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Ultrasonographic approach for measurement of crown rump length of goat fetus

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ABSTRACT

The present study was carried out for the measurement of goat foetal crown rump length (CRL). 40 ewes were synchronized and bred naturally, among which 25 ewes were pregnant. These 25 ewes were subjected to foetal crown rump length observations using B-mode real time ultrasonography from day 35 to 70 of gestation. The mean CRL of Osmanabadi ewes were 27.82 ± 0.73 (day 35), 46.35 ± 1.32 (day 42), 65.32 ± 1.18 mm (day 49), 82.85 ± 0.88 mm (day 56), 99.66 ± 0.94 mm (day 63) and 117.27 ± 1.12 mm (day 70).

Key words: Ultrasonography, CRL, Goat.

Advancement of technology such as real time B-mode ultrasonography has made speculation of pregnancy on non-return basis a thing of past. By the use of ultrasonography we can see the foetus moving in the mothers' womb and calculate its age and date of parturition with fair accuracy using crown rump length as an indicator. The present study was undertaken to measure the crown rump length of goat foetus on ultrasonography.

Osmanabadi goats (n=40) were bred naturally at synchronized estrus and the date of mating of each doe was noted. Examination was conducted daily from day 8 post breeding using B-mode real time ultrasonography with 7.5 MHz linear probe for pregnancy diagnosis. Trans-rectal as well as trans-abdominal sonography was performed in these goats according to the stage of gestation. Pregnancy was confirmed on day 24 and out of 40 goats, 25 goats were pregnant, which were subjected to foetal crown rump length measurement on days 35, 42, 49, 56, 63 and 70 of gestation by using linear (7.5 MHz) and sectoral (3.5 MHz) probe. These measured CRL were put into formula, $Y = 24.42 \pm 0.39 X$, where, Y = gestational age (days), X = crown rump length (CRL) while 24.42 and 0.39 are constant factors (Singh *et al.*, 2004) to calculate the age of foetus, which was then compared with recorded gestational age.

On day 35, mean CRL was 27.82± 0.73 mm and mean gestational age of foetus was calculated as 35.27 ± 0.28 days, which was in close agreement with the recorded foetal age. Similarly calculated age of the foetus based on its CRL was in close agreement with gestational age at every stage.

Ultrasonic measurements of CRL were useful in predicting the age of the embryo (Martinez *et al.*, 1998) and also fetal development investigated by measuring the CRL of the foetus (Kaulfuss et. al., 1999). A high coefficient of correlation was observed between predicted age of foetus by using CRL and actual age calculated after Kidding. Singh *et al.*, (2004) and Parraguez *et al.*, (1999), reported gestational age of foetus estimated from the gestational sac diameter, CRL, head diameter and thorax diameter of the foetus.

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It was concluded that the gestational age of foetus can be calculated by measuring the crown rump length of foetus by ultrasonography, which appears useful to predict the time of kidding.

Table: Day of gestation measured CRL in mm and calculated gestational age by using the formula.

Day of Gestation	Sonographically measured CRL (mm)	Gestational age calculated by equation(24.42 +0.39X) where X-CRL
35	27.82±0.73	35.27+0.28
42	46.35±1.24	42.50+0.51
49	65.32±1.11	49.89±0.46
56	82.85±0.83	56.73±0.34
63	99.66±0.88	63.28±0.37
70	117.27±1.05	70.15±0.43

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Dr. L.P. Singh, Senior Scientist, Division of Animal Reproduction, IVRI, Izatnagar has been elected as member of Academic Council, IVRI Deemed University. ISSAR felicitates Dr. L.P. Singh on his election and awaits favorable support to academic excellence in the field of Animal Reproduction at IVRI, Izatnagar, U.P.

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