

ULTRASTRUCTURAL ANALYSIS OF BOVINE FETUSES PRIMORDIAL OVARIAN FOLLICLES OF THE NELORE BREED (*Bos taurus indicus*)

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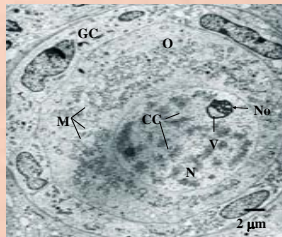
INTRODUCTION

During folliculogenesis the growth of mammalian oocytes is characterized by RNA and protein synthesis, by the evolution of various cytoplasmic organelles and by the development of oocyte-specific elements, such as the zona pellucida and cortical granules. The aim of this study was to describe the ultrastructure of bovine fetuses primordial follicles of the Nelore breed in the phase of activation and onset of growth.

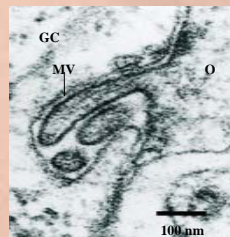
MATERIAL AND METHODS

The preantral follicles were mechanically isolated from ovaries of bovine fetuses in the last trimester of gestation with a Tissue Chopper (The Mickle Laboratory Engineering CO, England) adjusted to 500 μm (Figueiredo JF et al., *Theriogenology* 1993; 40:789-799). Before fixation in Glutaraldehyde 3% in a 0,1 M cacodylate buffer, the follicles were included in gelatin purified 10% (Gelatin Purified Powder, 60 Bloom, Type A, from Porcine Skin, TED PELLA) and pos-fixed in osmium tetroxide 1%. The samples were dehydrated and embedded in Epon 812. The ultrathin sections were stained with uranyl acetate followed by lead citrate and analyzed with a JEOL-EM-1010 (JAPAN) microscope.

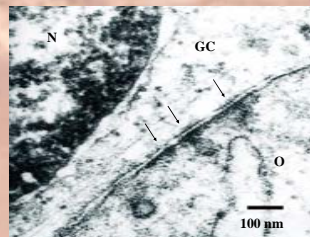
RESULTS



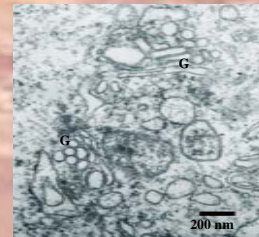
Electron micrograph showing a resting primordial follicle of bovine fetus. Note the flattened granulosa cells (GC) surrounding the oocyte (O). Eccentrically located nucleus (N) containing patches of condensed chromatin (CC). The distinct nucleolus (No) presents vacuoles (V) that varied in size and number. Mitochondria (M) were predominantly round with peripheral longitudinal cristae. Many of the mitochondria contained a larger electron-dense granule. X3,000.



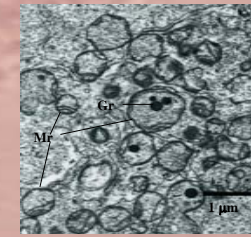
Electron micrograph showing a detail of a resting primordial follicle of bovine fetus. Note the microvilli (MV) parallel to the oocyte surface in direction to the granulosa cell (GC). X90,000.



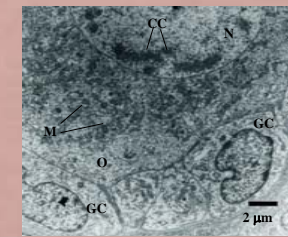
Electron micrograph showing a detail of a resting primordial follicle of bovine fetus. Zones of adherence are visualized (arrows) between the oocyte (O) and the adjacent granulosa cells (GC). X72,000.



Electron micrograph showing a detail of a resting primordial follicle of bovine fetus. Note a small Golgi complex (G) within perinuclear area. X96,000.



Electron micrograph showing a detail of a resting primordial follicle of bovine fetus. The mitochondria were predominantly round (Mr) with peripheral longitudinal cristae. Many of the mitochondria contained a large electron-dense granule (Gr). X12,750.



Electron micrograph from a primary follicle of bovine fetus showing a single layer of cuboidal granulosa cells (GC) arranged around the oocyte (O). Note a nucleus (N) with areas of condensed chromatin (CC). The majority of the mitochondria (M) were round, although elongated mitochondria had become more common. In general, most ultrastructural features of the ooplasm and its organelles and inclusions were similar to those described for the resting primordial follicles. X3,600.

CONCLUSION

In conclusion, this piece of research shows an ultrastructural description of bovine fetuses primordial follicles. Moreover, in the future, basic knowledge on the ultrastructure of preantral follicles may facilitate the understanding of their *in vitro* development.

Fellowships and grants from FAPESP are acknowledged.