



Original Contribution

RESTORATION OF REPRODUCTIVE FUNCTION IN EQUIDS (ODD-TOES UNGULATES) AFTER PARTURITION

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ABSTRACT

The purpose of the study was to follow the reproductive parameters of the mare and the jennet after parturition. The study was performed on eight jennets of a local breed, aged 6-10 years, weighing 250 kg, and on nine mares of pureblood English breed, aged 5-7 years and weighing 350 kg. Periodical changes in the ovaries and in the uterus were registered by ultrasound equipment Aloka "SSD 500" and 5 MHz transrectal linear probe. The findings were printed on a Mitsubishi P 91 E system. Four time observations for oestrus detection and reaction to the male animal were done. Typical clinical signs of oestrus in the jennets (winking of the vulva, chomping with salivary dribbling, backing up and frequent urination) were observed 15.43 ±0.69 days after the parturition, with duration of 8.23±0.76 days, sexual receptivity 5.43±0.37 days and first ovulation by day 17.45±0.87. In the mares, the first post parturient oestrus was established by the day 9.23±0.86, with ovulation on 12.82±0.98 day and second oestrus 19.84±1.23 days after the first one.

Key words: mare, jennet, oestrus, ovulation

INTRODUCTION

In order to give birth to offspring every year, the equids have to be bred shortly after the parturition because of the short reproductive period and the long gestation

Under the climatic conditions in Bulgaria, the jennets exhibit seasonal multiple cycles [1]. They cycle and give birth mainly in spring months. The oestrus cycle lasts for 21-28 days and the oestrus itself, 5-9 days with ovulation occurring 5-6 days from the beginning of the oestrus [2, 3]. The oestrus in the jennets is characterised by the following signs: winking of vulva, chomping with excessive salivation, backing up and frequent urination [3, 4]. The first cycle after the parturition occurs on the 17th-18th day [5, 6]. Meira et al. [7] reported that the majority of examined jennets showed a follicular development during the first 16 days post

partum, but ovulation was present only in one of all ten studied animals. Via palpation or ultrasonography of ovaries, preovulatory follicles with dimensions of 25-30 mm were observed, but due to the great variations in the size of the different breeds and individuals, there is no reference value, unlike mares where the reference size of the preovulatory follicle is accepted to be 40-50 mm depending on the breed and the season [8, 9].

The first post parturient oestrus in mares occurs relatively rapidly compared to other animal species. The receptivity is characterised by visible clinical signs despite the lack of a preliminary progesterone phase and the culmination is ovulation. A considerable percentage (90%) of parturient mares shows oestrus between the 5th and the 12th days after the parturition, but it depends especially on the season. The time between the parturition and the first ovulation varies insignificantly – according to Loy [10] the period is 10.2 ±2.4 days, whereas Kaskinen [11] reported a duration of 11.7±3.4 days.

The purpose of the study was to follow the estrus cycle recovery, changes of uterus and ovary of the mare and jenny after parturition

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housed in our climatic circumstances.

MATERIAL AND METHODS

The studies were performed in March–June on 8 jennets from a local breed, aged 6–10 years, weighing 250 kg and 9 pureblood English breed mares, aged 5–7 years, and weighing 350 kg. The animals were kept together with their offspring to move freely in boxes with walking yards. Twice daily, observations for reaction to the male breeder were made. The cyclic changes occurring in ovaries and the uterus were monitored ultrasonographically with an Aloka SSD 500 equipment and 5 MHz linear probe with Mitsubishi printer device at 3-day intervals from the day of delivery to post parturient month 2. An inquiry on 43 animals was performed with owners of jennets collecting information about the time of onset of oestrus, its duration, clinical signs, reaction and time of reception of the male breeder, the interval between oestrus and the fertility rate.

The data were statistically processed using one-way analysis of variance.

RESULTS

The daily two meetings of jennets with jacks during the first two post parturient weeks exhibited a negative reaction and lack of oestrus signs. The characteristic clinical signs of oestrus as winking of vulva, chomping with salivary dribbling, backing up and frequent urination were observed 15.43±0.69 days after the parturition in 5 jennets, with a duration of 8.23±0.76 days. The allowance of mounting by the jack and the characteristic standing posture (receptivity) was exhibited for 5.43±0.37 days from the appearance of first oestrus signs. This reaction ended 21.66±0.78 days after the parturition. A second oestrus appeared 37.23±1.46 days after giving birth. In 3 animals there were no signs of a sexual cycle during the first three post partum weeks and in one – during the entire period of observation.

The simultaneous examinations of ovaries (palpation and ultrasonography) for post parturient ovarian activity, performed immediately after the parturition, did not show presence of ovarian follicles. An intensive growth of follicles in ovaries between the 3rd and the 6th day was observed in 2 jennets but afterwards a regression and atresia by day 10 occurred. In animals with oestrus signs, a follicular growth was present within days 12–19 with dimensions of 14 to 21 mm, becoming preovulatory with

dimensions of 41.4 ± 0.11 mm by post parturient days 19.56±0.87. The ovulation for the second observed oestrus was detected 39.13±1.13 days after the delivery with dimensions of the preovulatory follicle of 41.8 ± 0.31 mm.

The data from the inquiry with regard to the time of oestrus onset, its duration, clinical signs, reaction and receptivity to the male breeder, interval between two oestrus conditions, fertility rate and feeding of the foal were various. A significant percentage of owners use their animals mainly for working in their own ranches and the breeding of donkeys was not of interest to them. In settlements with a bigger number of jennets there were no male breeders or if present, they were brought to pasture together and thus the individual monitoring of oestrus and the mounting could not be observed. The occurring matings were sporadic and the data – not confident.

The observations and ultrasonographic survey of mares revealed the onset of the first oestrus 9.20±0.86 days after the parturition with the typical oestrus signs and ovulation occurring by day 12.8±0.98 with dimensions of the preovulatory follicle of 52.8±0.76 mm. A second oestrus was detected 28.65±1.21 days after delivery.

DISCUSSION

The obtained data about the time of oestrus onset after the parturition and the manifestation of the typical signs are similar to those reported by Lang [5] and Rowlands et al. [6], who stated that the first oestrus appeared by post parturient days 17–18.

Our results with regard to the restoration of the sexual cycling in jennets after parturition showed that unlike mares, the first oestrus occurred later (by day 15.43±0.69 vs 9.20±0.86). The follicular development observed by us between post partum days 3 and 6 in 2 jennets and in the next days in the other ones, as well as the time of ovulation – 19.56±0.87 days after parturition, do not confirm the data reported by Dadarwal et al. [12] in French Lennies (*Equus assinus*) for presence of follicles in some animals immediately after parturition and the first ovulation occurring on the average by day 14.6.

The observed regression of follicles within days 6–10, that ended with atresia in 2 animals, as well as the lack of restoration of the ovarian function in one jennet, are frequently observed and are confirmed by the studies of Meira et al. [7] that in Brasil

Lennies (*Equus assinus*), most of observed animals showed a follicular development during the first 16 days after delivery but ovulation was detected only in one out of all ten jennets.

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