



HISTOLOGICAL INVESTIGATIONS OF THE HERNIAL SACCULE WITH POSTOPERATIVE HERNIAS CONCERNING ITS POSSIBLE USE AS AUTOPLASTIC MATERIAL

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Recently the investigation of the hernial saccule as plastic material induces a real interest. There are bibliographic data about the possible surgical treatment of postoperative hernia by using the hernial saccule. T. Todorov et al. (3) have the greatest experience in this respect in our country. An operative tactics like this is based on the well known fact that in case of large and old, primary and postoperative hernias "the hernial saccule is repeatedly denser than the normal parietal peritoneum", "its peritoneal surface has plastic properties", "in the course of time it changes into solid connective tissue formation", "the method is in the last reckoning an autoplastics" (3).

The purpose of this work is to establish the tissue structure of hernial saccules by using a histological study and to analyse their suitability for use as autoplasmic material in the surgery of giant or many times recidivating postoperative hernias.

Material and methods

Our study covers hernial saccules and wedge-shaped section from the edge of the hernial outlet in 16 patients with postoperative hernia aged between 34 and 71 years. The material is fixated in formalin and worked after the paraffine method. The histological cuts are stained with HE, for examination of collagen fibers after Van Gieson, of elastic ones after Weigert, and of reticular fibres after Gomori.

In most patients the primary operation is performed 2—3 years ago but in single cases — 10—15 years and in one case — 35 years ago. The size of hernial swelling varies from that of male fist to human head and the defect size on the abdominal wall is most often about 15—20 cm². More than once the abdominal wall was incised through the one and the same section in 8 patients. Four patients have many times recidivating postoperative hernias. The operative wound has healed after prolonged drainage and suppuration in a half of the patients.

Results and discussion

In all cases the morphologically studied hernial saccules consist of different amounts of cross-striated musculature amidst developed fibrous connective tissue. Sometimes there is also a mast tissue. In all cases normal structure of the parietal peritoneum is strongly destroyed. One can not see its single layers well. Usually the elastic fibers are absent or there are single gross and picked elastic lamellae

only. The mesothelium cover is completely or partially intact in 11 hernial sacs. Sometimes one can see a hypertrophic growth of the mesothelium shaped in several layers resembling a multilayer flat epithelium. The inner surface of the hernial sac is not covered with a mesothelium and represents a layer of dense connective tissue with 5 operated patients.

In any cases the edge of the hernial outlet consists of large amounts of fibrous connective tissue in hyalinization phase where single layers of cross-striated musculature can be observed. It is noteworthy to point out that there exist a chronic inflammatory process of most hernial sacs studied. There are no inflammatory alterations in 4 cases only. The inflammatory infiltrations are predominantly perivasally located and consist of lymphocytes and plasmocytes. A differently mature granulation tissue is often found out. Not rarely certain granulomas "type foreign body" are formed round the stitches of previous operations. In 3 cases with chronic inflammatory alterations of the hernial sac the complicated by postoperative hernia operation has been performed even 15—35 years before the present intervention. An exacerbation of the inflammatory process reaching suppuration is established in two sacs.

The relatively small number of blood vessels makes an impression in any sacs studied. The present vessels are severely damaged: their walls are strongly thickened by means of myoelastofibrosis or hyalinosis and by the development of endarteritis in some cases.

The partial and complete (in 5 cases only) absence of a mesothelium allows us to contend that the stitch of the previous operation hadn't assured a systemic peritoneal cover of the abdominal cavity and it is the fundamental cause for the postoperative herniation or following recidive most probably indeed.

The severe structural changes and the destruction of parietal peritoneal architectony and even its absolute absence let pose the problem of expediency of its use as autoplasmic material although a number of authors report good late results (2, 3, 4, 5; D. G. Gubarov; P. A. Gertzen; Pitha; Landgwisst — after 2).

The mast tissue layers in the hernial sacs also diminish the stability of the material. The considerable vascular changes of these tissues throw doubt on the possibility for the use of the hernial sac as a plastic material and basis for the formation of normal, stable and unsusceptible cicatrix.

On the other hand, the presence of a smouldering chronic inflammatory process in the majority of cases (in 12 of all 16) is a fact which needs a precise evaluation. In few cases we suppose the probability of traumatic pathogenesis of the chronic inflammation. However, in the presence of suppuration the application of infected tissue as an autoplasmic material put into the depth of the operative wound could cause a postoperative festering and discredit the intervention because of lowered resistance and favourable conditions for the rapid growth of bacterial microflora in this area. At the same time the detection of an inflammatory process in the hernial sac in patients with primary operations performed several decades ago shows that the term for awaiting between 12 and 18 months determined previously by Todorov and by Voskresenskij is obviously not always long enough. This time must be fixed individually.

The hyalinization of collagen connective tissue at the edge of hernial outlet and its scarcity of vessels demonstrates its bradytrophy which also inhibits the normal healing of the operative wound.

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**ГИСТОЛОГИЧЕСКИЕ ИССЛЕДОВАНИЯ ГРЫЖЕВОГО МЕШКА
ПОСЛЕОПЕРАЦИОННЫХ ГРЫЖ В СВЯЗИ
С ВОЗМОЖНОСТЯМИ ИСПОЛЬЗОВАНИЯ ЕГО В КАЧЕСТВЕ
АВТОПЛАСТИЧЕСКОГО МАТЕРИАЛА**

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РЕЗЮМЕ

Авторами морфологически исследованы грыжевые мешки у 16 больных с послеоперационной грыжей. Больные были в возрасте от 34 лет до 71 года. Чаще всего устанавливалось наличие хронического воспалительного процесса. Обсуждаются характерные особенности мешка и окружающих его тканей. Приводятся сопоставления с данными других авторов. Делается заключение, что грыжевой мешок не обладает достаточной годностью в качестве автопластического материала у больных с послеоперационной грыжей живота.