

Monitoring ovulation and conception employing blood progesterone estimation in female *Camelus dromedarius*

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ABSTRACT

Seventeen adult pleuriparous camels belonging to National Research Centre on Camel, Bikaner, India were examined for presence of follicle (>10 mm diameter) with the help of ultrasound scanner. They were mated with a virile stud and blood samples were collected immediately after mating (day 0) followed by day 7, 14, 21, 30 and 45 post mating. Sera were analysed for progesterone concentration to determine status of pregnancy. Failure of fertilization and/or nidation (66.7%) and inovation (33.3%) were observed to be the main causes of pregnancy failures. No case of early embryonic mortality (between day 21 and 45) was observed in this study.

Key words: progesterone, blood, conception, female, *Camelus dromedarius*

Introduction

The use of serum progesterone estimation (RIA) for early pregnancy diagnosis in Indian camels has also been reported recently². The present study was conducted to study the use of progesterone estimation for identifying the causes of pregnancy failures in an farm managed herd of camels.

Experimental animals

Seventeen adult pleuriparous females belonging to the herd of National Research Centre on Camel, Bikaner, India were taken for this study. The camels were maintained under semi-intensive management system.

Ultrasound examination

Before mating, ovarian status of these animals were assessed by ultrasound examination. The she camel was restrained in sternal recumbent posture on kutchra ground with all the four legs properly fastened using ropes . Inj. Xylazine, 0.03 mg/kg b.wt. (Xylaxene, M/s Indian Immunologicals, Hyderabad, India) was administered intravenously for sedation. The endovaginal annular array probe (5 MHz) of ultrasound Scanner-200 (Philips medical Systems, NewDelhi, India) was used for ovarian examination. The she camels having follicles > 10 mm diameter (Fig.1) were mated with virile camel studs during breeding season (December and January).

Progesterone assay

The blood samples were collected through jugular venipuncture immediately after mating (day 0) followed by day 7, 14, 21, 30 and 45 post mating. The ovaries were rescanned to determine ovulation on day 7 post mating. The serum samples were separated and stored at -20°C and were analysed for progesterone concentration using progesterone specific radio immuno assay (RIA) kits supplied by Diagnostic Products Corporation, USA.

RESULTS AND DISCUSSION

The progesterone concentration and the ovarian status of each individual camel on day 0, 7, 14, 21, 30, and 45 post mating is presented in table1. The elevated progesterone levels on day 7 is reported to be suggestive of ovulation and formation of functional corpus luteum^{1,3}. In present study elevated levels of progesterone on day 7 post mating, suggesting ovulation was observed in 14 animals. This was confirmed by presence of C.L. in ovary by ultrasound examination. Three camels (no.232,59 and 103) showed either nondetectable or simply basal levels (<0.1 ng/ml) throughout the period of investigation indicating failure of ovulation. The progesterone level in 8 camels continued to be high till day 45 post mating, indicating successful ovulation , fertilization and conception. These animals were confirmed to be pregnant by rectal palpation on day 60 and 90. The remaining six camels (nos. 250, 376, 326, 374, 325 and 195) exhibited initial rise of blood progesterone by day 7 post mating followed by a precipitous fall suggesting ovulation but failure of fertilization or nidation. The case of early embryonic mortality (between day 21 and 45) was not observed in this study.

Failure of fertilization and /or nidation was observed to be the main cause (66.7%) of pregnancy failure in camels. Though camel is induced ovulator, in ovulation was observed in 33.3% female camels and apparently was main cause of pregnancy failure also in these cases. It suggests that ovulation in camel is not simple but complex mechanism governed by multiple factors. Similar findings were reported earlier⁴.

(ND- Not Detectable,)