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Biometry of local rams' sperm at Jaipur area

Piyusha Bhainsare, Shashi Tekam and Nileshkumar Pagrut

Abstract
A study was carried out on sperms biometry in local Jaipur area rams. Twenty two (22 No.) mature rams of 2.8-4.4 years old and 32-40 Kg live body weight were used in this study. Semen collection was performed by using artificial vagina. Semen samples were evaluated immediately after collection. Semen volume and color, mass and individual sperms motility, live and abnormal sperms as well as sperms concentration were estimated. Sperms biometry calculated by using phase contrast microscope and occulo-micrometer lens. Semen biometry means which estimated in this study were; sperms head length 9.52± 1.2 micron, sperms head width 5.12± 2.5 micron, acrosome length 6.09 ± 2.4 micron, head base width 2.44 ± 1.8 micron, midpiece length 11.82 ± 3.6, midpice width 2.31 ± 0.8 micron, tail length 50.46 ± 2.1 micron.

Keywords: Biometry, sperms, rams

Introduction
Sperms morphometry is a parameter in the evaluation of semen that has been associated with fertility [1-4]. Evaluating morphology as a part of a fertility study and performing breeding soundness examinations which used by technician, a veterinarian, a clinician at and rology laboratory or in artificial insemination centers [5]. There were no previous information about sperms biometry of local ram at Jaipur area.

Material and Methods
Experimental animals
Twenty two (22 No) mature rams of 2.8-4.4 years old and 32-40 Kg live body weight were used in the present study. Animals were housed in the animal house of Jaipur farm.

Semen collection
Semen collection was performed by using artificial vagina.

Slides fixation
One drop of fresh semen was diluted by five drops of physiological normal saline 0.9%, then one drop was taken and mixed with one drop of formol saline solution 70% which previously prepared for fixation of the specimens until reading under microscope done. Three samples prepared from each ejaculate and at least 200 sperms morphologically analyzed in each slides. [3]

Estimation of microscopic metric factor
Phase contrast microscope (Nikon type 104C, Japan) used to read the slides, microscope metric factor was calculated by using a known graduated stander slides which putting under oil immersion (high power), the estimation was done in same method. [10] The graduated line in the slides read by using oculo-micrometer lens. The oculo-micrometer lens have a graduated line, focus continuo until getting coincidence between graduated lines of the oculo-micrometer lens with the graduated lines in the standard slides, and then the reading of the microscpe factor by using the equation:
P × N/100= metric factor of the microscope in micron:
P= power of emersion oil lens which equals 1.1
N= number of graduated lines which fully coincidence between the oculomicrometer lens and the graduated stander slides.

Calculated sperm biometry: all these parameters were done by using oculomicrometer lens. [5]

Sperm head

Head length estimated by calculated the graduated lines between the distal point in the head acrosome to the distal point in head base, Head width was done by estimated the distance between the two equal points in the opposite side of head width, Acrosome length calculated by estimated the length by calculated distance between top of the head of sperm to the area of attachment between acrosome and nucleus of sperm head, Base of the sperm head diameter was calculated length of the attachment area between the head and midpiece [6, 8, 9].

Midpice

The length calculated by taking the distance between farness points, the first in the area which attach the head while the other in the area attached tail.

Tail

The length of the tail calculated by estimated the distance between attachments of the tail with midpiece to the end of the free end of the tail [7, 12].

Statistical analysis

The results were expressed as means ± SE data Data were analyzed using standard statistical methods.

Result and Discussion

All semen biometry data were summarized in table 1. Sperm head length was 9.52±1.2 μ, sperm width means 5.12 ±2.5 μ, length of acrosome was 6.09 ± 2.4 μ. The width of sperm base was 2.54± 1.8 μ, Length of mid-pice was 11.82±3.6 μ, mid-pice width was 2.31±0.8 μ. Sperm tail length was 50.62±2.1 μ.

Table 1: Sperm biometry of local ram

Sperms biometry (μ)	Means ± SE
Head length	9.52±1.2
Head width	5.12 ±2.5
Acrosome length	6.09 ± 2.4
Head base width	2.44± 1.8
Midpice length	11.82±3.6
Midpice width	2.31±0.8
Tail length	50.62±2.1

Sperms biometry was recorded in this study showed in the Table 1. This is the first record of sperms biometry of rams by using phase contrast microscope and occulo-micrometer lens. Sperms biometry recorded in this study were within the normal physiological values for fertile rams which were in agreement with those recorded for rams. [10, 11] It may be due to the fact that sperm biometry is property relating to the species and gene expression which differs from species to species [13, 14].

Conclusion

Techniques were used in this study were convenient without using any stains (which might had effected sperm morphology) which can be used for complete sperm evaluation and breeding soundness test of male rams. It is important in analysis of sperm biometry of rams by fixation process and in indexing which can be used for the assessment of sperm integrity and fertility. [8]

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