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IMPROVEMENT OF PREVENTION OF WOUND AND SYSTEMIC COMPLICATIONS DURING ALLOPLASTY OF STRENGTHENED POSTOPERATIVE VENTRAL HERNIAS

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Abstract
Surgical treatment of postoperative hernias of the anterior abdominal wall at all times differed not only in the choice of the plasty method, but also in tactical approaches to preoperative preparation and examination of patients, intraoperative interpretation of the state of the hernia orifice, the method of the chosen hernioplasty, and therefore this problem remains relevant to this day. According to domestic and foreign authors, after performed laparotomies, in terms of 1 to 3 years, in more than 5% of cases, the development of postoperative hernias of the anterior abdominal wall is observed [1,5], and with recurrent hernias, up to 45% of cases [2.7].

Keywords: Postoperative ventral hernias (POVH), hernias of the anterior abdominal wall (APS), postoperative period.

Introduction

The occurrence of postoperative ventral hernias largely depends on the development of purulent complications in the postoperative period, the degree of tissue tension during plastic surgery, constitutional features, nerve damage and, as a result, atrophy of the muscles of the anterior abdominal wall, the degree of immunosuppression of the regenerative abilities of tissues and their autoimmune reactions to suture material and used grafts. In this aspect, the quality of preoperative and intraoperative diagnostics of such complications plays an important role. So, Dudnichenko A.S. [9] using intraoperative ultrasonography and electromyography to assess the state of tissues, they came to the conclusion that their ischemia lies primarily in the pathogenesis of early and late postoperative complications. Felishtinsky Ya.P. and Grobovoi A.N. (12), on the basis of histological and electromyographic studies of the edges of the hernial orifice, it is believed that the digescence of the sutured wound is directly dependent on the degree of atrophy of the sutured tissues. Klinge V. et al. [10] this circumstance is associated with an inadequate amount of collagen, based on the results of immunohistochemical studies, and LeBlank K.A. [12] with damage to the nervous apparatus. As for the issue of choosing methods for repairing postoperative hernias of the anterior abdominal wall, they are numerous [3,7,], and at the same time, from a practical point of view, it still remains debatable. Based on the foregoing, and also taking into account the practical value of preoperative and intraoperative examination of patients, we have chosen as the most reliable and modern methods of preoperative MRI - examination of the anterior abdominal wall in

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conjunction with intraoperative data of pathomorphological express - diagnosis of the state of sutured tissues, to select the most physiologically optimal method of hernioplasty in the surgical treatment of postoperative ventral hernias. Currently, up to 50% of open and video laparoscopic surgical interventions on the abdominal organs are complicated by the development of postoperative ventral hernias (PVH). In modern herniology, POVH takes the second place after inguinal hernias, accounting for 3 to 20.6% of cases of the total incidence of hernias of the anterior abdominal wall. In a number of developed European countries and the United States of America, surgeons perform about 300 thousand laparotomies every year, which are complicated in 9-19% of cases by the development of POVH in the late postoperative period. To date, there is no information in the scientific literature on the correlation of the prevalence of the disease with etiopathogenetic factors affecting the development of relapses of POVH in the late postoperative period. The world surgical community has not come to a unanimous opinion in solving the problematic issues of surgical treatment of patients with POVH. Mortality after planned and emergency surgical interventions for POVH of the anterior abdominal wall varies from 0.2% to 2.3% of cases. Almost all POVGs are large and gigantic. According to various authors, the recurrence rate of POVH when using local tissue repair and open prosthetic techniques varies from 8% to 63% of cases. Repeated surgical interventions for recurrent POVH increase the recurrence rate by 10% in the late postoperative period. The advent of endovideosurgical and hybrid methods for the treatment of POVH leads to a decrease in the number of wound complications, a decrease in the number of bed days and an improvement in the quality of life of patients. However, the existing contraindications to plastic surgery of the anterior abdominal wall by video laparoscopic methods do not allow the use of this technique as a gold standard for all patients. In surgery, there is still a need to conduct a scientific study aimed at studying the effect of various medical and tactical approaches on the long-term results of treatment of patients with POVH. At the moment, absolute and relative indications for surgical intervention in POVH have been identified, but there are no clear criteria for indications for the choice of open, laparoscopic and hybrid methods of abdominal wall plasty, taking into account the available objective and subjective factors that affect the recurrence of POVH. Hernias of the anterior abdominal wall (ABS) are an actual problem of abdominal surgery. To date, there are many different methods of surgical treatment of hernias, but an important problem remains the rehabilitation of patients in the postoperative period and the prevention of hernia recurrence [8]. The recovery of patients after various types of abdominal hernia repair is a difficult task both for the medical staff of the hospital and for further recovery in the outpatient period [5,8,10,11] According to statistics, according to many authors, abdominal hernia occurs in up to 5% of the population [8]. This disease is registered in 15-17% of cases in elderly and senile people. Recently, surgical interventions for external abdominal hernias account for 10 to 25% of all surgical interventions. In foreign countries, 15 to 28 percent of patients who underwent laparotomy subsequently acquire a ventral hernia [2,11]. The early postoperative period after laparotomy operations is important. It is important to remember that the more consciously and carefully approach the recovery of the patient, monitoring his general condition, the course of reparative processes in the postoperative wound, as well as correctly prescribing conservative methods of treatment, the more likely it will lead to a speedy recovery and reduce the risk of postoperative complications [9, 14]. Classes of therapeutic physical culture (exercise

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therapy) should be carried out by patients in specialized medical rehabilitation centers or in surgical hospitals where there is a rehabilitation room, under the supervision of exercise therapy doctors and instructors, where a thorough approach to restoring the body using modern rehabilitation programs is used [7,15]. To date, PBS hernias are characterized by many classifications. Basically, the classifications are divided: according to the anatomical localization of the hernia, its size, and also according to clinical signs. According to many authors, over the past five years, inguinal hernias occupy the first place, occurring on average up to 60-80%. The second place belongs to postoperative ventral hernias, since the incidence of hernias after laparotomy in recent years is 10-25% of all external abdominal hernias.

Classification of hernias: 1. Hernias are reducible, not incarcerated, (hernia libera, hernia reponibilis): a) retractable freely in the horizontal position of the patient, the hernial orifice is palpable well; b) the hernial protrusion is reduced on its own, but for complete reduction it takes some time, as well as a special position during examination (with a raised pelvis); hernial ring is palpable well.

2. Hernia irreducible (hernia irreponibilis): a) partially reducible hernia, when the hernial ring is not fully defined; b) hernias are completely irreducible, when the hernial ring is not defined or is not clearly defined. 3. Strangulated hernias (hernia incarcerata): a) strangulated organs are viable; b) strangulated organs with irreversible pathological changes; c) strangulated hernias with phlegmonous process in the area of hernial protrusion [3,8,9,13]. The presence of repeated local injuries, degenerative changes in the AJ aponeurosis, increased intra-abdominal pressure (IAP), and impaired collagen synthesis all lead to the formation of hernias [7]. PBS hernias can be formed in the projection of postoperative scars, inguinal region, umbilical ring, white line of the abdomen, which are weak points. In such places as in the pelvic, lumbar region, in places where blood vessels and nerves pass, hernias are quite rare. A hernia first occurs due to an increase in intra-abdominal pressure, and then a hernial sac is formed. Further, due to physical effort, the internal organs penetrate into the hernial sac, pushing the layers of the abdominal wall in front of them, which leads to an increase in the hernial sac. Due to the stretching and progressive protrusion of the parietal peritoneum, a hernial sac is formed. Having a hernia tends to increase over time, sometimes reaching enormous sizes [2,9]. In the surgical treatment of PBS hernias, one of the important tasks is the restoration of the anatomical and topographic components of tissues. During surgery for small and medium hernias, in most cases it is possible to restore the PBS by connecting soft tissues to each other, thereby achieving restoration of the original muscular-aponeurotic layer of the abdominal wall. With large and giant hernias, it is rarely possible to compare all layers of soft tissues; therefore, it is necessary to resort to fixing the endoprosthesis to the scar tissue of the hernial orifice. Such plastic is less reliable and is used in difficult situations. Such techniques are correctly used in patients with overweight and obesity, as well as in the presence of respiratory and heart failure [3,12]. In the early postoperative period, the reliability of the hernia orifice plasty and the preservation of intra-abdominal pressure at optimal levels due to durable soft tissue diastasis with a polypropylene prosthesis are important [6,7,10,15]. Correctly chosen method of surgical treatment, comparison of all layers of the PBS is one of the decisive factors preventing recurrence [4,14]. To strengthen the anterior abdominal wall, the most physiological is the location of the mesh behind the rectus abdominis muscles, which carries the strength load. Later, in the

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area of the abdominal muscle, movement is not restricted by the prosthesis, and subsequently by the scar tissue [12,15]. To isolate the endoprosthesis from the abdominal organs, the preperitoneal location is more reliable. In the presence of lumbar hernias, the above method is suitable for PBS plasty [11,14].

Retromuscular placement of the prosthesis is associated with a minimal incidence of seromas, since exudate is rapidly resorbed by muscle tissue [14]. To activate the anti-adhesive properties of the endoprosthesis, an intra-abdominal location is used. Composite prostheses are mainly used: SilPromesh, Proceed, Physiomesh, Parietex [6,10], and prostheses with anti-adhesive properties are also used - Parietene Composite, Gore, PTFE, Reperen, Dualmesh, etc. [6,7,14,15].

Cosmetic deficiencies of the PBS after surgery contribute to the formation of adhesions in the abdominal cavity, which can lead to difficulty in installing the first trocar during repeated operations. In the treatment of postoperative ventral hernias (POVH), this method gives a low number of complications and relapses, methods for fixing the prosthesis are constantly being improved, which contributes to the use in obese patients [1,7,13].

According to many authors, the main standard for the treatment of hernias and strengthening of the PBS is the use of a polypropylene mesh, which is not always able to solve all problems. Compared with autoplasty, a mesh endoprosthesis reduces the percentage of recurrence, which averages about 10% [6,7,9]. According to the observations of many authors, at the time of recurrence of the disease, there is a displacement of the rectus abdominis muscles literally, and a violation of the function of the abdominal press. There is also an opinion of the authors that the polypropylene mesh is a "corset" that can further strengthen the PBS [7,9,10]. Necessary properties of prostheses and principles of implantation: Modern artificial prostheses must have a number of qualities that allow implantation without risk to the life and health of the patient:

• In order not to damage the surrounding tissues, elasticity;
• To minimize inflammation, inertia;
• The presence of pores must be sufficient for the penetration of macrophages, fibroblasts, blood vessels, porosity;
• In the presence of tissue fluids, resistance to infection;
• Lack of carcinogenicity;
• Transparency, for visualization of stitched fabric;
• Flexibility to control the prosthesis during surgery;
• Cheap production;
• Convenience of sterilization [9,12]. In connection with these requirements, the general principles of endoprosthesis implantation are formulated:
• It is necessary to avoid direct contact of the prosthesis with the pancreas to prevent the formation of seromas;
• The most acceptable location of the prosthesis is under the muscular-aponeurotic layer; • The prosthesis should cover the hernial orifice by 6-8 cm;
• It is necessary to fix the prosthesis along the periphery to avoid its displacement and wrinkling;
• The prosthesis must be fixed without tension;

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• It is necessary to exclude the contact of the prosthesis with the organs of the abdominal cavity;
• Antibiotic prophylaxis is necessary, and in case of large, recurrent hernias, in the presence of drainages - antibiotic therapy;
• Use monofilament sutures to fix prostheses [12].

The theoretical and technical basis of complex forms of hernias, such as: extensive, giant, recurrent, repeatedly recurrent, requires high operational technology. One of the main processes is chronic endogenous intoxication associated with intestinal motility disorders in hernias, clinical analysis of risk factors for the development of postoperative complications (respiratory, cardiovascular, purulent-septic). In most cases, complications such as seroma formation, suppuration of soft tissues in the mesh area, formation of ligature fistulas and rejection of the prosthesis develop in the prosthesis area. Also, according to many authors, there are studies that show that an increase in the amount of interstitial fluid depends on the patient's body weight [9]. The use of an endoprosthesis affects the regeneration of wounds in the early postoperative period, a high risk of trauma and lengthening of the operation. Far from all guaranteed methods of hernia alloplasty, which can definitely provide a full recovery of the patient and eliminate the development of recurrence [12].

In addition to the above, chronic pain syndrome is an important problem. The presence of paraprosthetic fistulas in the PBS, the patient can feel: a feeling and foreign body, decreased intestinal motility caused by adhesions in the abdominal cavity, as well as itching and burning. [8,14]. To compensate for the above problems, one of the most difficult tasks to solve is repeated surgical interventions through an already early surgical approach and a mesh endoprosthesis [5]. An aseptic inflammatory reaction for the body can be caused by a foreign synthetic material. According to the literature, the appearance of early wound complications is veiled up to 20-30%, caused by aseptic inflammation. The endoprosthesis itself cannot solve all the problems in the treatment of PBS hernias. Complications such as: infiltrates, seroma, suppuration, formation of PBS fistulas, rejection of the prosthesis is a complication of plasty with mesh endoprostheses. One of the positive components for the speedy healing of postoperative wounds in the early postoperative period is the reduction of the inflammatory process and the activation of reparative processes. Any surgical interventions that are accompanied by the mobilization of subcutaneous fat (SAT) are one of the reasons for the development of seroma, which is a limited accumulation of serous fluid [8,14]. The presence of various pathogenesis causes leading to the development of inflammatory processes in the pancreas are interrelated with impaired blood supply to the skin-subcutaneous fat flap; the duration of the surgical intervention, residual infection around the "old" ligatures; the formation or presence of large, residual cavities due to extensive dissection of the anatomical structures of the anterior abdominal wall; obesity; immune status disorders.

To date, the low rate of results of surgical treatment of ventral hernias is forcing surgeons to search for and develop new methods of plasty, as well as modification of treatment methods for various postoperative complications. New technologies in the last decade have touched not only the technique of operations. In the diagnosis of hernias, ultrasound, computed tomography, computed thermography, electromyography, laparometric examination of the abdominal wall, ultrasound dopplerography of the arteries of the PBS are used with high efficiency [7,8]. In the early postoperative period, the sutures in the area of the postoperative scar experience the maximum

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load during the patient's activity, cough, intestinal paresis, as well as with an increase in IAP. At the same time, in the places of attachment of the endoprosthesis, its dimensions change on average by up to 20% in length and up to 40% in width [2,9,10]. In the future, in the early or late postoperative period, a fixed polypropylene prosthesis, if the recommendations given to the patient are not followed, has the ability to shift, which leads to a recurrence of a hernia (lifting more than 5 kg for 2 months, bending forward, gaining weight during the first 6 months , excessive physical activity, etc. An important problem in the early postoperative period is the reduction of pain.To reduce pain in the wound area, various analgesic methods are used - such as local analgesic wound infiltration, cryoanalgesia, central neuraxial blockade or systemic anesthetic (that is, a combination of opioid and non-opioid analgesics).The administration of systemic opioids is limited by side effects that can prolong postoperative hospitalization.Side effects include nausea, vomiting, constipation, sedation, respiratory depression, and opioid dependence.In addition, there is a pain management technique that has a minimal number of side effects, effective and convenient to use [14,15]. Given the above, it can be assumed that the main role in the development of hernia disease is played not by the ethnic factor, but by the way of life. Symptoms such as chronic cough and constipation are of secondary importance in the risk of developing inguinal hernias, physical activity is the main factor. In places where physical labor is more common (rural areas), the proportion of inguinal hernias increases [7,13]. A study done in 2002 in Danny was interested in its purpose to prove that smoking is a risk factor for recurrence of inguinal hernia after surgery through the formation of defective connective tissue. It was found that smokers are more likely to have a hernia recurrence than non-smokers (p=0.001) [11]. Risk factors such as obesity, diabetes mellitus, infection of the postoperative wound significantly increase the likelihood of recurrence of postoperative ventral hernias. Hereditary predisposition is also a risk factor for PBS hernias, in addition to the sex, age, lifestyle, and ethnicity already indicated by us. To date, the influence of hereditary predisposition in the formation of hernias is absolutely proven.

References

1. Egiev V.N. Tension-free hernioplasty // Medpraktika. M. 2022 2. Egiev V.N. Hernia alloplasty: problems and solutions / 80 lectures on surgery, edited by V.S. Saveliev. M. Publishing house "Litterra". 2020 3. Kurbanov U.A., Davlatov A.A., Dzhanobilova S.M., Ismoilov K.A. Features of preoperative preparation of patients with ventral hernias // Health of Tajikistan. No. 4. 2018. S. 24-28 4. Malyarchuk V.I., Pautkin Yu.F. Shashko K.G. Perforated reinforced autodermal graft as an alternative to mesh synthetic endoprostheses in the surgical treatment of large postoperative ventral hernias. Herniology. No. 1. 2019. P. 15-17 5. Rekhachev V.P. Postoperative ventral hernias. Diastasis of the rectus abdominis muscles: Monograph. Arkhangelsk: Ed. AGMA Center, 2019. 6. Sazhin V.P., Klimov D.E., Sazhin A.V., Naumov I.A. Features of the treatment of patients with large postoperative and recurrent ventral hernias// Herniology. No. 1. 2019. P. 11-14 7. Slavin L.E., Fedorov I.V., Sigal E.I. Complications of abdominal hernia surgery//M.: Profile. 2018 8. Timoshin A.D., Yurasov A.V., Shestakov A.L. The concept of surgical treatment of postoperative hernias of the anterior abdominal wall//Herniology. No. 1. 2019. P. 5-10 9. Timoshin A.D., Yurasov A.V., Shestakov A.L. Surgical treatment of inguinal and postoperative hernias of the abdominal wall//M.: Publishing house "Triada-X". 2018 10. Israelsson L.A., Junsson L., Wimo A.

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webofjournals.com/index.php/5

Cost analysis of incisional hernia repair by suture or mesh // The Journal of hernias and abdominal wall surgery. September, 2019. Vol. 7. No. 3. P. 114117 11. Langer C., Neufang T., Kley C. et. al. Central mesh recurrence after incisional hernia repair with Marlex - are the meshes strong enough? // Hernia. September, 2021. Vol. 5. No. 3. P. 164-167 12. Palmieri, Beniamino., Benuzzi, Georgia. Circumferential mesh in abdominal wall reconstruction: indications, technical notes and case report // Annals of plastic surgery. November, 2020. Vol 51. No. 5. P. 439-445 13. Perrakis E., Velimezis G., Vezakis A., Antoniades J. et al. A new tension-free technique for the repair of umbilical hernia, using the Prolene Hernia System - early results from 48 cases //The Journal of hernias and abdominal wall surgery.December, 2019. Vol.7. No. 4. P. 178-180

14. Rios A., Rodriguez J., Munitiz V. et. al. Antibiotic prophylaxis in incisional hernia repair using a prosthesis // Hernia. September, 2018. Vol. 5. No. 3. P. 148-152 15. Robertson, J. Douglas., de la Torre, Jorge I., Gardner, Paul M. et al. Abdominoplasty repair for abdominal wall hernias // Annals of plastic surgery. July, 2018 Vol. 51. No. 1. P. 10-16.

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