

ULTRASTRUCTURAL STUDY OF DWARF BUCK SEMEN

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The dwarf bucks employed in this work are used as experimental model of a research project about male caprine reproductive physiology. The aim of this project is to correlate the clinical, spermatic and hormonal changes along the year, with the testicular ultrasonographic images valuation (1, 2, 3). The morphological analysis by electron microscopy of the spermatozoa from dwarf bucks obtained by electroejaculation was performed to clarify the semen quality observed by light microscopy. Electroejaculation is a method usually used for semen collection from ruminants and is performed using rectal probe electron-stimulation (4). Five mature dwarf bucks (n=5) lodged in captivity conditions in the Zoological Garden of La Plata City, Buenos Aires, Argentina, were subject to electroejaculation procedure. Semen was collected twice a month for optical analysis and once a month for ultrastructural studies, from October 2004 to March 2005 (spring-summer). Volume, concentration, mass and individual motile, vigor, % live spermatozoa and the number of morphologically normal sperm and sperm with major defects (abnormal heads, acrosome defects, nuclear vacuoles, proximal droplets and abnormal midpieces) were evaluated at light microscopically level. For electron microscopy, all samples were centrifuged and fixed in 3% glutaraldehyde in PBS buffer and postfixed with 1% osmium tetroxide in PBS buffer. The sections were stained with uranyl acetate and lead citrate and examined in a JEM 1200 EX II transmission electron microscopy. The optical study revealed secondary abnormality (ruptured and coiled tails, free heads and tails, distal cytoplasmic droplet) were higher than primary abnormality (Dag defect, macrocephalia, microcephalia, pyriform head, proximal cytoplasmic droplet, abaxial implantation and rupture, midpiece). Ultrastructural analysis showed most spermatozoa had with normal characteristics. In some of them cytoplasmic droplets were found. Although several abnormalities were observed: DAG defect, acrosome lipping, several tails surrounding by a membrane, macrocephalia, detachment of the outer acrosomal membrane and alterations of plasmatic membrane with disruption and breaking (Figs. 1, 2, 3, 4). In conclusion, the electron microscopy would be a useful tool for evaluating together with light microscopy the general morphology and ultrastructural detail of the sperm samples; and this analysis will also provide valuable information for dwarf bucks fertility studies.

- [1] N, Ahmad et. al. *Vet. Rec.* (1991) 128, 491-496.
 [2] R, Cartee et. al. *Theriogenology* (1990) 33, 867-875.
 [3] R, Chandolia. *Theriogenology* (1997) 48, 119-132.
 [4] J, Amboka et. al. *J Med Primatol.* (2003) 32, 325-329.

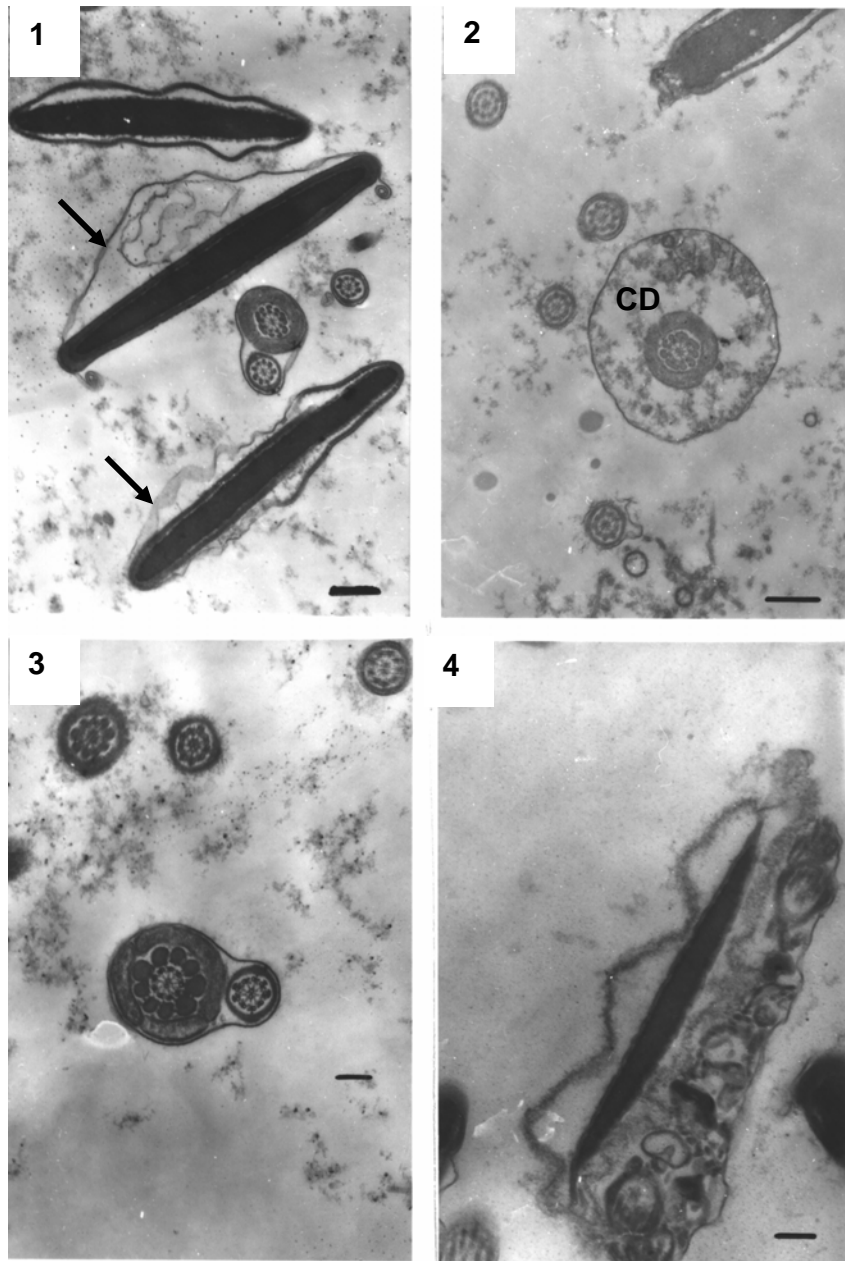


Fig. 1- Swollen plasmatic membranes (arrows). Bar= 500nm.
Fig. 2- Cytoplasmic droplet (CD). Bar= 500 nm.
Fig. 3- Two tails surrounding by a membrane. Bar= 200 nm.
Fig. 4- DAG defect. Bar= 200 nm.