Degradation of tissue in vivo in FD oriented research

Microscopical and macroscopical changes of ligated tissue observed within FD research are presented in this page. There is adviced to read page which presents results of animal studies non connected to FD.

Degradation of intestine in vivo
There were investigated degradation processes after Fortyn´s devitalisation in vino in mini pigs in Libechov. The experiment lasted for 8 weeks. Bioptic examination were made on regular basis. Every day biopsy was performed during the firs week, than once a week.
The first biopsy after 12 hours revealed mild autolysis of subserosa. On the second day there was found for the first time a dense mix infiltration of mucosa and lumen by macrophages, histiocytes, eosinophiles. There were also found fibrine fibers. During the next two days spread of fibrin fibers was observed. On the day 5 serosa was fully covered by fibrin fibers. The intestinal wall underwent complete remodalition by fibrin in two weeks. In the end of the experiment there were found no adhesions in the peritoneal cavity and the intestine was completely replaced by connective tissue. (Kopsky, 2010).

Degradation of kidney in vivo
Degradation of kidney was tested by devascularisation of kidney in 16 pigs and 20 rats which was performed by double ligature of blood vessels and embarrassing of all the above structures.
Macro- and microscopic changes were examined by laparotomies in 1, 2, 8 and 12 weeks afterwards.
Macroscopical changes:
Devascularised kidney or kidney segment in case of segmental devascularisation at first increased the total size of about 1/3 of its original size. The capsule stretch tight and on dissection the parenchyma was dry, fragile, yellowish grey. Then appeared fibrous tissue in the vicinity of devascularised tissue which eventually replaced shranking original tissue. So just a small amount of fibrous tissue was found in the place of original organ.
Microscopical changes:
Microscopically changes follow the same pattern as being described in the case of in vivo intestinal devascularisation. There were found masses of necrotic tubular cells separated from the basal membrane as well as oesinophilic cellular debris mix with polymorphonuclear cells and macrophages. Thrombi were found in capillaries. Fibrous proliferation with round cell infiltration followed and eventually the fibroblasts and fibrocytes replaced the original tissue by the fibrous one. (Fortyn K., 1987).

Literature:

K. Fortyn, J. Hradecky, V. Hruban, V. Horak, P. Dvorak, J. Tichy. Morphollogy of regressive changes in the kidney following experimental ischaemia. Int Urol Nephrol. 1987; 19(1):9-19.

David Kopsky, MD., prof. dr. Jan M. Keppel Hesselink, MD, PhD, Remco Liebregts MD. Tumor devascularisation a compassionate use protocol. 2010, Pilot study of an immunological intervention of metastatic solid tumors