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Physical and palpable changes of female genitalia during normal oestrous cycle of Manipuri ponies (*Equus ferus caballus*)

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Abstract

The study was conducted to understand the physical and palpable changes of female genitalia during the reproductive cycle in 30 apparently healthy, non-pregnant female Manipuri Ponies. The physical and palpable changes of vulva, vagina, cervix, uterus and ovary were recorded during the different days of reproductive cycle. The results showed congestion of vulva on day 0 and day 4 as 100% and 96.66%, respectively. Open cervix was detected in 96.66% on day 0 and 100% on day 4 in oestrus female Manipuri ponies. On the other hand, closed cervix was detected on day 8 to day 18 as 100% during the oestrous cycle. Vaginal discharge was observed on day 0 and day 4 as 16.66% and 40.00%, respectively during the oestrous cycle. 66.66 percent of oestrus Manipuri pony mares showed good uterine tone on day 0 and day 4; whereas atonic uterus was found on day 8 (20%), on day 14 (93.33%) and on day 18 (96.66%) of oestrous cycle. On day 0 and day 4 (100%) oestrus female Manipuri ponies were detected with Graafian follicle, corpus haemorrhagicum was detected on day 8 in 83.33% and mature corpus luteum on day 14 in 100% female Manipuri pony during oestrous cycle.

Keywords: Manipuri pony, genital change, oestrous cycle

Introduction

The Manipuri pony (*Equus ferus caballus*) is a semi domesticated animal in which the reproductive physiology is least understood. In 19th livestock census 2012, the total number of ponies recorded in Manipur is 1042 (male 544 and female 498) in rural areas and a total of 59 (male 30 and 29 female) in urban areas ^[1] and National Bureau of Animal Genetic Resources considered Manipuri pony as threatened breed ^[2].

Reproductive performance is important because of its effect on the number of offspring produced ^[3]. A clear idea about the reproductive genitalia of female animal helps to maintain a good reproductive performance and also revealed the overall well being of the animals ^[4].

The information documented in this study can be valuable while dealing with the clinical disorders, performing rectal examination and in application of reproductive technologies in Manipuri ponies. The present study aims to generate information on the progressive changes in the reproductive organs during different days of oestrous cycle in female Manipuri ponies. The results of this research will also help for the examination of the mares for breeding soundness and the abnormalities can be listed out for further treatment and prognosis for future fertility.

Materials and Methods

A total of thirty apparently healthy, non-pregnant female Manipuri Ponies were selected for the present study. The study was carried out at the Manipuri Pony Farm, Central Agricultural University, Iroisemba, Manipur, India. All the experimental ponies were maintained under standard feeding and managerial conditions.

The mares were restrained properly in the service crate and per rectum examination were done by using shoulder length lubricated obstetrical sleeves. Rectum and distal colon were cleaned properly and the positions of the organs were located ^[5]. The cervix of the non-pregnant mare was located in the pelvic cavity were detected by inserting the arm deeply into the rectum and ovaries were located at the abdominal cavity corresponding to the kidney.

The changes of genitalia during the reproductive cycle were studied and the vulval condition, vaginal discharges, cervix and uterus status and the ovarian structures present during the different days of the cycle were recorded [6].

Results

The changes of the female genitalia during normal oestrous cycle of Manipuri pony has been presented on Table 1.

In the present study it was observed that the vulva of Manipuri pony was congested in 100.00 per cent on day 0 and 96.66 per cent on day 4 of oestrous cycle, which as it was absent on day 8,14 and 18 days of oestrous cycle.

The free flowing vaginal discharges were observed in with 16.66 per cent and 40.00 per cent on day 0 and day 4 of oestrous cycle respectively. The medium vaginal discharge

was present on day 8 (100%), 14 (100%) and 18 (100%) of the oestrous cycle.

In the present study, open cervix was observed in 96.66 per cent on day 0 and 100.00 percent on day 4. Closed cervix were observed on day 8 (100%), 14 (100%) and 18 (100%) of oestrous cycle.

The uterus with good tonocity was observed with 66.66 percent on day 0 and day 4, whereas atonic uterus was found on day 8 (20%), on day 14 (93.33%) and on day 18 (96.66%) of oestrous cycle.

In the present study, ovary with Graafian follicle was observed in 100.00 percent oestrus female Manipuri pony on day 0 and day 4, corpus haemorrhagicum was detected on day 8 (83.33%) and mature corpus luteum on day 14 (100%) of the oestrous cycle.

Table 1: Different changes of the female genitalia of Manipuri pony during normal oestrous cycle (n=30)

Parameters	Condition	Frequency of occurrence (%)				
		Day 0	Day 4	Day 8	Day 14	Day 18
Congestion of vulva	Present	100.00	96.66	-	-	-
	Absent	-	3.33	100.00	100.00	100.00
Vaginal discharge	Present	100.00	56.66	-	-	-
	Absent	-	43.33	100.00	100.00	100.00
Cervix	Open	96.66	100.00	-	-	-
	Closed	3.33	-	100.00	100.00	100.00
Uterine tonocity	Good tone	66.66	63.33	-	-	-
	Moderate tone	33.33	36.66	80.00	6.66	3.33
	No tone	-	-	20.00	93.33	96.66
Ovarian structure	Graafian follicle	100	100	-	-	-
	Corpus haemorrhagicum	-	-	83.33	-	-
	Mature corpus luteum	-	-	-	100.00	-

Discussion

The findings observed for the changes of female genitalia during oestrus in the present study clearly indicated that common signs of oestrus were congestion of vulvar mucous membrane, free flowing vaginal discharge, good uterine tone and patency of the cervix [7, 8, 9]. The above mentioned signs of oestrus were apparent during the period of oestrus [10]. Oestrogen was responsible to cause dilatation of the cervix and increased tonocity of the uterus [11, 12]. The Graafian follicle was palpable up to day 2 of oestrus [8]. The mature corpus luteum was palpable in all mares on day 0 and 4 of oestrus. Presence of a fully developed corpus luteum and absence of follicle of significant size indicated 8th to 16th day of the oestrous cycle [13].

Conclusion

Different physical and palpable changes of the female genitalia of Manipuri pony has been recorded on different days of oestrous cycle. The present findings related to physical and palpable changes of the female genitalia of female Manipuri ponies may be a definite help to detect the mare in oestrus and a suitable tool for appropriate breeding.

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