

## Morphological aspects of the opossum's copulatory structures

Matheus, SMM.<sup>1</sup>, Cesário, MD.<sup>2</sup>, Soares, JC.<sup>1</sup> and Francia-Farje, LAD.<sup>1</sup>

<sup>1</sup>Department of Anatomy

<sup>2</sup>Department of Morphology, Universidade Estadual Paulista

The opossum is an aplacental mammal of the Didelphidae family. It presents a double female reproductive apparatus with linking structures named urogenital and vaginal sinuses. The penis that has a bifid glandis is introduced into the double vagina generally is introduced in the double vagine by a bifide glandis. The morphological knowledge of the reproductive tract in this animal would be useful for future taxonomic and phylogenetic studies. This work aimed to describe the morphology of the structures involved in the copula considering the estral cycle period of the female. Ten adult opossums (5 females and 5 males) were used (IBAMA 50/02 license). After anesthetic intra-peritoneal injection with sodium pentobarbital (40 mg.Kg<sup>-1</sup>), the animals were perfused with Karnovsky fixative solution. So, the reproductive organs were dissected, removed and processed for histologic and ultrastructural studies. The penis presented a pigmented vaginal tunica inside of the hairy, pendulous, pre-penian scrotum sac. It was identified a suspensory ligament and a sigmoid flexure in the ventro-dorsal direct from the roof to the gland. The gland was bifid with slim extremities. The scrotum was formed with external, internal and visceral folded lamina with many spicules. The vaginal sinus was cranially related to the uterus and laterally related to the lateral vaginas. The vaginal sinus presented a folded mucosa. No typical glandular structures were found. The most common cells in the epithelium were columnar and with microvilous. The nuclei were round and basal. The apical cytoplasm contained large secretory granules. These granules showed a heterogeneous electron-dense content. Endoplasmatic reticulum was abundant and notable in these cells. Golgi apparatus and mitochondriae could be observed. The lamina propria consisted of connective tissue with mast cells and many fibroblasts. About 2% of the cells presented long columnar aspect with electron-dense cytoplasm, irregular nuclei, and many vacuoli. The apical extremity of these cells showed morphological fagocitary characteristic and the luminal extremity showed secretory features. The results demonstrate an anatomical adaptation of the glandis to the double vagina and suggest that the vaginal sinus releases a neutral mucous under hormonal action. This secretion could be related to the lubricant during copula, sperm transport, and it could help the fetuses during labor and it is also a mucosal "softening" agent.