



SURGICAL TREATMENT OF DISLOCATED ANTERIOR ABDOMINAL WALL HERNIAS WITH TENSION-FREE GERNIOPLASTY (LITERATURE REVIEW)

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ABSTRACT

The indications and contraindications of abdominal wall plasty for inguinal, umbilical, and postoperative ventral hernias are discussed in sufficient detail in the literature worldwide. Methods of surgery and the feasibility of using synthetic tissues are also reviewed. In the majority of observations it was shown that the immediate and long-term results of planned surgical treatment of patients are favourable. Nevertheless, the use of non-tension hernioplasty in urgent surgery is still an important issue.

Introduction. Until now, synthetic implants are not the choice in emergency surgery. No specific indication for this surgical benefit has been developed so far. The danger of developing postoperative wound complications with synthetic materials in an infected wound explains the lack of widespread use of prosthetic plasty techniques for impingement hernias.

The introduction of synthetic material causes a 'foreign body' reaction, which then triggers an inflammatory response. Pathogens can inhabit the synthetic implant and prolong the infection significantly [7].

In cases of bowel resection for impingement hernias, some authors report good results of abdominal wall prosthesis in potentially infected conditions. Zhebrovsky V.V. believes that the danger of prosthetics in conditions of infection is exaggerated.

But there is another opinion, according to which the use of synthetic implants may be contraindicated in case of infection in the wound after intestinal resection. The high risk of wound infection with peritonitis after gangrenous intestinal perforation in colorectal resection is the only contraindication to the use of synthetic implants.

Nevertheless, in recent years in literature publications there have been more and more reports on the successful use of synthetic implants in surgical interventions aimed at the treatment of impingement hernias. Visocchi A. indicates 27 pinched inguinal hernias. Lichtenschein plasty was used in all cases. One seroma early in the postoperative period was noted. Hernia recurrences were not observed during 24 months of follow-up [2,3].

According to Sukovatykh B.S. et al., 51 surgeries were performed to repair pinched ventral hernias of various localisations using the LintexEsfil mesh explant, and all surgeries had a favourable outcome. After the operation four patients (7.8%) developed seroma, but there was no wound suppuration [11].

Akhmatov D.A. found seven successful Lichtenstein hernioplasty for the treatment of pinched inguinal hernia. [5] There were no cases of postoperative wound suppuration after surgery in 17 patients with pinched postoperative ventral hernias, as shown by the Romashin-Timanov study [6].

Sazhin V.P. published an article with the results of treatment of 31 patients with tension-free plasty of pinched hernias of various localisations. The author did not mention a single case of wound suppuration after surgery. Postoperatively, 11 patients (35.5%) had seromas. During the follow-up period of these patients there were no recurrences of hernias for three years [8].

Svachko, A. reported on non-retractive plasty with mesh prosthesis that pinched inguinal hernia was 129, pinched femoral hernia was 10 (total 139, 65.9%), pinched umbilical hernia was 44 (20.9%) and pinched ventral hernia after surgery was 28 (13.3%) [12].

Samsonov A.A. also believes that surgery for pinched hernia using allografts shows high efficiency of the method, low rate of complications and lethality [9]. Gareschi R. used non-pinched plasty with prosthesis in 44.9% of patients who had pinched and irreparable ventral hernias. Martínez-Serrano M.A. reported that 92.5% of operated patients with impinged hernia received synthetic abdominal wall prostheses [2].

The main causes of unsatisfactory results are errors in the technique and tactics of implant fixation, complications of purulent wounds and concomitant diseases that negatively affect the course of the postoperative period.

Knowledge of the causes of postoperative wound complications allows to successfully solve many tactical issues related to the choice of the method of surgery and optimisation of postoperative management of patients aimed at prevention of wound complications.

Many authors emphasise the role of dormant infection in surgical wound suppuration [1,2]. It is proved that microflora in scar tissues retains its virulence for many years. Activation of this microflora can lead to wound complications both during local tissue plasty and when using additional plastic materials, as well as to the formation of postoperative ventral hernias.

In local tissue plasty of the abdominal wall for POVH, wound complications account for 20.9-49.2%. Festering, haematomas, seromas, prolonged lymphorrhoea, wound infiltrates, ligature fistulas, necrosis of wound edges and other elements make up their structure.

There is an opinion that suppuration should be considered as any spontaneous divergence of the wound edges or their forced separation for sanitation of deep layers of the abdominal wall [3].

The use of plastic materials of various origins has led to the emergence of new wound problems not previously noticed in hernia plasty. 20.

Seroma occurs after several operations. it is an accumulation of fluid due to exudation in the tissue thickness, in a 'free' space or cavity after surgery [10]. Now that abdominal wall plastics using synthetic implants are becoming more common, seromas develop very rarely with simple primary suturing of clean wounds. In herniology, postoperative seroma formation is a non-specific inflammatory response to the prosthesis. In most cases in the immediate postoperative period, large amounts of exudate accumulate between the synthetic implant and adjacent tissues, necessitating puncture or drainage.

The incidence of seromas varies from 17.6 to 30.3 per cent, depending on the location

of the prosthesis, its type and size. Some foreign authors state that it reaches 50 per cent [5]. Based on experience and research, we can conclude that type I polypropylene prostheses are the most effective in hernioplasty because they combine all the characteristics of an ideal biomaterial. These include relative inertness, resistance to infection, porosity, molecular permeability, mechanical strength, elasticity and resistance to tissue fluids [4].

Improper surgical technique can lead to adhesions and intestinal fistulas. It can be a direct contact of the implant with the abdominal cavity organs or fixation of the implant with the formation of folds and bends, which leads to implant prolapse into the abdominal cavity. Degenerative and dystrophic changes in the tissues of the anterior abdominal wall cause migration of implants, especially when their tension is formed [10].

Optimisation of methods to prevent wound complications after anterior abdominal wall plasty is an extremely important problem. It is obvious that even a successful surgery using various plastic techniques cannot prevent the occurrence of postoperative complications unless reasonable preventive measures are implemented. When it comes to preventing postoperative complications, the basic principles that are used in other areas of surgery are identical [13].

Many surgeons question the efficacy and necessity of wound drainage after abdominal wall plasty. Surgeons from Israel conducted a nationwide study in which they investigated the causes of wound infection in 1487 patients operated on for hernias in 11 hospitals worldwide [2,12]. Sixty-eight (4.6%) patients developed wound suppuration after surgery. One of the factors contributing to suppuration was wound drainage. The likelihood of wound infection was found to outweigh the favourable results of wound drainage. T.J. White et al. also found no reduction in the number of complications after wound drainage, regardless of the method of abdominal wall plasty [2,4]. Krasnov O.A. believes that in some cases Redon drains contribute to the penetration of infection into the wound after surgery. The author prefers seroma puncture as an alternative to onlay plasty for ultrasound control [4]. At the same time, Vrijland W.W. et al. found no association between drainage and the level of wound infection, as well as between anterior abdominal wall plasty in POVH using polypropylene prostheses [8].

Chevrel JR left two to four vacuum drains after application of plasty. If there was no discharge from the drains within 48 hours, drainage was discontinued. The author noted that the incidence of seromas in patients with wound drainage decreased to 3%, in contrast to 15% in patients without drainage [6].

In POVH Martin-Duce A. et al. leave one vacuum drain directly over the prosthesis and the second one over the aponeurosis. The drains are removed after 48-72 hours, because a longer stay in the wound causes lymphorrhoea and increases the risk of suppuration [9].

The European Herniological Society has reached an agreement that after abdominal wall plasty, all operations should be completed with active wound drainage [1]. Despite this, the problem remains unsolved. There are no studies comparing different drainage methods and blind suturing of the postoperative wound, as well as studies investigating the effect of the drainage method on the incidence of seroma formation in the wound.

Conclusions: Thus, the existing literature describes in sufficient detail the indications and contraindications of abdominal wall plasty for inguinal, umbilical hernia and POVH. The methods and procedures of surgery, as well as the appropriateness of using synthetic

materials, are also discussed. In most observations it was shown that the immediate and long-term results of planned surgical treatment of patients are favourable. Nevertheless, the use of non-tension hernioplasty in urgent surgery is still an important issue. Incorrect choice of the plastic method, significant tension of abdominal wall tissues, abdominal cavity volume reduction and development of abdominal compartment syndrome in 0.8-12% of operated patients are the main reasons of unsatisfactory treatment results. Such issues as peculiarities of management of patients with complicated pinched hernias before, during and after surgery; choice of plastic methods depending on the size and localisation of the complicated pinched hernia; hernioplasty for pinched postoperative ventral hernias of large and giant sizes, which arise due to anatomical deficit of the anterior abdominal wall tissues and intestinal obstruction, are still insufficiently covered.

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