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**Retrospective study of theriogenology cases handled at the Veterinary Teaching Hospital, University of Ilorin, Nigeria, 2016 – 2023**

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**Abstract**

Theriogenology is a very important aspect of veterinary medicine, which is concerned with the study of the reproductive diseases and health care of animals. This study retrospectively evaluated the theriogenology cases handled at the Veterinary Teaching Hospital (VTH) University of Ilorin, Nigeria from 2016 to 2023. Data was obtained from the records in the Theriogenology clinic of the VTH University of Ilorin, and was subjected to descriptive statistics using GraphPad Prism version 5.0.3, and presented in frequencies and percentages using tables. Records of a total of 84 theriogenology cases were examined. Majority (63) representing 75% of the animals presented in the Theriogenology clinic were canine species, 11 (13.0%) were caprine, 5 (6.0%) were ovine, 2 (2.4%) were pisces, while the bovine, feline and equine each had 1 (1.2%) case. Seventeen out of the 84 (20.2%) were cases of dystocia, 18 (21.4%) were presented for semen analysis, 41 (48.8%) were presented for vaginal cytology, 2 (2.4%) cases each for mastitis and pregnancy diagnosis, while there was 1 (1.2%) case each for testicular atrophy, abortion, vaginal prolapse and pyometra. Sixty seven (79.8%) of the cases presented were females, while 17 (20.2%) were males. The highest number of cases (22) representing 26.2% was recorded in 2021, while the least number of cases 3 (3.6%) was recorded in 2016. It was concluded that majority of theriogenology cases presented at the Theriogenology clinic of the VTH University of Ilorin were canine species, and predominantly females, with vaginal cytology being the commonest procedure handled.

**Keywords:** Retrospective study; Theriogenology cases; Veterinary Teaching Hospital Ilorin; Nigeria.

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## Introduction

Theriogenology is a very important aspect of veterinary medicine, which is concerned with the study of the reproductive diseases and health care of animals. It involves the study of anatomy, physiology and pathology of the reproductive systems of animals including the clinical practice of veterinary gynaecology, obstetrics and andrology (Smith and Somade, 1994; Omoike, 2006; Alam *et al.*, 2016; Ali *et al.*, 2023; Tibary, 2017). The occurrence of diseases and poor health services is a major contributor to animal production losses in Nigeria, and this continues to limit animal breeding and livestock output (Wosu and Anene, 1990; Aliyu *et al.*, 2005; Adebowale, 2012). Animal reproductive disorders and diseases result in substantial financial losses because they impair the breeding and reproduction capacity of animals (Waziri *et al.* 2006; Ogbaje *et al.*, 2012).

One critical condition that accounts for significant financial losses in animal production is sterility, which may be due to infectious or non-infectious causes, and is a frequent reason for culling breeding and farm animals (Waziri *et al.*, 2006). The prevalence of reproductive abnormalities in veterinary clinics and hospitals throughout the nation has been the subject of several prior publications. In order to prevent diseases and formulate policies for their control, retrospective studies provide valuable information on disease trends (Peter *et al.*, 2014; Abiola *et al.*, 2016). Several studies have been carried out on reproductive diseases and cases handled at veterinary clinics, hospitals and veterinary teaching hospitals across Nigeria (Umaru *et al.*, 2009; Peter *et al.*, 2014; Sarker *et al.*, 2015; Wahab *et al.*, 2019; Ali *et al.*, 2023; Lawal *et al.*, 2023). There are however no published reports on theriogenology cases handled at the Veterinary Teaching Hospital, University of Ilorin, Nigeria, hence, the this study, which retrospectively evaluated theriogenology cases handled at the

Veterinary Teaching Hospital, University of Ilorin, Nigeria, from the year 2016 to 2023.

## Materials and Methods

**Study area:** The study was conducted at the Theriogenology Clinic of the Veterinary Teaching Hospital (VTH), Faculty of Veterinary Medicine, University of Ilorin, Nigeria which is located between 8°30'N and 4°33'E in Ilorin, the capital city of Kwara State in north-central Nigeria. Ilorin, which consists of Ilorin West, Ilorin East, and Ilorin South, has a population estimate of 908,490 and a total land area of around 765 km<sup>2</sup> (295 square miles). The climate in Ilorin is tropical savanna. Rainfall varies from 990.3 to 1,318 millimetres (39 to 52 inches) each year. Maximum temperatures in the city range from 33 to 37 °C, or 91.4 to 98.6 °F. March is the warmest month of the year (Kwara, 2022).

**Methodology:** A retrospective analyses of theriogenology cases was done using data obtained from the clinical records in the Theriogenology Clinic of the VTH for a period spanning 8 years, from 2016 to 2023. Permission was sought from the management of the Theriogenology Clinic, Veterinary Teaching Hospital, University of Ilorin, Nigeria and obtained for the use of the clinical records for research. Data on the theriogenology cases were carefully collected, recording the species, sex, reproductive conditions, diseases and procedures requested in each case. The data were subjected to descriptive statistics using GraphPad Prism version 5.0.3 and presented as frequencies and percentages using tables.

## Results

A total of 84 cases were presented to the Theriogenology Clinic between 2016 and 2023. Forty one out of the 84 cases (48.8%) were presented for vaginal cytology, 18 (21.4%) for semen analysis, 17 (20.2%) were cases of

dystocia, 2 (2.4%) each for mastitis and pregnancy diagnosis, while 1 (1.2%) each for cases of testicular atrophy, abortion, vaginal prolapse and pyometra (Table 1). Majority (63) representing 75% of the animals presented in the Theriogenology Clinic were canine species, 11 (13.0%) were caprine, 5 (6.0%) were ovine, 2 (2.4%) were pisces, while 1 (1.2%) each were bovine, feline and equine (Table 1). Sixty seven (79.8%) of the cases were females while

17 (20.2%) were males (Table 2). The highest number of cases (22), representing 26.2% of the cases were presented in 2021, followed by 19 (22.6%) cases in 2023, 11 cases (13.1%) in 2022, 10 (11.9%) in 2018 and 9 (10.7%) in 2020 (Table 3). The lowest number of cases were recorded in 2019, 2017 and 2016, which had 6 (7.1%), 4 (4.8%) and 3 (3.6%) cases, respectively (Table 3).

**Table 1.** Theriogenology cases presented at the Theriogenology Clinic of the Veterinary Teaching Hospital, University of Ilorin, Nigeria, from 2016 to 2023.

Cases	Animal species presented at the Clinic							Total (%)
	Canine	Caprine	Ovine	Pisces	Bovine	Equine	Feline	
Vaginal cytology	41	0	0	0	0	0	0	41 (48.8%)
Semen analysis	14	1	0	2	0	1	0	18 (21.4%)
Dystocia	4	8	5	0	0	0	0	17 (20.2%)
Mastitis	1	1	0	0	0	0	0	2 (2.4%)
Pregnancy diagnosis	1	0	0	0	0	0	1	2 (2.4%)
Abortion	0	1	0	0	0	0	0	1 (1.2%)
Pyometra	1	0	0	0	0	0	0	1 (1.2%)
Vaginal prolapse	1	0	0	0	0	0	0	1 (1.2%)
Testicular atrophy	0	0	0	0	1	0	0	1 (1.2%)
<b>Total (%)</b>	<b>1 (1.2%)</b>	<b>5 (6.0%)</b>	<b>11 (13.0%)</b>	<b>63 (75.0%)</b>	<b>2 (2.4%)</b>	<b>1 (1.2%)</b>	<b>1 (1.2%)</b>	<b>84</b>

**Table 2.** Sex-based distribution of theriogenology cases presented at the Theriogenology Clinic of the Veterinary Teaching Hospital, University of Ilorin, Nigeria, from 2016 to 2023.

Sex	Animal species presented at the Clinic							Total (%)
	Canine	Caprine	Ovine	Pisces	Bovine	Equine	Feline	
<b>Females</b>	51	10	5	0	0	0	1	67 (79.8%)
<b>Males</b>	12	1	0	2	1	1	0	17 (20.2%)
<b>Total (%)</b>	63 (75.0%)	11 (13.0%)	5 (6.0%)	2 (2.4%)	1 (1.2%)	1 (1.2%)	1 (1.2%)	84

**Table 3.** Annual distribution of theriogenology cases presented at the Theriogenology Clinic of the Veterinary Teaching Hospital, University of Ilorin, Nigeria, from 2016 to 2023.

	2016	2017	2018	2019	2020	2021	2022	2023
<b>Dystocia</b>	0	0	1	0	1	8	3	4
<b>Testicular atrophy</b>	1	0	0	0	0	0	0	0
<b>Abortion</b>	0	0	1	0	0	0	0	0
<b>Mastitis</b>	0	0	0	0	1	1	0	1
<b>Vaginal prolapse</b>	0	0	0	0	0	1	0	0
<b>Pyometra</b>	0	0	0	0	0	1	0	0
<b>Vaginal cytology</b>	2	2	3	5	6	6	8	9
<b>Semen analysis</b>	0	2	4	1	1	4	0	5
<b>Pregnancy diagnosis</b>	0	0	1	0	0	1	0	0
<b>Total (%)</b>	3 (3.6%)	4 (4.8%)	10 (11.9%)	6 (7.1%)	9 (10.7%)	22 (26.2%)	11 (13.1%)	19 (22.6%)

## Discussion and Conclusion

The finding in this study that majority of the theriogenology cases presented were for vaginal cytology (48.8%) tends to imply that animal owners in and around Ilorin, Kwara State Nigeria are eager to know the state of the reproductive cycle of their bitches before they will be presented for breeding. This concurs with earlier reports by Raheem *et al.* (2010) that vaginal cytology is a common method used in veterinary clinical practice to determine best breeding time in bitches. It was also recorded in this present study that request for semen analysis was 21.4% of the total cases presented at the VTH. This also suggests that breeders (especially dog owners) were interested in knowing the reproductive capability of their studs for breeding purposes. This is also in agreement with the reports of Tesi *et al.* (2018) that request for semen analysis is common in canine practice. The semen analyses in fishes recorded in this present study (2 cases) were for research purposes.

The finding in this present study that dystocia was the commonest reproductive disorder presented at the VTH agrees with the reports of Lawal *et al.* (2023) who found out that dystocia is the most commonly presented reproductive disorder in Ahmadu Bello University (ABU) VTH, Zaria, Nigeria. Peter *et al.* (2014) also reported similar findings in small ruminants in Maiduguri, Nigeria. Umaru *et al.* (2009) corroborated this finding in their study where they reported that 23% of the reproductive disorders presented to Usmanu Danfodiyo University Veterinary Teaching Hospital, Sokoto, Nigeria were cases of dystocia. The frequency of 20.2% recorded for dystocia in the present study is higher than the 2.8% reported by Peter *et al.* (2015), 4.07% by Waziri *et al.* (2006) and 9.1% by Williams *et al.* (2000). According to Arthur *et al.* (1998) dystocia is caused mostly by twinning, poor feeding and management.

Canine species were the most common animal species presented at the Theriogenology Clinic of the VTH University of Ilorin; this could be because most clients keep exotic breeds of dogs and often need to monitor their reproduction keenly because they are mostly procured for breeding purposes. However, the findings in this present study differs from those of Ali *et al.* (2023) who reported that more caprine cases were presented at VTH in Maiduguri and Yobe, Nigeria.

In this study, majority of the theriogenology cases were female animals. This could be because female animals are reared longer than males, and probably because of their unique position as 'reproductive vessels'. This finding is consistent with earlier reports by Umaru *et al.* (2009), Peter *et al.* (2014), Lawal *et al.* (2023) and Ali *et al.* (2023).

The highest number of cases was recorded in 2021 and 2023 (i.e. recently) while the least cases 3 (3.6%) was recorded in 2016 when the VTH University of Ilorin was officially opened. This trend could be as a result of the increase in awareness of the populace on the availability of theriogenology veterinary service at the clinic and the growing quality of the services provided at the VTH University of Ilorin especially in recent years. This is similar to earlier reports by Umaru *et al.* (2009) and Raheem *et al.* (2010).

In conclusion, this study has shown that vaginal cytology is the most commonly presented theriogenology procedure requested at the VTH University of Ilorin, and that dystocia was the commonest reproductive disorder, and also that canine cases were the most frequently presented in the theriogenology clinic studied.

## Conflict of Interest

The authors declare no conflict of interest.

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