

1 Abstract

The aim of my rigorous work was to inspect and assess the effects of time and application of calcium/sodium salt of microdispersed oxidised cellulose (MDOC) to the structural components of testes, especially in the time after an operational localization of one testis into the intraabdominal cavity.

We used a model of an experimental unilateral cryptorchidism in the adult male Wistar rats.

The surgery was performed under standard conditions using a method introduced in the Department of Biological and Medical Sciences of the Faculty of Pharmacy Charles University. The rats were killed by overdosage of aether anaesthesia and the bilateral testes were removed. The tissues were immediately histologically processed. After the histological modifications we stained the sections with hematoxylin – eosin, green trichrome, Periodic acid Schiff and toluidin blue histological stainings.

The evaluation was histological with optical microscope. We compared our results with studies, which are described in the theoretical introduction of my work.

In the preparations from the time interval of 7 days after surgery with injection application of 1% solution of calcium/sodium salt of MDOC under the tunica albuginea we randomly measured the diameter of the seminiferous tubules. The diameter of the tubules that contained germ cells was about 200 μm . The diameter of the tubules almost without germ cells was about 80 – 150 μm . Germ cells in the seminiferous tubules were in most cases degenerating. The significant decrease in seminiferous tubules diameter is described just in the day 7 after operation in the abdominal testes.¹⁰

We observed the tubules filled mostly with Sertoli cells with a few germ cells, which were mostly apoptotic. In other tubules, we saw higher number of germ cells, near the basement membrane spermatogonies laid, some were apoptotic, near the lumen of the tubule were on the Sertoli cells' bodies connected other stages of seminiferous epithelium. Some of these cells were apoptotic. In the tubules were multinuclear giant cells. In the intersticium were wrinkled Leydig cells.

Unusual in this time was the appearance of the tubules with completely disintegrated construction of the germinative epithelium. The bodies of Sertoli cells were damaged, lumen was filled with free deposits of germ cells with the signs of degeneration and between them there were amorphous clusters of eosinophilous material. Studies described similar changes in day 15 of cryptorchidism.¹⁰

Another atypical finding was the clusters of macrophages. They were in the place of injection under tunica albuginea, but even in intersticium and near blood – vessels.

In the preparations from the time interval of 12 days after surgery with application of gel of calcium/sodium salt of MDOC into the cutted apex of the testis we observed tubules with apoptotic germ cells. In damaged tubules were macrophages phagocytting degenerated cells and lipids. Some tubules were completely degenerated and without germ cells. We observed lymphocytes, monocytes, multinuclear giant cells.

In time intervals 6, 7 and 12 days the application of calcium/sodium salt MDOC amplify the signal for chemotaction of cells MF system.

The application of calcium/sodium salt MDOC causes rasant changes in tubules, it is probably in connection with the rise of inflammation.

In control and contralateral testes there were no changes observed.