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BIOMETRICAL STUDIES OF REPRODUCTIVE ORGANS OF BUFFALOES

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ABSTRACT

Reproductive tracts of 110 female buffaloes, including 39 heifers, were collected from Faisalabad abattoir. The biometrical values of left and right ovaries, fallopian tubes, uterine horns and cervices of all animals were determined. The results showed that there was no significant difference in the measurements of left and right side organs in heifers, adult and aged animals but showed a significant increase in most of the measurements from heifers stage to those of adult and aged buffaloes.

INTRODUCTION

The knowledge of biometry of reproductive organs is helpful in the use of artificial insemination, early diagnosis of pregnancy and in the treatment of reproductive disorders. Such information about Pakistani buffaloes is so far not available. Therefore, this study was carried out with a view to establish the biometrical norms in this respect.

MATERIALS AND METHODS

Reproductive tracts of 110 female buffaloes (39 heifers, 26 adult and 45 aged animals) were collected from Faisalabad abattoir. Before slaughtering, the age of each animal was ascertained following the formula of Cockrill (1974). The reproductive organs thus collected were divided into 3 age groups:

a) Heifers - less than 3 years of age
b) Adults - 4 to 7 years of age
c) Aged - above 7 years of age

The extraneous tissue and fat were removed from each tract to facilitate recording of measurements. The measurements that more than 6cm were recorded

with the help of a graduated tape and those less than 6 cm were taken by a vernier calliper. The measurements of ovaries, fallopian tubes, uterine horns and cervices were determined following the procedure laid down by Bhalla *et al.* (1964).

Ovaries: The length of each ovary was measured as maximum distance from anterior to posterior extremity, the width as maximum distance from the medial to the lateral border and the thickness as distance from dorsal to ventral surface.

Fallopian tubes: The length of the left and right fallopian tubes was measured after removing and straightening them on a table, from fimbriated end to the tip of uterine horns.

Uterine horns: The length of greater and lesser curvatures of each uterine horn was measured as the distance from external bifurcation to the apex following the dorsal and ventral borders respectively. The circumference was measured around the base of each uterine horn immediately above their external bifurcation. After dissection, the thickness of uterine wall of left and right horns was measured from the same place where the circumference was recorded.

Cervices: The length of the cervices was measured as distance from os-externum to os-internum and the number of cervical rings was also counted.

RESULTS AND DISCUSSION

Ovaries: There was no significant difference in the mean length, width and thickness of left and right ovaries in heifers, adult and aged buffaloes, however, most of the measurements of ovaries increased with advancement of age of animals. A significant increase was recorded in the mean length of ovaries from heifers to those of adult and aged buffaloes (Table 1). The average measurements of ovaries of adult and aged buffaloes under observation, were in agreement with those of Polding and Lall (1945), Luktuke and Rao (1962) and Bhalla *et al.* (1964).

Fallopian tubes: There was no marked difference in the average length of left and right fallopian tubes in heifers, adults and aged buffaloes. However, a significant increase in the average length was recorded from heifer to that of adult stage and then to that of aged buffalo stage. These findings weres upported by those of Bhalla *et al.* (1964) who worked on Indian

Table 1. *Mean biometrical values of ovaries, fallopian tubes, uterine horns and cervices of buffaloes of various age groups*

Parameters	Buffalo heifers (n=39)		Adult buffaloes (n=26)		Aged buffaloes (n=45)	
	Left	Right	Left	Right	Left	Right
Ovaries						
Length (cm)	1.55±0.05	1.58±0.06	2.94±0.11	2.90±0.20	2.24±0.08	2.22±0.07
Width (cm)	0.88±0.06	0.83±0.04	1.06±0.08	1.02±0.04	1.02±0.05	1.12±0.08
Thickness (cm)	0.91±0.05	0.87±0.04	1.00±0.06	1.07±0.05	1.13±0.05	1.14±0.07
Fallopian tubes						
Length (cm)	17.75±0.61	17.87±0.56	23.02±0.41	23.08±0.41	22.25±0.89	22.44±0.69
Uterine horns						
Length of greater curvature (cm)	15.13±1.05	15.65±0.86	22.48±1.54	23.36±1.17	25.58±1.04	26.30±1.33
Length of smaller curvature (cm)	10.63±0.90	11.14±0.88	17.74±1.30	18.20±1.54	19.90±1.16	20.70∓1.29
Circumference (cm)	3.52±0.25	3.54±0.25	4.63±0.19	4.79±0.28	4.98±0.26	4.99±0.24
Thickness of uterine horn wall (cm)	0.29±0.03	0.28±0.02	0.37±0.02	0.35±0.02	0.32±0.02	0.35±0.03
Cervices						
Length (cm)	3.77±0.20		6.31±0.13		7.10±0.29	
Number of cervical rings	3.71±02.0 (2-5)		4.33±0.23 (2-6)		4.57±0.81 (4-6)	

buffaloes.

Uterine horns: The average length of greater and lesser curvatures and circumference of left and right uterine horns did not show much variation within heifer, adult and aged buffalo groups. However, a significant increase in the values of these parameters was observed when such values pertaining to heifers and adult and aged buffaloes were compared with each other (Table 1). The average length of greater curvature recorded in adult and aged buffaloes in the present study was nearly the same as recorded by Damodaran (1958) and Malik *et al.* (1960) but was lower than those reported by Luktuke and Rao (1962) and Bhalla *et al.* (1964) and Sane *et al.* (1964) in Indian buffaloes and Abdel-Raouf and El-Naggar (1968) in Egyptian buffaloes.

The average length of lesser curvature in adult and aged buffaloes in the present study could not be compared with Indian buffaloes because of non-availability of any such report. Present values, however, were less then those for Egyptian buffaloes as reported by Abdel-Raouf and El-Naggar (1968). Similarly, the average circumference could also not be compared with Indian buffaloes due to non-availability of such data but these values were significantly less than those of the Egyptian buffaloes (Abdel-Raouf and El-Naggar, 1968). The average thickness of uterine walls of left and right horns was nearly the same in all age groups of buffaloes.

Cervices: The average length of cervices recorded in the present study increased significantly with increared in age (Table 1). The average length as well as the average number of cervical rings showed non-significant differences when compared with those reported by Malik *et al.* (1960) and Bhalla *et al.* (1964) in Indian buffaloes.

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