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Oestrous behaviour in a mule

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Abstract

A female mule was presented with symptoms of colic and pyrexia. On rectal examination the right ovary of the molly was found to be enlarged with large sized follicle. The case was diagnosed as oestrous behaviour. The mule was segregated for the period of oestrous and symptomatically treated. No invasive and unethical hormonal therapy was done to suppress the behaviour. The symptoms subsided in a weeks' time.

Keywords: Colic, oestrous, molly, mule, segregation

Introduction

Donkeys and horses are two different species, with different numbers of chromosomes. Of the two first generation hybrids between these two species, a mule is easier to obtain than a hinny^[1]. Mules are a cross between a male donkey and a female horse. Female mules are commonly called mollies or mule mares. Although there are very few studies on the heat cycle of mollies, it is known that they are sterile but still cycle normally. Female mules display oestrous cycle but are rarely fertile, but they can be used as embryo recipients for mule, horse or donkey embryos^[2]. Mare is a seasonally polyoestrous animal which helps the foal to avoid bad weather during its initial days of life^[3]. The oestrous cycle is defined as the intervals between successive ovulations and in the mares is 21 to 22 days long. Oestrus is follicular phase of the cycle during which the female shows overt signs of oestrus which is attributable to the oestrogen production by the follicle on the ovary. The duration of this phase varies with time of year and is inversely proportional to day length. The duration of oestrus can vary between 3 to 9 day and most regular period in the oestrous cycle is the length of dioestrus which is a luteal phase. Both these phases are characterized by internal alterations of the sexual organs and glandular system along with behavioural changes based on the levels of estradiol-17 β and progesterone in each of them, respectively^[4].

Clinical History and Observation

A 7-year-old molly weighing 346kg with a body condition score of 5 was reported to the veterinary clinic with symptoms of mild colic. The mule had taken water and feed 2 hours prior to showing colic symptoms. The mule also had history of mounting on to other mules in the herd at the time of grazing. The clinical parameters observed were temperature of 101.6 $^{\circ}$ F, heart rate of 52 beats per minute, respiratory rate of 26 breaths per minute and capillary refill time of less than 2 seconds. The mean horse grimace scale value of the molly was 01 due to tension above the eye area^[5]. The molly was in relaxed state and hydration status was just adequate with normal defecation (Fig 1).



Fig 1: Appearance of the Mule

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The patient was urinating in small quantities along with hind limbs separation at frequent intervals. Slight swelling of the vaginal region and tail raised from the perineum was also noticed (Fig 2).



Fig 2: Swollen appearance of vagina

The complete blood count revealed values in normal range. Liver and Kidney function test values were also within the acceptable limits (Table 1).

Table 1: Haematological and serological parameters

S No	Parameter	Value
1	Haemoglobin	14 g%
2	Packed cell volume	43%
3	Total RBC count	$8.8 \times 10^{12}/L$
4	Total WBC count	$8 \times 10^9/L$
5	Platelet count	$245 \times 10^9/L$
6	SGOT	250 u/L
7	SGPT	180 u/L
8	Blood urea nitrogen	10.4 mg/dl
9	Creatinine	1.6 mg/dl

Rectal examination was carried out following back racking, which revealed few soft faecal balls. The faecal balls were checked for the presence of sand and was found to be negative (Fig 2).



Fig 3: Absence of sand in the faeces

Rectal examination could not reveal any gastrointestinal abnormality. Nasogastric intubation was done which did not result in any gastric reflux. Straw coloured peritoneal fluid was obtained on abdominocentesis using teat cannula. The obtained peritoneal fluid had a protein level of 2.1g/dl and total leukocyte count of 3900/ μ l. Reproductive organs of the molly were explored per rectally and found a relaxed uterus

and cervix without any tone. Both the ovaries were well developed and the right ovary was comparatively enlarged and showed presence of a large sized soft follicle measuring about 3 cm in diameter. The case was diagnosed as a case of molly in oestrous stage of reproductive cycle based on the rectal examination.

Treatment and Discussion

The molly was treated with intravenous fluids and was segregated from other animals for a period of one week. The mule was given non-steroidal anti-inflammatory drug (Injection Flunixin melamine @ 1.1mg/kg body weight) and injection Ranitidine @ 2mg/kg body weight as and when required to reduce colic. Per rectal examination was done on a daily basis to check the growth of the follicle and the follicle was found ruptured on the 4th day of admission. The behaviour of frequent urination has reduced gradually and the symptom of hind limb separation disappeared. The feeding and watering of the animal was adequate and the urination along with defecation was normal. Oral progestin, Regumate®, uterine insertion of a glass ball to suppress behavioural oestrus, foetal crushing through rectal palpation, oxytocin treatments and surgical sterilization are commonly recommended to suppress heat among mares. All of these procedures are having its own drawbacks for different reasons [6]. This case was managed by segregating the patient for the oestrous period without using any invasive means.

The evidence of cyclicity among female mules were proposed long time ago [7]. There are very few studies on the oestrous cycle in mollies. Mollies are sterile but they cycle normally [8]. Presence of oocytes in mule follicles were observed for the first time in 1973 [9]. The oestrogen hormone levels of female mules were observed to be higher than mares during oestrous and pregnancy [10]. Twenty nine percent of mollies didn't show signs of oestrous, 44% had mild signs of oestrous, 15% had moderate signs of oestrous and 12% had severe signs of oestrous out of 100 mollies in a study conducted among mule owners [11]. Different signs of oestrous observed in mollies were frequent urination, mouthing, excessive tail whipping, aggression towards other mules, overt anxiety, biting, kicking, aggression towards humans and performance issues [12]. The presence of follicles and corpora lutea in mules has been questioned due to the classical concept of infertility [13]. This concept is barely supported because on the lack of information at the literature, a consequence of the difficulty to obtain ovaries from these animals.

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