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

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Abstract
Various issues regarding the necessity and contraindications of surgical abdominal wall grafting for different types of hernias such as inguinal, umbilical and postoperative ventral hernias have received much attention in the literature worldwide. Different operative techniques and whether the use of synthetic materials is the best option are also discussed.

Keywords Surgical treatment, impingement hernia, anterior abdominal wall.

INTRODUCTION

Planned surgical therapy benefits most patients in both the immediate and distant periods, as shown by numerous studies. Nevertheless, the use of non-tension hernioplasty in situations where immediate surgical intervention is required remains important and requires further investigation. Because there are no definite indications for their use, the use of synthetic implants has not yet become the standard in emergency surgery. Prosthetic plasty for impingement hernias has not been widely used because of the risk of wound complications following surgery using synthetic materials in an infected area. This is because the addition of synthetic material can cause a "foreign body" reaction, which can cause inflammation. Pathogens may colonise the synthetic implant and prolong the duration of infection[7].

According to Zhebrovsky V.V. and other researchers, the likelihood of abdominal wall prosthesis in the setting of infection may be underestimated. After bowel resection for pinched hernias, they report good prosthetic results in

potentially infected conditions. Another opinion speaks against the use of synthetic implants in case of infection in the wound after bowel resection, especially in cases of peritonitis after gangrenous bowel perforation. Nevertheless, recent studies suggest that synthetic implants may be effective in the surgical treatment of impingement hernias. For example, Visocchi A. describes a successful Lichtenschein plasty for 27 patients with pinched inguinal hernias who did not show hernia recurrence during the first 24 months after surgery, although only one seroma was seen during the initial postoperative follow-up period[23].

According to the study by Sukovatykh B.S. and colleagues, all operations were successful in 51 patients with pinched ventral hernias of various localisations using the LintexEsfil mesh explant. Four patients (7.8%) developed seroma after surgery, but they did not have wound suppuration.[11].

Dmitry Akhmatov found that the Lichtenstein method of hernioplasty successfully treats pinched inguinal hernias with seven successful cases. According to a study by Romashin-Timanov, there was no wound suppuration after surgery in 17 patients with pinched ventral hernias.[6].

The results of treatment of pinched hernias in 31 patients using non-tension plasty are given in an article by Vladimir Sazhin. It is important to note that none of the patients had postoperative wound suppuration. However, eleven patients (35.5%) had symptoms associated with seroma after surgery. Despite this, these patients did not experience hernia recurrence during three years of follow-up[8].

According to a report by Svachko, A., the majority of operations for repair of impingement hernias included inguinal hernia (65.9%), followed by umbilical (20.9%) and femoral hernias (13.3%) [12].

Samsonov A.A. expressed an opinion about the high efficiency of surgery for impingement hernias using allografts, noting a low rate of complications and lethality. Gareschi R. used non-tension plasty with prosthesis in 44.9% of cases, especially in those cases when ventral hernias were pinched and could not be repaired. Martínez-Serrano M.A. states that 92.5% of patients operated on with pinched hernias received synthetic abdominal wall prostheses [21].

Problems with implant fixation, purulent wounds and comorbidities are often the cause of unsatisfactory surgical results.

Understanding the causes of wound complications after surgery helps to effectively address many tactical issues, such as choosing the most effective surgical technique and improving postoperative patient care to prevent such complications.

Many scientists have noted the influence of "dormant" infection on the development of suppuration of surgical wounds [1,2]. The microflora in scar tissues retains its virulence for a long time. Activation of this microflora can cause wound problems with both local tissue plasty and additional plastic materials, as well as ventral hernias postoperatively.

The postoperative incidence of wound complications in abdominal wall plasty using local tissues ranges from 20.9% to 49.2%. Festering, haematomas, seromas, prolonged lymphorrhoea, wound infiltrates, ligature fistulas, necrosis of wound edges and other components make up the structure of these complications. There is an opinion that suppuration can be defined as forced divergence of wound edges or spontaneous divergence 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 repair.

Postoperative seroma, fluid accumulation due to exudation in the tissue thickness in the "free" space or cavity after surgery, may occur [10]. Abdominal wall plasty using synthetic implants is becoming more common nowadays, and seromas rarely occur in primary suturing of clean wounds. Postoperative seroma formation in herniorrhaphy is a non-specific inflammatory response to the prosthesis. In most cases, drainage or puncture is necessary in the early postoperative period

because a significant amount of exudate accumulates between the synthetic implant and adjacent tissues.

Depending on the location, type and size of the prosthesis, the incidence of sulcus varies from 17.6% to 30.3%. According to some foreign researchers, this figure may exceed 50% [15]. Based on experience and studies, it can be concluded that type I polypropylene prostheses are the most effective in hernioplasty. This is due to the fact that these prostheses have all the characteristics of an ideal biomaterial. Relative inertness, resistance to infection, porosity, molecular permeability, mechanical strength, elasticity and resistance to tissue fluids are some of these characteristics[14].

Improper surgery can lead to adhesions and intestinal fistulas. This may result from the implant prolapsing in the abdominal cavity as a result of fixation or direct contact with abdominal organs. Implant migration is enhanced by degenerative and dystrophic changes in the tissues of the anterior abdominal wall, especially when they are stretched[10].

Optimisation of methods to prevent wound complications after anterior abdominal wall plasty is an extremely important task. It is obvious that even a successful operation with the use of various plastic methods does not guarantee the absence of complications if adequate preventive measures are not taken. The principles of preventing complications after surgery are similar to those used in other areas of surgery[13]. Many surgeons question the necessity and effectiveness of wound drainage after abdominal wall plasty. A nationwide study conducted in Israel investigated the causes of wound infection in 1487 patients undergoing hernia surgery in 11 hospitals worldwide [22]. After surgery, 68 (4.6%) patients developed wound suppuration. One of the causes of suppuration was wound drainage. The benefits of drainage were found to outweigh the risk of wound infection. In addition, regardless of the chosen method of abdominal wall plasty, TJ White et al. found no reduction in the number of complications with wound drainage [24]. Krasnov O.A. believes that Redon drains in some cases contribute to the penetration of infection into the wound after surgery [4]. He also believes that it is better to perform seroma puncture instead of onlay plasty under ultrasound control [4]. At the same time, Vrijland W.W. et al. found no association between anterior abdominal wall plasty using polypropylene prostheses and the level of wound infection[18].

It should be noted that two to four vacuum drains are left in place after performing Chevrel JR plasty. If the secretion does not pass through the drains within 48 hours, drainage is discontinued. The author noted that the incidence of seromas in patients who had wound drainage decreased to 3% compared to 15% in patients who did not have drainage[16].

The Martin-Duce A. and colleague method of anterior abdominal wall grafting uses one vacuum drain over the prosthesis and a second over the aponeurosis. The drains are removed after 48-72 hours because prolonged presence in the wound can cause lymphorrhoea and increase the risk of suppuration[19].

The European Gerniological Group agrees that after abdominal wall plasty, all surgeries should be completed with active wound drainage [17]. Despite this, the problem remains relevant, as there have been no studies comparing different drainage methods and hermetic closure of the postoperative wound, as well as studies evaluating the effect of the drainage method on the incidence of seroma formation in the wound.

There is now a large body of literature detailing the indications and contraindications of abdominal wall plasty for inguinal, umbilical and postoperative ventral hernias. Different operative techniques are reviewed, as well as whether synthetic materials can be used. Following elective surgery, most studies show favourable immediate and long-term results. Nevertheless, the use of non-tension hernioplasty in emergency surgery continues to be an extremely important issue. The main reasons for unsatisfactory treatment outcome were the following: wrong choice of the

plastic method, significant tension of abdominal wall tissues, reduction of abdominal cavity volume and development of abdominal compartment syndrome in 0.8-12% of operated patients.

CONCLUSIONS

Thus, the management of patients with complicated pinched hernias before, during, and after surgery; the choice of plastic techniques depending on the size and location of the complicated pinched hernia; and hernioplasty for large and giant postoperative pinched ventral hernias that occur due to bowel and anterior abdominal wall tissue obstruction have not been sufficiently studied.

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