exotic breeds. This may be as a result of preferred traits including: sizes, colors, body coats, as well as social and security qualities [23-25] which make them more endeared to their owners and attract more income to breeders. This may also be responsible for the care and expense for cosmetic and curative surgical procedures. This study revealed presentation of more male dogs (57%) for surgery than females (35%). Although studies on pet owners preference for pet gender has not been investigated in this environment, the purpose of dog ownership seem more skewed toward household security and breeding, than companionship as obtained in countries of Europe and America. In such situation, the male dog is kept mainly for household security [16] and hence exposed to injuries from intruders, while the female, apart from companionship with the male dog, also serve breeding purposes. Male dogs that are not preferred for breeding are usually castrated, which may also explain the reason for more male surgeries than females [27].

The higher numbers of surgeries in young dogs (< 1 year) than in adults (> 1 year), may be due to more prophylactic (ovariohystectomy, castration, dew-claw

amputation) and cosmetic (tail docking, ear cropping) surgeries usually performed on young dogs.

The more number of surgery cases (31.4%) recorded in the fourth quarter of the year (October–December), may not be unconnected with the holidays in this period which offer dog owners opportunity to present their dogs for surgical management. This period is also associated with high threshold of burglary that leaves security dogs with injuries.

In conclusion, The result of this study gives a vivid profile of surgical disease burden and procedures at the ARVC, which could be extrapolated for regional, national and global strategic planning on veterinary health care delivery.

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