THREE-DIMENSIONAL ORGANIZATION OF THE GLANDS OF PERIPHERAL ZONE OFTHE HUMAN PROSTATE GLAND

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Materials and methods.The object of the research work to study the stereomorphologic features of glandular component of the peripheral zone of the prostate gland in the light of the zonal concept of its structure. The material of the investigation was a glandular zone of a human prostate, which corresponds to the peripheral zone (Mc.Neal J.E., 1988). It was obtained 8 series by 60 sections in each one. It was stained by hematoxylin and eosin. A volumetric reconstruction was made by a method of voxel anatomical model by the series of obtained digital micrographs.

Results. Excretory ducts of the peripheral zone glands are located within it from the capsule to the distal urethral segment. The ductules approach them both anteriorly and posteriorly. The groups of ductules are located along the axial excretory duct from a urethra to the capsule. In its turn, smaller ductules give rise to groups of acini with a similiar density of their setup. All ductal-acinar system is very difficult with in periferal zone. It can be various due to the in shape and size of a terminal sections, which can be visualized as simple extensions of the epithelial tube with one round cavity of large volume - to complex multichamber formations.

This complex configuration of the a terminal section's lumen is due to the folds of the epithelial lining and an invagination's wall. The last one may contain a stromal-muscular component. The given formations can be up to 2/3 of the width of the lumen and their parts are often located in different areas to the section's area. They seem be isolated from the fold or invagination. Other terminal sections between extreme forms are detected. They can be more or less complex, in particular two-cavitary, three-cavitary terminal sections, which are integrated by one excretory duct. Integrating terminal sections of ducts, are usually short. All ductal-acinar system of glands is lined with cylindric secretory cells, which are identical as in the ducts so in the acini, except distal sections of the main excretory ducts near the urethra. Pathology of the structural organization of glands are identified by pathologists due to its deflection from so-called "normal" size and shape of its epithelial secretory components. So, a secretory epithelial components of prostate do not have correct geometric shapes, which can be in the salivary glands. This statement concerns terminal sections and totality of excretory epithelial tubes.It is necessary to indicate that there is not clear anatomical classification of the excretory ducts of the human prostate gland, for example, similar to the other compound glands. Normal dilation is treated by pathologists as cystic changes.

Conclusions

Terminal sections and ducts of peripheral zone present a size of a highly magnified volume for the secret's depositing.

«Main» excretory ducts are axial to smaller ones within glandular zone and can be deposited from a capsule to the distal urethral segment. They can merge in pairs before an inflow into the urethra or open in it independently.

The ducts and ductules of the prostate gland are not so different by their diameter, visually with the exception of main excretory ducts. Their walls and walls of inner-acinar cavities are lined by homologous epithelial cells. Obviously, there is no clear morphologic border of the transition from the terminal section to the duct and from one duct to another.

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