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✓ *Resume*

The evolution of surgical treatment of postoperative ventral hernias is associated with the widespread introduction of modern alloplastic materials into clinical practice, which has significantly improved postoperative results. At the same time, the article presents data on the use of various synthetic materials and the results of their application in an evolutionary order. Modern alloproteizable materials, in particular polypropylene, are inert, do not cause any reactions, and the percentage of recurrent abdominal hernias is low. The most rational is the supraponeurotic and submuscular fixation of the prosthesis. A comprehensive comprehensive analysis of the results of the treatment of hernias makes it possible to choose the right method of treatment of patients.

Key words: ventral hernia, allogeneic prosthetics, polypropylene, method of operation.

ЭВОЛЮЦИЯ ИСПОЛЬЗОВАНИЯ ПОЛИМЕРНЫХ ИМПЛАНТАТОВ ДЛЯ
ГЕРНИОПЛАСТИКИ

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✓ *Резюме*

Эволюция хирургического лечения послеоперационных вентральных грыж связана с широким внедрением в клиническую практику современных аллопластических материалов, что значительно улучшило послеоперационные результаты. Вместе с тем в статье в эволюционном порядке приводятся данные по использованию различных синтетических материалов, результаты их применения. Современные аллопротезируемые материалы в частности полипропилен инертен, не вызывает каких-либо реакций, низок процент рецидивирования грыж живота. Наиболее рациональным является надапоневротическая и субмускулярная фиксация протеза. Комплексный всесторонний анализ результатов лечения грыж даёт возможность правильного выбора способа лечения больных.

Ключевые слова: вентральная грыжа, аллогерниопротезирование, полипропилен, способ операции.

ҚОРИН ОЛД ДЕВОРИ ЧУРРАЛАРИНИ ДАВОЛАШДА ПОЛИМЕРЛИ
ИМПЛАНТАТЛАР ЁРДАМИДА ПЛАСТИКА ҚИЛИШНИНГ ЭВОЛЮЦИОН
БОСҚИЧЛАРИНИ ЎРГАНИШ

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✓ *Резюме*

Қорин олд девори чурраларини даволашнинг самарали усуллари амалиётга қўллашнинг эволюцион жараёнларини ўрганиш шуни кўрсатдики, ўтган асрнинг 60-70 йилларида қўлланилган синтетик материаллар: капрон, лавсан, тефлонлар аксарият ҳолларда жароҳат томонидан асоратларни юзага келишига сабаб бўлган. Бугунги кунда полипропилен тўрларини қўллаш асносида чурраларни аллопротезлаш амалиётининг самарадорлигини кескин ошишига сабаб бўлди. Полипропилен тўрлари ёрдамида операциядан кейинги чурраларни даволашда апоневроз устидан ва мушак остидан фиксацияни амалга ошириш

клиник амалиёт натижаларини яхшиланишига олиб келди, чурранинг қайталаниши ва бошқа асоратлари кузатилмай қолди. Аллопротезловчи усулни ҳар бир беморга нисбатан индивидуал тарзда танлаш зарурлиги уқтирилади.

Калит сўзлар: вентрал чурра, аллогерниопротезлаш, полипропилен, операция усули.

Relevance

After surgery on the abdominal organs for various diseases and injuries, postoperative hernias (PG) may develop. The specific gravity of PG is steadily increasing and amounts to 26% in the total mass of hernia carriers [11]. Despite the significant number of surgical methods of correction in herniology, the frequency of recurrence of hernias is quite high and, according to different authors, is from 10 to 60% [3,7]. The main reasons for the reappearance of hernias are the large size of the hernial orifice, errors in the operative technique, postoperative complications from the wound, lungs, inadequate rehabilitation of patients in the postoperative period.

The evolution of surgical treatment of incisional ventral hernias (POVH) is associated with the widespread use of modern alloplastic materials, which significantly improved postoperative results [2].

The most important stage in the development of plastic surgery for abdominal hernias is associated with the synthesis of high molecular weight polymers. B.V. Petrovsky (1964) at the 8th plenum of the Board of the All-Union Scientific Society of Surgeons, emphasizing the relevance of the use of polymers in medicine, noted that this method gave us a powerful tool that expands the indications for a number of hitherto inaccessible and incurable diseases, and methods to ensure against recurrence of diseases. Period 1960-1970 characterized by the widespread use of methods of hernia surgery using synthetic materials with which great hopes were pinned. The introduction of the method into surgical practice was facilitated by its relative prostate, as well as the desire of surgeons to improve the long-term results of surgical treatment of hernias of various localization. Modern polymers have great strength, elasticity, sufficient biological and chemical inertness, non-toxic, easy to sterilize. For a relatively short period, considerable experience was accumulated in reconstructive operations for postoperative and recurrent hernias using synthetic materials, which at first showed the effectiveness and promising of the method [2]. The most widespread are polyvinyl alcohol, nylon, lavsan, paralon; abroad - nylon, perlon, ayvalon, teflon, marlex, terylene. Clinicians are too carried away with synthetic materials. Expansion of indications for prosthetics of the abdominal wall in simple hernias, the use of random polymeric materials, often intended for technical purposes, as a prosthesis, had a negative

impact on clinical results. Gradually, synthetic materials began to be used less frequently in the repair of hernial defects, which was associated with a large number of postoperative complications in the early postoperative period. This is, first of all, the frequent formation of seromas in the subcutaneous base [16], infiltrates and suppurations, fistulas that do not heal for a long time [3,17]. There are frequent cases of suppuration by long-term sequestration of grafts [12]. The reports of domestic and foreign surgeons about the carcinogenicity of plastics during their long-term implantation are extremely alarming [14].

The negative results of the use of synthetic materials stimulated further experimental work on the selection of polymers and the search for the most optimal structure of the prosthesis. The works of T.T. Daurova et al. (1977), as a result of their research, established that knitted nodules made of lavsan fluorlon fiber most fully meet the requirements for synthetic plastic materials. They combine chemical and biological inertness with mechanical strength, are non-toxic, have no allergic or carcinogenic effects. These prostheses, placed in the tissue of the abdominal wall, cause the development of local aseptic inflammation, which ends with the formation of fibrous tissue. Lavsan and fluorlon nets are able to maintain their initial strength for a long time in the body, which is especially important for prostheses designed to strengthen the anatomically and functionally inferior tissues of the abdominal wall with hernias. This property favorably distinguishes fluorlon and lavsan walls from nylon. The latter are absorbed in the tissues of the body, and therefore can only be used for temporary strengthening of tissues, creating favorable conditions for the formation of a connective tissue scar after successfully performed autoplasty. The use of synthetic materials is contraindicated in conditions of infection. In the same cases, when suppuration occurs after the performed plasty, the graft should be removed, since it will interfere with the healing of the wound. Thus, all plastic materials used for the treatment of complex abdominal wall defects have one or another disadvantage. However, the study of long-term results indicates that with their help it is possible to sharply reduce the number of relapses, which is of great practical importance and justifies further searches in this direction.

Today, new types of polymer mesh materials have been developed and introduced into medical practice. The most common of these is polypropylene (1). It is used in the form of meshes that have a "knitted" structure and consist of monophilic fibers.

In a number of articles devoted to the problem of treatment of large incisional ventral hernias, the experience of using non-tension methods of hernioplasty is analyzed: over the aponeurosis - "onlay"; retromuscularly "sublay"; in the form of a patch "inlay" (6,13).

With the onlay technique, the allo prosthesis is placed over the aponeurosis and fixed to it along the perimeter of the hernial orifice with an offset from the edge of at least 1.5-2.5 cm. The advantage of this method is that it is technically the simplest and there is no mesh contact with the organs of the abdominal cavity [3,15].

However, many authors report a relatively high probability of recurrence of POVH, the frequency of which, according to different authors, ranges from 6 to 50% [12, 18]. This is due to the fact that when the prosthesis is installed on lay, the implant is in direct contact with the subcutaneous fatty tissue (SAD). When subcutaneous adipose tissue is mobilized from the aponeurosis over a long distance (5-6 cm in each direction), the lymph drainage pathways are damaged and a cavity is formed where fluid accumulates, resulting in the formation of seromas and hematomas [3]. The sublay technique was first proposed by Stoppa and Rives back in 1973. With this method, the prosthesis is located between the muscles and aponeurotic tissues behind the muscles at a distance of 5-6 cm from the edge of the defect and provides sufficient contact with the tissues preventing excessive wrinkling of the prosthesis. The use of this technique makes it possible to reconstruct the PBS defect and restore its physiological function. But with this technique, difficulties often arise associated with the isolation of internal organs from the implant. According to the literature, the recurrence rate with the sublay technique is 12%, and the incidence of retention postoperative complications ranges from 20 to 45.8% [13,15]. The "inlay" technique involves the closure of the hernial defect of the PBS directly with a mesh implant around the circumference in the form of a patch. The mesh endoprosthesis is located under the aponeurosis; the edges of the defect above the mesh are not connected. In this case, the hernial sac is separated from the aponeurosis along the anterior peritoneal tissue with the creation of a "pocket" at a distance of 3-4 cm from the edge of the hernial orifice. This technique fully meets the requirements of non-tension plasty and maintains the same volume of

the abdominal cavity. But, nevertheless, with this technique, it is not always possible to completely isolate the intestinal loops from the mesh implant with the peritoneum or omentum, and subsequently unwanted complications arise. According to different authors, the recurrence rate in in lay plasty is 3-44% [18].

In addition to the above methods of allohernioplasty, there are combined methods. This is a specific set of hernioplasty methods, which, as a rule, is used for ventral hernias of significant size, as well as with a high risk of developing intra-abdominal hypertension, and includes the movement of the patient's own tissues (individual sections of the rectus abdominis muscles or aponeurosis of the external oblique muscle) and implantation of an endoprosthesis [18, nineteen]. Among the risk factors for the development of postoperative ventral hernias, genetic ones occupy a special place. The presence of mutations in the collagen genes COL1, COL3, matrix metalloproteinase MMP19 increases the risk of hernia formation. Since the middle of the 20th century, a close relationship has been established between hernia formation and some hereditary connective tissue dysplasias (Marfan syndrome, Alice Danlos syndrome, osteogenesis incomplete syndrome, etc.) [2,5].

Unfortunately, the widespread introduction of allohernioplasty methods did not lead to a significant improvement in the rates of postoperative complications - a decrease in the frequency of relapses is achieved by increasing local complications. The latter include seromas, suppuration associated with mesh migration, dysfunction of the muscles of the anterior abdominal wall, including those caused by fibrous contracture. A special place in the structure of postoperative complications is occupied by the abdominal compartment syndrome [10]. Prevention of the abdominal compartment syndrome (ACS) associated with the reduction of a large volume of organs contained in the hernial sac into the abdominal cavity is one of the main problems of hernioplasty [2,9,10].

The clinical symptoms that are observed in ACS are nonspecific, which can lead to an erroneous diagnosis, and, accordingly, to errors in the choice of treatment tactics. High CVP or PAWP against the background of hypovolemia and tachycardia, decreased oxygen saturation and severe shortness of breath, oliguria or deterioration of consciousness can be interpreted by specialists as manifestations of multiple organ failure of septic, post-traumatic, cardiac or post-hemorrhagic genesis. In this regard, much attention is paid to the monitoring of intra-abdominal pressure (IAP). It is believed that the normal value of IAP depends

on the body mass index [11].

The severity of ACS depends on the rate of increase and magnitude of intra-abdominal hypertension, as well as the state of hemodynamics, respiration and other functions. The syndrome usually develops over several hours (10). The threshold value of IAP that leads to the development of ACS remains a subject of discussion, but without a doubt the frequency of ACS is proportional to the increase in IAP above 10 mm Hg. Art. With IAP > 35 mm Hg. ACS is observed in all people and without surgical treatment is fatal in 100 percent of cases [4]. Today, the only effective method of treatment that is performed immediately after the diagnosis of ACS is surgical decompression of the abdominal cavity, and in terms of vital signs it is even recommended to be performed in the intensive care unit [18]. After laparotomic decompression or if ACS is suspected in the postoperative period, the fascia is not sutured. Its temporary plastic surgery is performed with special absorbent nets or patches (Gore-Tex, Marl ex, Prolene, etc.) in order to increase the size of the abdominal cavity and reduce IAP. Today, the world has developed principles for the diagnosis and treatment of ACS, which formed the basis of the relevant clinical guidelines.

The need to expand the volume of surgery to prepare the subfascial space leads to an increase in the incidence of postoperative bleeding and hematomas. In addition, the use of alloplastic materials leads to an increase in the frequency of seromas, which requires the installation of several drains. Most studies do not indicate an increase in the incidence of infectious complications, but there are some studies that indicate the risk of developing late abscesses after such operations.

The emergence of chronic seroma in alloplasty is associated with insufficient biocompatibility of the material used [16]. The main disadvantage of the onlay technique is the direct contact of the prosthesis (partial or complete) with the environment during the revision of the wound, which can cause impairment of its healing. Bacterial contamination of the prosthesis leads to wound infection and the development of subacute complications of wound healing.

The authors use a technique that estimates the incidence of wound complications after surgery between 4% and 26% and estimates the incidence of denture removal in the range of 0.2% and 2.5% [19]. For the prevention of seromas, it is also proposed to use the intraperitoneal technique. In this case, the contact between the mesh and the subcutaneous fat is eliminated. At the same time, the contact of the mesh with the intestine can lead to the development of adhesions and fistulas.

In addition, when using the "onlay" technique, mesh fixation is less reliable than with the "sublay" technique. This is associated with a slightly larger number of complications, mainly suppurations [7,9].

Thus, the analysis of the literature data shows that at present there is no unified approach regarding the choice of the optimal tactics for surgical treatment of patients with incisional hernias. All authors are unanimous in their opinion on the advisability of using alloplastic materials for hernioplasty, however, the choice of the method of surgical intervention is still determined by the surgeon's subjective preferences. Only a comprehensive comprehensive analysis of the results of hernia treatment using new and traditional methods makes it possible to choose the right method of treating patients.

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