

Short Communication

Biometrical Studies of Testes of the Ram

SIDDIQUI, H.U.R.¹, A. AHMAD AND M.Z. KHAN[†]

Department of Livestock and Dairy Development, NWFP, Pakistan

[†]Department of Pathology, Faculty of Veterinary Science, University of Agriculture, Faisalabad–38040, Pakistan

¹Corresponding author's e-mail: hafeezsarnbl@yahoo.com; Telephone # 92–997–305826

Postal Address: Near Govt. High school No. 1 Manshera Hazara.

ABSTRACT

Biometrical values, including length, width, circumference and weight of each left and right apparently normal testes of 89 lambs and rams were recorded. The mean±S.E. of length, width, circumference and weight in lambs for the left testes were 4.426±1.01 cm, 3.263±0.79 cm, 9.211±2.19 cm and 25.305±13.88 g and for the right testes 4.455±0.98 cm, 3.225±0.70 cm, 9.198±2.13 cm and 25.429±14.12 g, respectively. In adult rams, these values were 6.727±1.59 cm, 4.677±1.17 cm, 13.451±2.95 cm, 77.289±48.03 g for the left testes and 6.624±1.60 cm, 4.730±1.18 cm, 13.451±2.95 cm and 76.777 g for the right testes, respectively.

Key Words: Sheep; Morphometry; Testes

INTRODUCTION

Reproductive performance depends upon the normal structure and functions of the genital organs. The information on this vital aspect of ram has not so far attracted the attention of research workers in Pakistan, although a large number of studies have been carried out in other countries. The present study, therefore, was designed to determine the biometrical measurements of the ram's testes. It is hoped that information thus gained will provide an insight into the understanding of existing male reproductive tract measurements of our local ram population and will get special attention of the researchers as well as the farmers.

MATERIALS AND METHODS

Testes of 100 Kajli rams of various age groups were obtained from the Faisalabad abattoir. The age of each ram examined, was assessed by observing the pattern of teeth eruption following the formula of George and Wooldridge (1934).

Each testicle, left and right, after procurement was numbered, put in separate polythene bag brought to the laboratory as soon as possible and the testes were placed in their natural position on the table top. The extraneous material including the fat and fascia were removed from each testicle before doing further examination. The epididymis and spermatic cord was dissected from the main testicular body to determine the biometrical values. Only those testes were included for biometrical studies which did not show any apparent abnormality.

Biometry. The biometrical values of normal testes from immature (< one year of age) and mature (> one year of

age). Weight of each left and right testicles was recorded with a triple beam balance. The length of the left and right testis was measured along their long axis from anterior to the posterior extremity at the maximum distance. The width of the testes was measured at right angle to the length from the medial to the lateral borders at the greatest distances. The circumference was measured by encircling the thickest portion of the testicle by a graduated nylon tap.

Analysis of Results. The data regarding the biometry of each left and right testis were tabulated and subjected to analysis (ANOVA) using Mstat-c.

RESULTS

Of 100 rams, 89 apparently normal testes were included in the study. Biometrical values of normal testes measured are mentioned below.

Biometry. The mean length, width, circumference and weight of each left and right testicle is presented in Table I. Non significant differences were recorded in the mean biometrical values of left and right testes in rams of all age groups. Significant differences were observed between immature and mature ram's parameters (Table I).

DISCUSSION

The results of the present study revealed non-significant differences in the average length, width, circumference and weight of the left and right testes in immature and mature rams. In immature rams, all the parameters were nearly same indicating the bilateral symmetry of both testes. Similar findings have been reported in rams by Colyer (1971) and Lino (1971). However, the left testicular weight was slightly more than

Table I. Biometrical Values (Mean \pm S.E.) of Testes in Immature and Mature Rams

Parameters	Side	Immature Rams (n= 35; mean \pm S.E.)	Mature Rams (n= 54; mean \pm S.E.)
Length (cm)	Left	6.727 \pm 1.59a	4.426 \pm 1.01b
	Right	6.624 \pm 1.60a	4.455 \pm 0.98b
Width (cm)	Left	4.677 \pm 1.17a	3.263 \pm 0.79b
	Right	4.730 \pm 1.101a	3.225 \pm 0.79b
Circumference (cm)	Left	13.451 \pm 2.95a	9.211 \pm 2.19b
	Right	13.451 \pm 2.95a	9.198 \pm 2.13b
Weight (gm)	Left	76.777 \pm 48.03a	25.305 \pm 13.88b
	Right	77.289 \pm 48.03a	25.429 \pm 14.12b

Values with different letters in the rows are statistically different; and those with similar letters do not differ

the right one in mature rams. Similar report was given in rams by Ott *et al.* (1982), who showed that the left testis was 10% larger than the right on subsequent examinations. In buffaloes and cattle, similar reports have been reported by MacMillian and Hafs (1969), Ahmed (1984), Ahmed *et al.* (1985), Purby and Choudhry (1985) and Ali (1989).

The average length, width circumference and weight of testes of immature rams when compared with those of mature rams were smaller than the later and this may be due to age factor, nutrition, management and age wise growth of the testis. Colyer (1971) reported that the rate of increase in testicular and epididymal weight was linear upto a body weight of 46 lb (20.9 kg) followed subsequently by a significantly greater rate of increase at higher body weight. He also found close relationship between the development of the testis and the epididymus at the body weight greater than 20.9 kg. Similar patters of growth occurred in relation to age, which were in complete agreement with our observations. Regarding nutrition the observations recorded by Setchell *et al.* (1965) also favoured our observations.

CONCLUSION

It is concluded in the present study that age had effects on the growth and development of the body and the testes of the ram. More studies, however, are recommended to correlate the different growth aspects of rams' genital organs. Such studies may be on the effect of hormones, nutrition, management and others factors influencing growth and maturity.

REFERENCES

- Ahmad, M., M. Latif, M. Ahmad, I.H. Khan, N. Ahmad and M. Anzar, 1985. Postmortem Studies in infertile buffalo bulls. Anatomical and microbiological findings. *Vet. Rec.*, 117: 104-9
- Ahmad, N., 1984. Studies on the postnatal development of the reproductive organs in Nili Ravi buffalo calves. *M.Sc. Thesis*, Department of Animal Reproduction, University of Agriculture, Faisalabad-Pakistan
- Ali, M., 1989. Studies on the prepubertal development of the reproductive organs and other related endocrine glands in male Nili Ravi buffalo bull calves of 6 months age. *M. Sc. Thesis*, Department of Animal Reproduction, College of Veterinary Science, Lahore-Pakistan
- Colyer, R.J., 1971. Development of testis and epididymis of Clan Forest ram. Department of Gr. Univ. Coll. Wales *Aberystwith*, 76: 433-41
- Lino, B.F., 1971. Relationship of scrotal circumference and testis weight. *Australian Biol. Sci.*, 25: 259-66
- MacMillan, K.I. and H.D. Hafs, 1969. Reproductive tract of Holstein bulls from birth through puberty. *J. Anim. Sci.*, 28: 233-9
- Ott, R.S., E.H. Health and A. Bane, 1982. Abnormal spermatozoa, testicular degeneration and variocoele in a ram. *A. J. V. R.*, 43: 241-5
- Purbey, I.N. and N. Choudhury, 1985. Biometry of different parts of morbid genitalia in nondescript male buffaloes. *Indian Vet. Med. J.*, 9: 12-5
- Setchell, B.P., G.M.H. Wates and H.R. Lindner, 1965. Effect of undernutrition on testicular blood flow and metabolisms and out put of testosterone in the ram. *Rep. Fert.*, 9: 149-62

(Received 05 December 2004; Accepted 28 December 2004)