Current issues of surgical treatment of abdominal wall hernias in geriatric patients

Editorial

It was analyzed the surgical treatment results of 2217 (100%) patients, concerning with different defects of abdominal wall, who were operated during the period from 2002 to 2019. The patients were divided into two age groups: those, who are 60 years and older (the main group) - 1477 (66.6%) and patients of 40 to 59 years' age (comparison group) - 740 (33.4%).

It has been defined the peculiarities of topographic - anatomical abdominal wall's changes in patients above 60 years old, which were being observed in the form of skin-fatty and muscular-aponeurotic layer's regrouping in 92% in patients and 100% in corpses. The criteria for such changes were: dilatation of thinning skin local areas with the emergence of stretch marks on more than one anatomical location, the obvious differences in thickness of subcutaneous adipose tissue throughout the whole anterior-lateral wall of abdomen, an increasing of width and decreasing in thickness of abdomen's white line, the thinning and fragmentation of fascia elements surface, muscles aponeurosis, the blood supply worseness of subcutaneous adipose tissue in lateral parts of abdominal wall and in dynamic crease, formed by skin-fatty "aprons".

It has been detected the genetically-determined disorders of connective tissue structure of patients with and without hernia, which were connected with the mutation of elastin gene g28197A>G in 20 exon (ELN) in 40.0% of patients from the main group and in 9.4% of the comparison group, which indicates for the infringement of synthesis of connective tissue structural proteins, first of all elastin. It has been also revealed the dynamics of increasing in number of connective tissue's mutational processes with aging.

It has been electron-microscopically found that the weakening of mechanical qualities (reduction of strength and elasticity) of dense fibrous tissue of patients with ventral hernias was typical due to a significant reduction in the number and destruction of elastic fibers. For elderly patients, in addition, there were strength disturbances due to the development of sclerotic, dystrophic, atrophic and involuntal changes in all structural elements of the fibrous tissue. The pathomorphologic research of age-related changes in the abdominal wall muscles revealed significant degenerative changes, which intensity was directly proportional to age, the accumulation of the intracellular aging pigment - lipofuscin - around the nucleus, the segregation of myofibrils, which are located at the sizeable extent from each other, with the light zones of sarcoplasm, zones of homogeneous structures, fragmentation of myofibrils and pathology of muscle fibers: bundles of myofibrils with convoluted structures, myofibril splitting. The characteristic features of the research drugs are the cracks in the muscles' myofibril - "microgranules", as well as bar-like dark structures, located mainly in clusters (groups) along the myositis.

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In the process of determination of prognosis criteria for development of post operative wound local inflammatory complications, we found the expected directions of the effect (size of hernia defects, presence of relapses, use of all plastic methods «onlay» and «inlay») and it was also revealed that obesity increased the risk of local inflammatory complications in 11.9 times as compared with its absence, under condition of all other factors control. The method of «inlay»

Plastics increased the risk of post operative local inflammatory complications in 19.8 times as compared with the «sublay» method, with a control condition of all other factors. In turn, «onlay» plastics method increased the risk of post operative local inflammatory complications in 4.5 times as compared with «inlay» method, with a control condition of all other factors. Confirmed on logistic regression basis, the prognosis model of post operative local inflammatory complications showed high efficiency, in particular, in sensitivity and specificity at different thresholds. Thus, at threshold 0.2 level, 79.3% of sensitivity and 70.0% of specificity of prognosis were observed.

Complex surgical treatment of patients with abdominal wall defects with the help of differentiated approach to the developed all plastic methods, postoperative complications prevention improved direct (reduction of postoperative complications up to 7.3% in the main group and up to 4.3% in the comparison group, in which there were no defects such as paracolostomy hernias and eversions), as well as long-term treatment outcomes (reduction of disease relapses up to 0.5% in the main group and up to 0.7% in the comparison group) and mortality (up to 0.7% in the main group).

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Conflicts of interest

The authors declare have no conflict of interest about the publication of this paper.