

A BIOMETRIC STUDY OF THE REPRODUCTIVE TRACT OF THE RED SOKOTO (MARADI) GOATS OF NIGERIA

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ABSTRACT

Different segments of the reproductive tracts of 747 adult, non-pregnant female Red Sokoto (Maradi) goats were measured. The mean lengths of the vulva, vagina and cervix were 1.45 ± 0.21 , 5.32 ± 0.34 and 2.59 ± 0.61 cm, respectively. The mean lengths of the uterine body, left and right horns were 5.83 ± 1.69 , 14.43 ± 0.94 and 14.17 ± 1.33 cm, respectively. The lengths of the left and right oviducts were 13.92 ± 2.45 and 13.73 ± 2.88 cm, respectively. The lengths of the left and right ovaries were 1.71 ± 0.27 and 1.73 ± 0.27 cm, respectively. The values for diameter of the vulva, vagina, cervix, uterine body, left uterine horn, right uterine horn, left oviduct and right oviduct were 2.45 ± 0.32 , 2.29 ± 0.26 , 1.07 ± 0.17 , 2.10 ± 0.42 , 1.19 ± 0.21 , 1.16 ± 0.24 , 0.15 ± 0.04 and 0.15 ± 0.03 cm, respectively. The diameters of the left and right ovaries were 0.65 ± 0.15 and 0.66 ± 0.22 cm, respectively.

Key words: Biometry, reproductive tracts, Red Sokoto goats.

INTRODUCTION

Goats are of great economic value in the tropics and about 80% of world's goat population is present in this geographical area (Anonymous, 1982; Ademosun, 1985). In Nigeria, the goat population is about 23.2 million heads and remains the most abundant among the ruminants (Anonymous, 1979). The *Capra hircus* species is a domestic animal in which the reproductive physiology is least understood compared to cattle, sheep and pig. Description of goat is usually made as if it is identical with sheep (Smith, 1986).

Some work on the morphology, physiology and pathology of reproductive organs of the goat (Epelu-Opio *et al.*, 1988; Moreira, *et al.*, 1991; Sattar and Khan, 1988; Torres and Badiangan, 1989) has been reported in different countries. But very little is known about the morphology of the reproductive tract of local Nigerian goats. Therefore, the present study was planned to establish baseline data on the normal dimensions of different segments of the reproductive tract of the Red Sokoto (Maradi) goats kept in Nigeria.

MATERIALS AND METHODS

The reproductive tracts of 747 adult non-gravid, female Red Sokoto goats were collected from the abattoir in Bodija, Ibadan, Nigeria. Different segments of the tracts i.e. vulva, vagina, cervix, uterine body, uterine horns, oviducts and ovaries were measured. The

reproductive tracts were measured using metric rule, thread and hand lens. The ovarian length was measured from pole to pole and the diameter was calculated from the circumference.

The length of the vulva was taken from the external vulva opening to the vestibule and that of the vagina from vestibule to the external cervical os; diameters of these organs were calculated from their respective circumferences. The cervical length was measured as the distance between the external os and internal os and the diameter calculated from the circumference at the middle portion.

The length of the uterine body was taken as the distance between the internal cervical os and the bifurcation of the two horns, while the measurement of the length of the horns was taken from the point of bifurcation to the utero-tubal junction. The diameters were calculated as for the uterine body. The lengths of the oviducts were taken from the uterotubal junction to the fimbriae and the diameters calculated from the circumferences.

RESULTS AND DISCUSSION

The mean values for the lengths of the vulva, vagina and cervix were 1.45 ± 0.21 , 5.32 ± 0.34 and 2.59 ± 0.61 cm, respectively. These values are shorter than published values of 3.6, 7.3 and 5.5 cm for the respective organs in goats (Smith, 1986).

The mean lengths of the uterine body, left uterine horn and right uterine horn were 5.83 ± 1.69 , 14.43 ± 0.94 and 14.17 ± 1.33 cm, respectively. These values are higher when compared to 2.0, 10.12 and 10.12 cm published for the respective segments in small ruminants (Sisson and Grossman, 1975). The mean lengths of the left and right oviducts were 13.92 ± 2.45 and 13.73 ± 2.88 cm, respectively and are shorter than 15.19 cm recorded for both oviducts in the ewe (Hafez, 1987). The lengths of the left and right ovaries were 1.71 ± 0.27 and 1.73 ± 0.27 cm, respectively. These values are higher than 1.5 cm reported for small ruminants (Sisson and Grossman, 1975) but shorter than 2.2 cm reported in goats (Smith, 1986).

The diameters of the vulva, vagina, cervix, uterine body, left uterine horn, right uterine horn, left oviduct and right oviduct were 2.45 ± 0.32 , 2.29 ± 0.26 , 1.07 ± 0.17 , 2.10 ± 0.42 , 1.19 ± 0.21 , 1.16 ± 0.24 , 0.15 ± 0.04 and 0.15 ± 0.03 cm, respectively. The diameters of the left and right ovaries were 0.65 ± 0.15 and 0.66 ± 0.22 cm, respectively.

As recorded in this study, the differences in the dimensions of various segments of reproductive tract for goats compared to the ewes might have been due to species differences. The differences between the results in this study and published results in goats might be due to breed difference. Feeding of goats on bush leaves, dry fodder or grasses with less supplemented feeds from two to three weeks of age have also been shown to cause retarded growth and development of the reproductive tract (Obwolo, 1992). Differences in size of reproductive tract may also be due to climatic effects as young goats in the tropics have to contend with the effects of the first dry season when growth may be seriously retarded. Pregnant does with higher nutritional status produce heavier kids than those with poorer nutrition (Akusu, 1987; Singh *et al.*, 1992; Oyeyemi *et al.*, 2001) and this may affect the size of the reproductive tract of kids.

The results of this study have established the baseline for the dimensions of different segments of the reproductive tract of the Red Sokoto (Maradi) goats of Nigeria. This information will make diagnosis of various abnormalities of these organs easier. More work on other breeds, like the West African Dwarf, and causes of differences between breeds and species seems important for better understanding of the reproduction in these animals.

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