



ISSN 3547-2340

№14 2020
International independent scientific journal

VOL. 1

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MEDICAL SCIENCES

SURGICAL TREATMENT OF RECURRENT POSTOPERATIVE ABDOMINAL HERNIA AFTER ALLOPLASTY

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Abstract

Study of the causes of recurrence of postoperative abdominal hernia after alloplasty in 133 patients. The main cause of postoperative abdominal recurrence in 31.6% of patients was not eliminated diastasis of the abdominal muscles, in 28.6% - the small size of the implant compared to hernia defect and technical errors in its fixation. Inflammatory complications in the wound and a prolonged increase in intra-abdominal pressure in the postoperative period caused recurrence of hernia in 22.5% of patients. Morpho-functional age-related and dystrophic changes of the anterior abdominal wall tissues, because of previous operations, contributed to the recurrence of hernia in 17.3% of patients. A comprehensive approach to the preoperative preparation of patients with postoperative abdominal hernia, the choice of the optimal without tension method of reconstruction and an adequate size of the implant, the precision technique of surgery with the prevention of inflammatory complications, will significantly reduce the possibility of recurrence of the disease.

Keywords: *Post-operative abdominal hernia, alloplasty, hernia recurrence, choice of reconstruction method, implant, prevention of inflammatory complications.*

Introduction. Treatment of postoperative abdominal hernias (PAH) is still an actual problem in modern surgery because of the high percentage of hernia recurrence, even after the use of accessory synthetic materials for alloplasty. Thus, according to domestic and foreign authors, the percentage of recurrences after allogenic plasty of the pancreas is 3.7-20% [1-7, 9]. There is a need to analyze the causes of such unsatisfactory results of treatment of PAH, and to find ways to optimize the algorithm of treatment of patients with this pathology.

Goal. The purpose of our study was to study the causes of recurrence of PAH after alloplasty and to develop practical recommendations for improving the results of surgical treatment of patients with this pathology.

Materials and methods. Between 2004 and 2019, 133 patients underwent surgery for abdominal hernia surgery in the Kyiv City Center for Surgery. There were 23 men (17.3%) and 110 women (82.7%). The average age of the patients was 59.4 ± 0.8 years. Patients with PAH according to PAH classification [8] were distributed as follows: patients with M2-3W1R1 were 80 (60.15%), M3-5W2R1 - 40 (30.1%), M3-5W3R2 - 3 (2.25%), L3W2R1 - 6 (4.5%), L4W2R2 - 4 (3%). In 41 (30.8%) patients hernia recurrence occurred in the 1st year after surgery, in 62 (46.6%) - in the 2nd year and in 30 (22.6%) - after 3 years or more. 91 (68.4%) patients had concomitant pathology (obesity, diabetes mellitus, coronary heart disease, chronic obstructive pulmonary disease, varicose veins).

The type of recurrence and the method of the previous plastic were in most cases determined directly during the operation. Because, in the patients documents, the method of the performed operation was indicated as allohernioplasty, without information about the implant placement method and its size. It was important to evaluate the size and correct placement of the previous implant to determine the further tactics of surgery.

The complex of preoperative examination of patients with PAH included: clinical, laboratory, radiological, functional, endoscopic, and ultrasonography examination of the abdominal organs and areas of hernia defect and hernia protrusion. Patients with W3-4 hernias had maximal bowel cleansing and were prescribed a fiber-free diet to prevent abdominal compartment syndrome. For adaptation to increased intra-abdominal pressure (IAP), abdominal compression was performed in patients with free hernia, or used abdominal load with partially reducible ones. The effectiveness of the preparation was evaluated by the results of spirometry in the simulation of the condition as after performing the reconstruction of the abdominal wall, reduce hernia content into the abdominal cavity and the abdomen was compressed with a bandage. Compared the patient's respiratory volume before bandaging of the abdomen and after. It should not be less than 50% from the beginning. In patients with varicose veins, active phlebosurgical tactics were followed. In patients with horizontal and vertical vein-venous reflux, were first performed crosectomy, phlebectomy of

the large subcutaneous vein (LSV) with horizontal reflux correction, and in the second stage, after 4-5 days, hernioplasty was performed. At vertical venous-venous reflex, cross-sectional first and then hernioplasty were performed simultaneously. A ligation of the superficial femoral vein was performed in a patient with a floating thrombus. Standard prevention of thromboembolic complications was also performed. In order to prevent purulent-inflammatory complications from the wound, the "old" ligatures were removed intraoperatively and the wound was drained, antibiotic prophylaxis, non-steroidal anti-inflammatory drugs were prescribed.

Surgery was performed under general anesthesia in combination with the peridural anesthesia in W3-4 hernias. As suture material used monofilament prolene No. 0 or 1.0, and for alloplasty polypropylene mesh of different manufacturers. During operation preferred methods that minimized the possibility of an increase in IAP in the early postoperative period. Particular attention was paid to the precision technique of surgery, stitching of supporting tissues without tension, wide overlapping by the mesh of the edges of hernia defect, reliable fixation of the prosthesis, careful hemostasis and drainage of the implant site of the mesh and wound.

Results and discussion. During surgical treatment, we found that the cause of recurrence of 42 (31.6%) patients with M2-3W1R1 hernias were diastasis of abdominal muscles, which was not eliminated during previous surgery. In 24 of them a hernia defect occurred over the mesh, in 10 - below the mesh, and in 8 - from the lateral side of the mesh. In 36 (27.1%) patients with M2-3W2R1 with preperitoneal placement of the implant the recurrence of the hernia was due to its small size compared to the hernia defect, or to technical errors during its fixation. In 2 (1.5%) patients with M2-3W1R1, a hernia recurrence occurred along the perimeter of the implant as a result of the "slit" of the fixation sutures with the formation of defects in the supporting tissues of the anterior abdominal wall (AAW). In 19 (14.3%) patients with M3-5W2R1 and in 4 (3%) patients with L4 W2R2, breakaway mesh from the dystrophically altered PCS supporting tissues was the cause of recurrence. In 21 (15.8%) patients with M3-5W2R1, in 3 (2.25%) patients with M3-5W2-3R2, in 6 (4.5%) patients with L3W2R1 the cause of hernia recurrence was: severe course of the early postoperative period with prolonged increase of IAP, and inflammatory complications in the postoperative period with mesh sequestration, formation of ligature fistula, tearing and twisting of the mesh.

The method of re-reconstruction of the AAW depends on the morpho-functional changes of the tissues of the anterior abdominal wall, the presence of diastasis of the direct muscles of the abdomen, the size and correct placement of the previously sutured implant, the size of the hernia defect and the volume of hernia protrusion. The size of the mesh should be bigger than hernia defect at least 5 centimeters along its perimeter. In 51 patients in the reconstruction AAW, we removed the previous mesh. The cause for the removing of the implant were dislocation, wrinkling and twisting of the mesh, contact of the implant with the abdominal organs

and partial sequestration of the mesh (tearing). In a satisfactory condition of the supporting tissues, 75 (56.4%) patients with M2-3W1R1 hernia underwent reconstruction using the sublayretromuscle method, 40 (30.1%) with M3-5W2R1 hernia sublaypreperitoneal, 2 (1.5%) with M3-5W3R2 - inlay - sublaypreperitoneal, 5 (3.8%) with L3 W2R1 - sublaypreperitoneal, 4 (3%) with L4 W2R2 inlay - sublaypreperitoneal, and 5 (3.8%) with M3-5W3R2 and 2 (1.5%) of L3W3R1 performed intraabdominal placement of the composite mesh.

In the postoperative period, 3 (2.25%) patients had clinical signs of pulmonary heart failure that occurred 2-3 days after surgery and were eliminated by standard conservative measures. Inflammatory complications occurred in 6 (4.5%). Long-term outcomes of treatment of recurrent PAH were studied by repeated examination in 102 patients within 1 to 10 years, with no recurrence of hernia.

Conclusions. The main cause of recurrence PAH was not eliminated diastasis of the muscle rectus abdominis (31.6% of patients), small implant size compared to hernia defect (28.6%) and technical errors in fixing it.

Inflammatory complications in the wound and a prolonged increase in intra-abdominal pressure in the postoperative period caused recurrence of PAH in 22.5% of patients.

Morpho-functional age-related and dystrophic changes of the anterior abdominal tissues, because of previous operations, contributed to the recurrence of PAH in 17.3% of patients.

A comprehensive approach to preoperative preparation of patients with PAH, the choice of the optimal method of reconstruction and implant size, precision surgery with the prevention of inflammatory complications, will significantly reduce the possibility of recurrence of the disease.

Patients with recurrent abdominal hernias should be operated at specialized centers.

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THE CLINICAL SIGNIFICANCE OF BIOMARKERS OF CHRONIC KIDNEY DISEASE

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КЛИНИЧЕСКОЕ ЗНАЧЕНИЕ БИОМАРКЕРОВ ХРОНИЧЕСКОЙ БОЛЕЗНИ ПОЧЕК

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Abstract

Chronic kidney disease (CKD) is the most common pathological condition. Diagnosis and treatment of CKD is based on a thorough laboratory study. A predictive predictor of CKD complications is cystatin C, proteinuria and homocysteine. The literature review examined biomarkers and clinical and laboratory relationships of CKD. The data on the diagnostic and prognostic role of cystatin C in CKD are summarized.

Аннотация

Хроническая болезнь почек (ХБП) является наиболее распространенным патологическим состоянием. Диагностика и лечения ХБП основывается на тщательном лабораторном исследовании. Прогностическим предиктором осложнений ХБП считается, цистатин С, протеинурия и гомоцистеин. В обзоре литературы рассмотрены биомаркеры и клинико-лабораторные взаимосвязи ХБП. Обобщены данные о диагностической и прогностической роли цистатина С при ХБП.

Keywords: *chronic kidney disease, biomarkers, glomerular filtration, proteinuria, hypercholesterolemia.*

Ключевые слова: *хроническая болезнь почек, биомаркеры, клубочковая фильтрация, протеинурия, гомоцистеин.*

Введение. В 2002 году вышла в свет клиническая рекомендация по хронической болезни почек (ХБП), под который подразумевает повреждение почек и/или снижение их функции на протяжении более трех месяцев [1,2,3]. Согласно этой рекомендации ХБП классифицируется на 5 стадий, которые различаются по тактике ведения больных и риску развития терминальной почечной недостаточности

(ТПН) и сердечно-сосудистых осложнений (ССО) [3]. В настоящее время стадийный подход к ХБП признается всеми клиницистами и широко вошло в клиническую практику. Разделение ХБП на стадии заболевания основана на 2-х параметрах [4]. Первый это клубочковая фильтрация (КФ) и признаки почечного повреждения (протеинурия, альбуминурия, гематурия) [5]. В таблице №1 показано, что для

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