

Current State and Problems of Treatment of Postoperative Ventral Hernias in Women of Reproductive Age

Khamdamov I. B.

Bukhara State Medical Institute named after Abu Ali Ibn Sina, Uzbekistan

ABSTRACT

The essence of the experiment was to conduct research on tissue rupture. Taking into account the fact of different extensibility of tissues in different parts of the anterior abdominal wall during pregnancy, we studied the initial morphological characteristics of the tissues of the anterior abdominal wall and the nature of the changes during its maximum stretching

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The total number of surgical interventions in the world for abdominal hernias exceeds 20 million [1,11,13,15]. The prevalence of the disease in Uzbekistan is 1.8% among the population [2,4,6,8,10,12,14,16]. Among all abdominal hernias, inguinal hernias occupy a leading place – 75% of all hernias [17,19,21,23]. However, the true prevalence of hernias is an unknown quantity. For example, when examining men in Jerusalem, 18 patients with inguinal hernia were identified per 100 people under the age of 25, and 47 over the age of 75. Among the Ghanaian population, the incidence of hernias of the anterior abdominal wall is 3.15%. In Nigeria, umbilical hernia was detected in 102 (1.3%) of 7968 children [18,20,22]. In the Russian Federation, 83.5% of residents of one of the districts were surveyed in the Voronezh Region. With a population of 36,181 people, 672 (2.18%) patients with various hernias of the anterior abdominal wall were identified [1,3,5,7,9]. The frequency of surgical interventions in different countries varies within different limits. For example, in the USA it is 28 operations per 100,000 population, and in England – 10 per 100,000.

Currently, herniology is one of the most rapidly developing branches of surgery, including in Uzbekistan. New technologies in the diagnosis and treatment of this pathology are being developed and widely introduced into clinical practice, many conferences and master classes devoted to the problem of hernia surgery are held annually. At the same time, allogenioplasty has become a routine operation that is performed in almost any medical institution. The period of the appearance of the first allomaterials was replaced by a period of searching for the most optimal materials for this intervention, which would be made of biologically compatible material, non-toxic, would have a biologically non-degradable property during the entire time of presence in the body, would retain the flexibility and plasticity of tissues.

As a result of research conducted to date, the most commonly used types of allografts are: polypropylene meshes; composite or combined allomaterials; film-porous endoprotheses – PTFE (polytetrafluoroethylene); polyvinylidenefluoride (PVDF) allomaterials.

Despite the successes, a certain group of people remains outside of these achievements. These are women of reproductive age, who, due to the low extensibility of alloprotheses, performing allogenioplasty

is a contraindication. The emergence of new materials that have sufficiently high strength, biocompatibility and biodegradation opens up new opportunities for the use of alloprostheses in women of fertile age.

In recent years, due to the introduction into clinical practice of alloplasty methods of hernial gates, the results of surgical treatment of this pathology have significantly improved. However, the limitation of the use of these methods in women of reproductive age, as well as the impossibility of their use during pregnancy, were the subject of this study. The interaction of allomaterial with body tissues, its antiadhesiveness, resistance to microflora are important issues of modern herniology and require constant new developments and research.

Taking into account the above, **the purpose of this study was** to improve the results of surgical treatment of women of fertile age with hernias of the anterior abdominal wall by justifying a differentiated approach to the choice of the method of allogenioplasty.

Material and methods of research.

New Zealand white rabbits with an average weight of 5 kg (4700-5200 grams) were used for experimental studies. Experimental studies were conducted in compliance with the requirements of the European Convention for the Protection of Vertebrates Used for Experimental and Other Scientific Purposes (Strasbourg, 1986). For this purpose, the developed model of "pregnancy" was applied on one rabbit, and after 20 days the rabbit was withdrawn from the experiment and tissue sampling was carried out from various parts of the anterior abdominal wall with subsequent morphological examination. During morphological examination of the tissues of the anterior abdominal wall in the midline area, it was noted that the skin tissues were intact with all structural elements. Epithelium with signs of keratinization, multiple elements of hair follicles in the reticular and papillary dermis. The hypodermis is scanty with a transition to muscle tissue. The histological section shows a transverse and oblique muscle with a dense fibrous-collagen fascia between them. The presence of multiple fibroblasts along the fascia line is noted. The study of the morphological structure of the tissues of the anterior abdominal wall in the lateral abdominal region showed that the skin tissues with the preservation of the mucous membrane, hair follicles under it without signs of changes. Transverse abdominal wall muscle surrounded by serous membrane and adipose tissue.

During morphological examination of the tissues of the anterior abdominal wall in the xiphoid process without stretching, it was noted that skin tissues with multiple follicles of the hair matrix. Superficial fatty fascia and external oblique muscle without any pathological changes. The loose-fibrous connective tissue that makes up the structure of aponeurosis smoothly passes into fibrous-collagen and then into muscle tissue. The study of the morphological structure of the tissues of the anterior abdominal wall in the inguinal region of the abdomen showed that skin tissues with multiple hair follicles. Collagen connective tissue structure with fibrocytes. Fibrous-adipose tissue is noted around the aponeurosis. In the structure of aponeurosis, there are blood-filled vessels between the oblique muscles of the anterior abdominal wall. Studies have shown that the existing tissues of the anterior abdominal wall (skin (own dermis and epidermis), subcutaneous fat layer (hypoderm), aponeurosis (consisting of connective tissue), muscle and serous layer (peritoneum)) without stretching, they have a normal structure. It should be noted that experimental animals, unlike humans, have a pronounced hairline, and, accordingly, in the structure of the skin, there is a greater number of hair matrix follicles.

To assess the nature of changes in the tissues of the anterior abdominal wall and the possibility of assessing changes in the strength of tissues during autoplasty and alloplasty with various materials, which is fundamentally important in progressive pregnancy, we conducted morphological studies of tissues of various parts of the anterior abdominal wall of experimental animals at their maximum stretch. To do this, the developed model of "pregnancy" was reproduced in the experimental animal with an increase in the abdomen to its maximum term and after 20 days, tissue sampling was performed and morphological examination of tissues was performed. The specified period of material collection was chosen empirically. As with the experimental rabbit without stretching, in this case, the material is taken from four sections:

1. Tissues of the anterior abdominal wall in the midline area after stretching.
2. Tissues of the anterior abdominal wall in the lateral abdominal area after stretching.
3. Tissues of the anterior abdominal wall in the xiphoid process after stretching.
4. Tissues of the anterior abdominal wall in the groin area after stretching.

When analyzing morphological studies, special attention was paid to the study of structural changes in aponeurosis and muscles, due to the fact that these layers are involved in the process of autoplasty and alloplasty of hernial gates. Morphological studies of the tissues of the anterior abdominal wall along the median line of the abdomen after stretching showed that there are signs of hypertrophy with hyperplasia of adipocytes and fibrocytes between the two oblique muscles. Aponeurosis zone with signs of pronounced loosening and hyperplasia of adipocyte fat cells with an admixture of fibrocytes. Histological examination of the tissues of the anterior abdominal wall in the area of the xiphoid process after stretching showed signs of proliferative activity and moderate hyperplasia of aponeurosis. There is an increase in the number of fibrocytes. Oblique and longitudinal muscles with interstitial edema, hypertrophy of the fat layer is noted. Morphological studies of the tissues of the anterior abdominal wall along the lateral areas of the abdomen after stretching showed that the aponeurosis is moderately thinned, dystrophized, with an increase in the number of vessels and surrounded by a hyperplastic layer of adipose tissue. Extraperitoneal adipose tissue with signs of hyperplasia. The intermuscular spaces are expanded and with signs of edema, both between the longitudinal (arrow) and oblique, and in the oblique muscle itself.

Morphological studies have shown that during pregnancy, the "load" on different parts of the anterior abdominal wall is carried out unevenly. The longer the tissues lengthen, the more pronounced the structural changes on the part of the tissues of the anterior abdominal wall. The most pronounced changes were noted from the tissues of the midline of the abdomen, which was expressed in pronounced loosening of aponeurosis, muscle hypertopia and fibrocyte hyperplasia. Less pronounced changes were noted from the xiphoid process, then from the tissues of the lateral wall of the abdomen. The smallest changes in the tissues of the anterior abdominal wall during "pregnancy" were noted in the inguinal region.

The conducted studies have shown that when using prolene, there is minimal stretching of the tissues of the anterior abdominal wall during its implantation, which indicates the inexpediency of using prolene for allogernioplasty and women of fertile age. When using ultrapro, the results of extensibility in the lateral abdominal area and in the groin area were identical to plastic surgery with their own tissues. This made it possible to conclude about the possibility of using a semi-absorbable allomaterial for hernia repair in the lateral abdominal area and in the groin area in women of reproductive age.

Thus, our **results show that** the use of non-absorbable allomaterial prolene is not advisable for women of reproductive age.

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