

## Modern Methods of The Treatment of Phia Hernia

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### ABSTRACT

The experience of treating 61 patients with inguinal hernias, who underwent 69 alloplastic hernioplasties, was analyzed. The Lichtenstein method of alloplasty with polypropylene meshes was mainly used. Good immediate and long-term results have been obtained. No relapses were observed during the three years of follow-up. Alloplasty should be more widely used for the treatment of inguinal hernias.

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## Современные Методы Лечения Пховой Грыжи

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**Анотация.** Проанализирован опыт лечения 61 больного с паховыми грыжами, которым выполнено 69 аллопластических герниопластик. В основном использовался метод Лихтенштейна аллопластики полипропиленовыми сетками. Получены хорошие непосредственные и отдаленные результаты. Рецидивов в течение трех лет наблюдения не наблюдалось. Аллопластику следует шире использовать для лечения паховых грыж.

**Ключевые слова:** паховая грыжа, полипропиленовые сетки, аллопластика по способу Лихтенштейна.

**Introduction.** The high incidence of inguinal hernias, which account for 75–80% of all hernia carriers [4], is due, on the one hand, to the structural features of the inguinal canal, often congenital weakness of its constituent tissues, and, on the other hand, to many factors leading to a significant increase in intra-abdominal pressure. Routine methods of inguinal hernia repair do not eliminate the causes of hernia formation. The etiopathogenetic mechanisms of hernia formation that persist after surgery lead to relapses of the disease, which occur after traditional methods of hernioplasty with a frequency of 9–21% [2, 4]. The

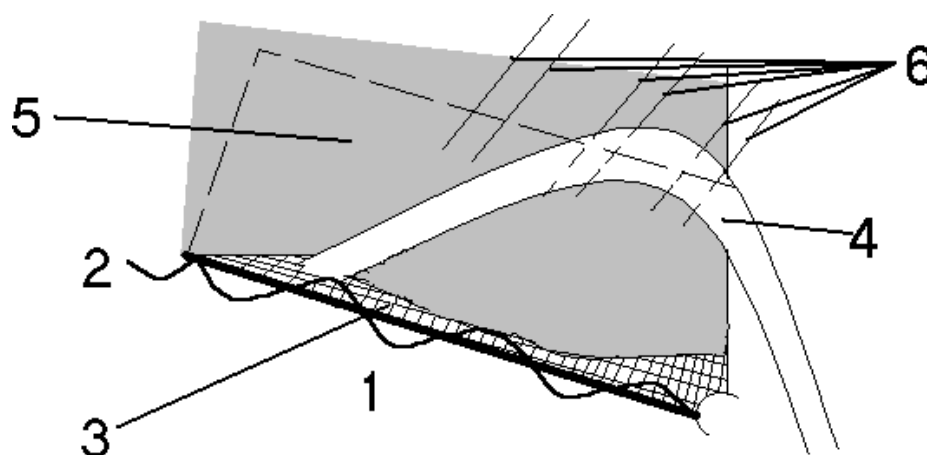
high recurrence rate in such a widespread and, in the opinion of many surgeons, simple disease as an inguinal hernia encourages the search for new ways to improve the treatment of these patients.

The authors consider the use of explants as one of the ways to solve the problem. Their use allows suturing the dispersed tissues of the inguinal canal without tension, strengthening stretched, defibrated and insolvent tissues with additional durable material. The indisputable advantage of alloplasty compared to plastic with local tissues is the significantly greater reliability of covering the inguinal canal. Cases of recurrence when using this method are rare [1, 6]. However, after alloplasty of inguinal hernias, many surgeons describe the development in the postoperative wound of such complications as prolonged lymphorrhea with the formation of seromas, aseptic necrosis of the subcutaneous tissue, suppuration of the postoperative wound, the formation of ligature fistulas, and, ultimately, allograft rejection. In addition, after alloplasty, patients may feel pressure, limited mobility, discomfort and neuralgic pain. From contact with the allograft, atrophy of the spermatic cord is possible. Migration and wrinkling of the allograft may result in hernia recurrence. According to the literature, the complication rate is 10–50% [5, 7].

Currently, one of the most commonly used materials for alloplasty is polypropylene. Its main advantages are inertness in relation to body tissues, high strength, good adaptation to any parts of the body. Domestic "Lintex" and foreign "Ethicon" companies are made from polypropylene monolithic mesh threads, which we use for hernia repair. Recently, in order to reduce tissue reaction, so-called lightweight meshes containing 50% vicryl have been used. Similar Vipro-II meshes were used in 8 patients of the examined group with good immediate and long-term results.

**Materials and methods.** Starting from 2010 r. in the surgical department, which is the base of the Department of Surgical Diseases No. 1 of Sam State Medical Institute, alloplastic methods of treating direct, oblique and recurrent inguinal hernias began to be used. During this time, alloplasty was performed in 61 patients with inguinal hernias. Among them were 58 men and 3 women aged 28 to 80 years. We consider the most indicated use of the alloplastic method of strengthening the inguinal canal in persons of older age groups. Patients older than 50 years accounted for 76.7%. In 10 patients, bilateral localization of inguinal hernias was noted, of which 8 patients underwent alloplasty simultaneously on both sides. 15 patients of the examined group were operated on for recurrent inguinal hernia. In 3 of them, recurrence occurred after laparoscopic transabdominal hernioplasty. In 1 patient, inguinal hernias recurred on both sides. Recurrence of hernias was noted in 2 patients, and in 2 patients hernias had recurred three times before. Out of 51 patients with primary inguinal hernias, 28 patients were diagnosed with a direct inguinal hernia, and 23 with an oblique one. We usually set indications for alloplasty for large hernias and for large tissue defects. The inguinal gap exceeded in 35 patients 3 cm (in 25 patients with direct inguinal hernias and in 10 patients with oblique inguinal hernias). The dimensions of the hernial sac in 55 (83.3%) patients exceeded 8x7x6 cm.

In 61 patients, 69 operations were performed using the alloplastic method of covering the inguinal canal. Most often, we performed alloplasty of the inguinal canal according to the Liechtenstein method with various minor modifications. Based on our own experience of performing this operation in 59 patients with inguinal hernias, we consider it necessary to emphasize the following points that increase the reliability of this method. When incision, do not exfoliate the subcutaneous fat from the aponeurosis of the external oblique muscle of the abdomen. With direct inguinal hernias of small size, the hernial sac is not opened or excised (7 patients). In case of sagging and stretching of the transverse fascia in 25 patients, it was sutured with corrugated sutures. We must firmly fix the polypropylene mesh to the pubic tubercle and to the iliopubic ligament, and along the upper edge with 4–6 interrupted sutures we hem it to the internal oblique and transverse muscles approximately 2 cm above their lower edge. When placing the mesh, we try to avoid its corrugation, folding and tension. We bend the lower medial edge of the mesh and fix it to the Cooper's ligament to cover the femoral ring according to the method described in the guidelines of A.D. Timoshin et al. [3]. We do not cut holes in the mesh for the passage of the spermatic cord. We make a mesh incision from the lateral side. After passing the spermatic cord, we sew the "tails" and, at the same time, in the area of the internal opening of the inguinal canal being formed, the first, most



The method of plastic surgery of inguinal hernias with a low inguinal gap.

1 - inguinal ligament; 2 - the mesh is sewn with a continuous seam to the inguinal ligament; 3 - polypropylene mesh; 4 - spermatic cord; 5 - internal oblique and transverse muscles; 6 - U-shaped seams that fix the upper edge of the mesh to the muscles.

with a medial suture we pick up the membranes of the spermatic cord. The anterior wall of the inguinal canal is sutured "edge to edge" in younger patients above the spermatic cord (30 patients), and in patients of older age groups and with a thick spermatic cord - under it (29 patients).

With a low inguinal gap, plastic surgery of the inguinal canal with local tissues is not accompanied by their significant tension. These patients do not have absolute indications for performing "tension-free" hernioplasty according to Liechtenstein, and alloplasty can be used to strengthen the plasty with local tissues as an auxiliary technique. In young patients with small inguinal spaces, polypropylene meshes were used in combination with local tissue plasty according to Bassini (figure). The mesh was placed and fixed over the transverse fascia under the internal oblique and transverse muscles sutured to the inguinal ligament<sup>1</sup>. To prevent "corrugation" of the mesh, we peel off the muscles along their back surface upwards for a total amount of the width of the patient's inguinal gap and the width of the mesh used. In order to reduce the "wrinkling" of the polypropylene mesh, we use "lightweight" Vipro-11 explants and hem the prosthesis at the bottom to the inguinal ligament with a continuous suture, and at the top with U-shaped sutures to the muscles along the upper border of their exfoliation from the transverse fascia. This type of combined plasty was performed in 4 patients aged 20–30 years who are professionally involved in sports. The mesh placed under the lowered muscles prevents the eruption of the muscular-aponeurotic sutures, stretching of the muscle tissue and by itself strengthens the suture line of heterogeneous poorly fused tissues, being an additional durable plastic material. The advantage of this operation compared to the Liechtenstein operation is the possibility of using a smaller amount of allograft and the absence of its contact with the spermatic cord. According to the latest literature data, the contact of the spermatic cord with the polypropylene mesh leads to its atrophy.

With recurrent hernias that have developed after Postempsky's plasty, alloplasty by the Liechtenstein method is often associated with great technical difficulties. Therefore, 4 patients underwent alloplasty according to the Trabucco method [8]. Relapses in the form of femoral hernias in 2 patients were also sutured using alloplasty.

Alloplasty is not a contraindication for simultaneous operations. Expansion of the volume of the operation took place in 10 patients. 4 patients underwent resection of the greater omentum soldered to the hernial sac, 2 patients underwent simultaneous removal of the umbilical hernia, one of them underwent hernia orifice alloplasty, 1 patient underwent postoperative ventral hernia alloplasty, and 1 patient underwent appendectomy due to chronic inflammation. of the appendix, which was in the hernial sac, in 2 patients were found during the operation and the cysts of the spermatic cord were removed. In addition, lipomas of the spermatic cord were removed in 4 patients.

Results and discussion. Postoperative complications developed in 16 patients, which accounted for 26.2%.

This high rate is partly due to the fact that we attributed any, even minor deviations from a smooth postoperative period, to complications. It should be noted that among the first 16 patients operated on by us using the Liechtenstein method during the period of mastering the technique (2020), complications were detected in 9 (56.25%) patients. Subsequently, by slightly modifying the methodology, as we described above, we were able to significantly improve the results. Of the 45 patients operated on in a modified way, postoperative complications developed only in 7 (15.6%) patients. Moreover, among the complications in this group of patients, the following were observed: CSF hypotension after spinal anesthesia - in 1 patient, postoperative wound seroma - in 4 patients, inflammatory wound infiltration - in 1 patient, and 1 patient developed bleeding from the saphenous veins after discharge from the hospital in the area of the postoperative scar, which required repeated hospitalization, revision of the wound and stop bleeding. It should be noted that complications in the wound often develop late after the operation, but they are not severe. The development of complications in the wound did not require explant removal in any patient.

Pain sensations after alloplasty of inguinal hernias in a tension-free way are slightly expressed, and rehabilitation of patients occurs faster. The average bed-day after alloplasty was somewhat lower than in the case of inguinal hernia repair with plasty with local tissues, and averaged 6.5 days versus 8 days after hernioplasty with local tissues.

The long-term results of the described group of patients were studied in terms from 6 months to 3 years. Recurrence of hernias has not yet been detected in any patient. All patients returned to their usual work, do not limit physical activity, lead an active lifestyle. Thus, the analysis of our experience in the use of alloplasty for the treatment of inguinal hernias allows us to recommend this method for wider use.

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