

Microscopic and morphometric study on the epididymis of Sri Lankan cattle

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Abstract

Epididymides were collected from five mature healthy indigenous bulls and brought to the laboratory in ice. Tissue sections were taken from six different areas; two (proximal and distal) from each head, body and tail regions of the epididymis, processed and stained with Haematoxylin & Eosin (H&E) or Van-Gieson to study the microscopic anatomy and morphometry. The volume densities of the epididymal duct, ductular lumen, epithelium, and the interstitium were measured. The tubular and lumen diameters and heights of the epithelium and stereocilia were also measured. The commonest cell type found was principal cells with stereocilia. The basal cells, the second abundant cell type, found closer to the basement membrane of the tubules and rich in the body region. The apical cells were located closer to luminal surface of the duct. The halo cells were the least common cell type observed. The smooth muscle layer that encircle epididymal duct increase its thickness from head to tail direction. The volume density of epididymal duct was high in head and tail region compare with that of body region. The epithelial volume density decreased from head to tail direction and the opposite was observed for the luminal volume density. The tubular diameter found to be similar in all six regions except proximal tail which had the highest diameter (5.9 mm). The decrease of the epithelial height from head to tail direction contributed for the increase of the luminal diameter in the same direction. The height of stereocilia was found low in the distal head (1.2 mm) and distal tail (1.4 mm) region compare to the rest of the regions. Four types of cells namely principal cells, halo cells, basal cell and epical cells, are present in the epididymal duct. The sperm storage area in the tail of the epididymis is increased due to an increase in the luminal diameter caused by a decreased in epithelial height and length of stereocilia.