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An Integrated Approach To The Treatment And Prevention Of Abdominal Adhesive Disease

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ABSTRACT

Prevention and treatment of adhesive disease is a pressing issue in modern surgery, as evidenced by a large number of experimental and clinical studies in this area. This is due to the fact that the frequency of adhesive intestinal obstruction (2.1-3.8% among all diseases of the abdominal cavity organs), the number of relapses (12-15%), and mortality (7.2-11.0%) continue to remain high.

Keywords: adhesive disease, treatment, prevention.

INTRODUCTION

Adhesive disease is a pressing problem in abdominal surgery, as evidenced by the frequency of adhesion detection in primary surgeries in 28% of cases, and in repeated interventions in 15–73%. Surgical operations aimed at eliminating the adhesion process not only do not prevent relapse, but, as a rule, potentiate adhesion formation. Today, adhesions are the most common cause of acute intestinal obstruction [1, 6]. Various experimental models are traditionally used to study the development of the pathological process, evaluate the effectiveness of the diagnostic methods used and treat various diseases [5]. However, when evaluating the results obtained, most authors urge to pay attention to possible differences in the obtained models in the severity of local (adhesion process) and general manifestations, which is associated, among other things, with the drugs used, the nature of the damaging factors, the time of treatment and other reasons. Most authors do not question the etiological role of mechanical and physical factors, the presence of foreign bodies in the development of adhesive disease [2, 3, 4]. The process of adhesion formation is both protective and vicious, pathological in nature [2].

The key basis of the pathogenesis of the adhesive process is the tissue organization of the fibrin matrix, formed as a result of intraperitoneal exudation of free fibrin. The active phase of this process occurs 12 hours after damage to the peritoneum.If the fibrin matrix is destroyed in the first 3 days from the moment of its formation, when the level of transforming growth factor beta (TGF-β1), responsible for cellular apoptosis and suppression of cell proliferation, is high, then the damaged area of the peritoneum is covered with normal mesotheliocytes, and healing occurs without the formation of adhesions. The 5th–6th day after injury is critical, when the angiogenesis process is initiated, and the number of macrophages, having reached a peak, begins to decrease on the wound surface, since most of the injury site is already covered with mesotheliocytes. The levels of active TGF-β1 and vascular endothelial growth factor (VEGF) at this time increase in parallel with the inflammatory response associated with tissue remodeling, which leads to structural stabilization of the adhesion.

Thus, the pathogenesis of adhesive disease includes successive stages:

1. Fibrinogenesis: formation of fibrin in response to damage to the peritoneum.
2. Remodeling: transformation of fibrin into connective tissue with the participation of fibroblasts and other cells.
3. Angiogenesis: development of new blood vessels that support the growth and development of adhesions.
4. Completion: stabilization and maturity of adhesions, which can lead to functional disorders of the abdominal organs.

METHODS

The study included patients who underwent surgery and conservative treatment for adhesive disease of the abdominal cavity and its complications. Taking into account the peculiarity of pathogenesis, clinical course, and management tactics, three forms of adhesive disease were identified in the study: preservation of passage (painful form), violation of passage (without SOCN), termination of passage (SOCN). The control group consisted of 110 patients admitted to the clinic from December 2005 to November 2024 with the clinical picture of SOCN. In this group, SOCN in 70 patients was stopped conservatively, and 40 patients underwent urgent surgery (traditional laparotomy). The main group consisted of 130 patients who were admitted to the clinic from December 2007 to November 2024. In this group, a treatment and prophylactic complex developed in the clinic was used for the treatment and prevention of SB. Adhesiolysis (laparotomy or VLA) was performed, and the anti-adhesion gel "Mesogel" was used as a prophylactic barrier agent. In some cases, programmed sanitation video laparoscopy was performed on 20 (45%) patients who underwent open surgery for SOCN. The main group consisted of 100 women and 30 men. As in the control group, two subgroups were identified in the main group:

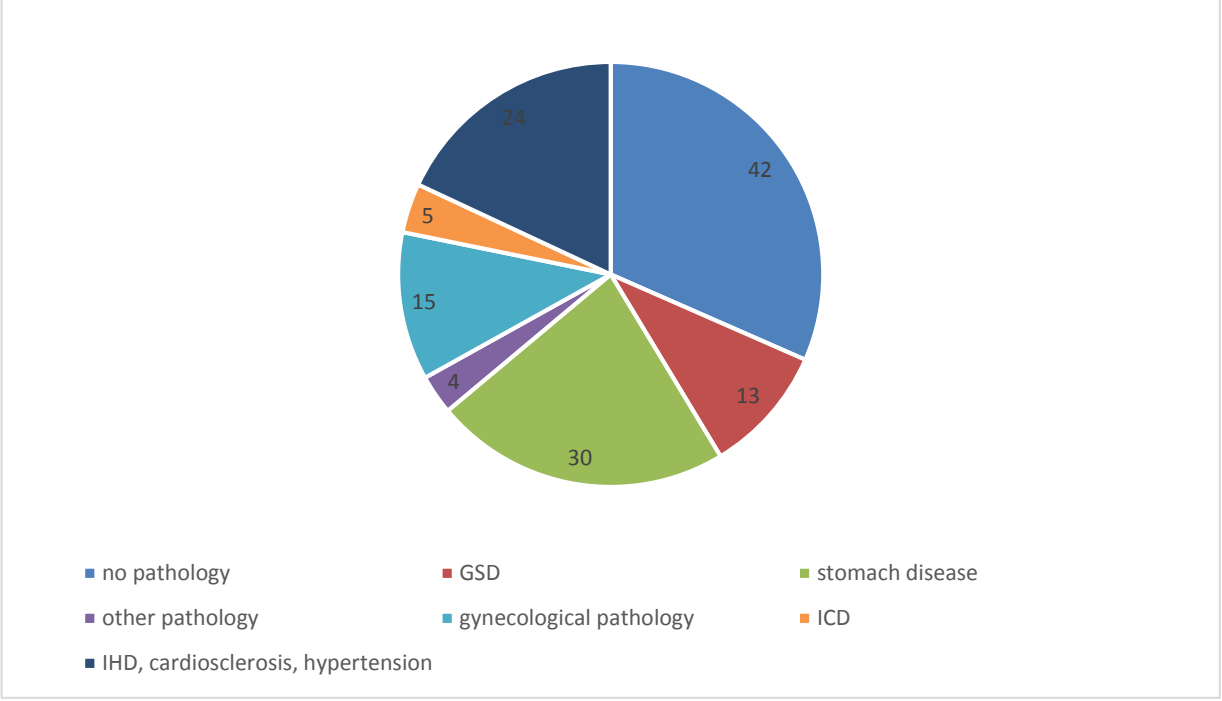
1. - patients who underwent planned VLA

These are patients A with resolved SOCN, patients B - a painful form of SB

2. - patients with SOCN, including with strangulation, operated on urgently and urgently.

When studying the distribution of patients by gender, the ratio of men and women in the main group was 1: 2.5, which is comparable with the control group. The age of patients ranged from 15 to 78 years, and averaged 35±6.5 years for men and 44.5±6.5 years for women. The average age of patients was 35.5±5.5 years.

At the same time, the causes of the disease in patients of the main group were mainly: inflammatory diseases, previous surgeries, and congenital adhesions. Consequently, we came to the conclusion that the most common cause of SOCN was previous surgeries.



Pic. 1. The nature of concomitant pathology in patients of the main group.

The majority of patients (n=70) were admitted to the hospital from 3 hours to 24 hours. During the

first 3 hours from the onset of the disease, 18 patients were admitted to the clinic. 35 patients were admitted to the clinic in periods exceeding 24 hours from the onset of the disease, of which 16 had a painful form of SB. During the first 12 hours from hospitalization, the symptoms of acute ocular syndrome were relieved in 61 patients. And 14 patients, due to the positive effect of conservative treatment, continued therapy from 12 to 24 hours. The timing of admission of patients with acute ocular syndrome from the onset of the disease, and, consequently, the timing of the beginning of treatment, were different. The most effective conservative therapy was in the early stages (up to 12 hours) of admission to the hospital. Patients admitted at later stages underwent surgical treatment more often due to the fact that the effectiveness of conservative treatment was noted less often in them.

CONCLUSIONS

1. Among the modern examination methods, the most informative in the diagnosis of AD(adhesive disease) are: abdominal ultrasound (89.5%); peripheral computer electrogastroenterography (97.8%); laparoscopy (100%).

2. The proposed examination algorithm allows for accurate and timely diagnosis of SB; to set indications for adhesiolysis; to determine the timing (planned or urgent) of surgery; to identify contraindications to videolaparoscopic adhesiolysis.

3. The use of videolaparoscopy and the barrier anti-adhesion drug "Mesogel" in the treatment of SB, according to the results of 3-year observation, made it possible to eliminate chronic pain syndrome in 23 (16%) of the examined patients; to improve the quality of life of the examined patients by 10-14%; to reduce the number of relapses of AD complications to 1.4%, compared to the control group (16.1%).

4. The technique of programmed sanitation laparoscopic adhesiolysis in combination with the proposed treatment algorithm allowed us to avoid early adhesive intestinal obstruction in our study, and in the 3-year observation period, relapse of adhesive intestinal obstruction leading to surgery was detected in 1 case (2.2%) compared to the control group, 5 cases of relapse (10%). 5. As a result of using a comprehensive approach to the treatment and prevention of AD, it was possible to achieve relief of chronic abdominal syndrome over 3 years in 84.6% of patients in the main group, elimination of acute and recurrent adhesive intestinal obstruction in 99.3% of patients and improve the quality of life by 10-14% during 3-year observation.

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