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Simultaneous Laparoscopy Operations on Organs of the Brotherhood (Literature Review)

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Abstract: Simultaneous laparoscopic surgeries are among the extensive and complex surgeries. The advantages of simultaneous laparoscopic operations are as follows: simultaneous correction of two or more surgical diseases, with minimal hospitalisation and rehabilitation time, good cosmetic effect and reduced number of postoperative complications. However, despite the availability of real opportunities to provide the necessary amount of medical care to this category of patients and to achieve maximum medical, social and economic effect, only 1.5-6% of such patients undergo simultaneous laparoscopic operations.

Keywords: Simultaneous operations, laparoscopy, abdominal surgery.

Introduction. Simultaneous surgical interventions in surgical practice have been known for a very long time. Such an operation was first reported by A. Claudius in 1735: a patient underwent appendectomy combined with hernioplasty. The concept of "simultaneous operation" appeared in the medical literature in the 60s of the last century. In 1971, M. Reifferscheid [2] used this term in his article "Simultaneous intervention in the abdominal cavity - surgical aspects". In the Russian literature in 1976, L. I. Khnokh and I. H. Feltshiner [6] used this term for the first time. They understood simultaneous interventions on two abdominal cavity organs or more for different diseases as simultaneous simultaneous simultaneous operations.

Later on, N. N. Malinovsky et al., L. V. Potashov, V. M. Sedov, supplemented this definition with the possibility of performing simultaneous operations from one or different surgical accesses both in the abdomen and retroperitoneum, and in other cavities and parts of the body.

The term "simultaneous" is derived from the Latin word "simul" - "together, jointly", English "simul-taneous" and French "simultan" - "simultaneous".Simultaneous (combined) surgery provides for the performance under one anaesthesia of surgical interventions on two organs or more for different, etiologically unrelated diseases. Simultaneous surgery includes the main (as a rule, the largest in volume) intervention aimed at eliminating the most life-threatening pathological process, and concomitant operation(s) for one or more diseases detected during preoperative examination or detected during the main surgical intervention. The stages of combined operations on the abdominal and retroperitoneal organs are performed only sequentially.

The low percentage of simultaneous laparoscopic operations can be explained by several reasons. First of all, incomplete preoperative examination of patients, insufficient intraoperative revision of abdominal cavity organs, surgeons' tendency to perform multistage surgical treatment of combined diseases, surgeons' and anaesthesiologists' unpreparedness to perform extended intervention[5].

The introduction of new high medical technologies has made it possible to perform operations less traumatically and reduce the time of their performance. CO for several diseases was actively introduced by N.N. Malinovsky et al [16], L.V. Potashov and V.M. Sedov [1, 9].Thanks to the works of these surgeons, a positive attitude to planned CO in our country was formed. CO were 1.5-10% of the total number of operations. Their lethality did not exceed 1.9-2.9% [1,2,9]. All authors noted a significant economic efficiency of CO application [10]. About the same time CRMs were spread abroad [14]. Taking into account the accumulated experience of their application there appeared publications substantiating the classification and principles of CRM performance. The first classification of CRMs was proposed in 1971 by M.Reffersheid [42] and included the following types of operations: absolute, preventive, prophylactic, diagnostic, forced operations..

Domestic surgeons L.V. Potashov and V.M. Sedov [9] considered inadmissible to include diagnostic interventions as well as prophylactic CRMs associated with removal of unchanged organs into the group of CRMs. They also considered inappropriate to call a "forced" operation associated with "accidental damage of the feeding vessel, excessive mobilisation" and other similar circumstances as simultaneous. The authors gave a refined classification of CRMs: emergency (unexpected and anticipated); planned (unexpected, anticipated, planned in advance). Such division of CRMs allowed to define more precisely the indications for their performance, the volume and sequence of operation stages, to recommend the most rational access. In numerous publications, CRMs are divided by volume (small, medium and large), by the type of access (from one or different accesses) and by the method of performance (laparotomy and endovideoscopic).

Operative risk is the degree of anticipated danger to which the patient is exposed during surgical intervention and anaesthesia. N.N. Malinovsky et al.[8] developed and proposed the classification of the degrees of surgical risk when performing CO. It is based on the assessment of 4 factors: the volume and traumatic nature of combined operation; peculiarities of combined diseases; nature and severity of concomitant diseases; age of the patient. The concept of combined diseases was detailed, from which the main (leading) and proper combined disease are distinguished. The main disease is the one that poses the greatest danger to the health and life of the patient. Combined disease is a disease that is less dangerous and the operation on which can be postponed.

According to WHO data, combined pathology occurs in 20-30% of surgical patients [5]. However, despite a number of obvious advantages of simultaneous operations, their share is only 2.5-7% of all surgical interventions performed [2]. Such a low figure can be explained by several reasons of both objective and subjective nature. The tradition of a very restrained attitude to the expansion of the volume of surgical intervention in order to minimise the operative and anaesthetic risk had strong positions until the 80-90s of the last century and, first of all, was due to the imperfection of anaesthetic (monitor, respiratory and anaesthetic) equipment. Increasing the duration of surgery under general anaesthesia with artificial ventilation of the lungs for more than 3 h had statistically significant negative consequences [11]. The unpopularity of simultaneous operations was also explained by the fact that staged surgical treatment of combined diseases, in addition to risk reduction, improved the statistical indicators of the medical centre. In modern conditions, the main objective reason for refusal of simultaneous interventions is the high operative and anaesthetic risk in patients of group 3 and 4 according to the ASA classification.

The number of such patients is gradually increasing due to the increasing proportion of elderly and older patients [12]. However, it should be noted that in patients of group 3, surgeons, anaesthesiologists, and therapists often exaggerate the degree of risk in order to refuse combined surgery, in which the probability of various complications is naturally higher compared to single intervention. Other reasons for failure to perform simultaneous operations in a planned procedure are incomplete examination of the patient and, consequently, a defect in the diagnosis of

concomitant surgical disease, insufficient technical equipment of the hospital, as well as lack of experience in performing certain interventions.

The refusal of a combined operation may be motivated by two other circumstances. If both interventions are planned to be performed by endovideosurgical method, but the duration of surgery, carboxypneumoperitoneum and general anaesthesia significantly exceeds the time of the main operative stage, anaesthesiologists may formulate contraindications to simultaneous intervention due to concomitant pathology of cardiovascular, respiratory or other systems. O. V. Galimov et al. [6], having studied and compared the indices of external respiration and haemocoagulation system during traditional and laparoscopic simultaneous surgeries, found significant impairment of these functions during endovideosurgical (especially during prolonged) interventions. If both stages of surgery can be performed only by the open method and two accesses are required, the refusal of combined intervention is often suggested by surgeons themselves because of the high traumatic nature of the operation and the possible complications and negative consequences associated with it, or because of the high risk of complications and adverse effects, or because of the lack of the possibility to perform a combined intervention.

As can be seen, the small proportion of simultaneous operations in elective surgery is due to a significant list of objective and subjective, justified and insufficiently justified reasons for refusal to expand the scope of intervention. Combined operations are performed less frequently in emergency surgery. In many cases, the contraindication to expanding the scope of intervention is the patient's serious condition. Simultaneous operations are practically not performed in conditions of widespread peritonitis, in severe blood loss and are absolutely contraindicated in patients of group 4 according to ASA classification regardless of the nature of urgent pathology [13]. Often concomitant surgical disease remains unrecognised due to a reduced preoperative examination of the patient or incomplete revision of the abdominal organs during the intervention [8]. The eligibility and necessity of simultaneous surgery are not in doubt only in those few cases when the patient has 2 urgent surgical diseases [14].Thus, the question of indications and contraindications for simultaneous surgery is the most controversial in this problem. As mentioned above, it is much easier to argue for the refusal of combined intervention in most cases than to justify its expediency. Therefore, it is logical that a list of contraindications can be found in some literature sources, while there are practically no formulated indications for simultaneous operations [6]. So far, no definite decisions on this issue have been made at any congress of domestic surgeons. At the same time, simultaneous treatment of combined surgical pathology has long been considered as a new programme direction in surgery[7].

At present, the thesis about the feasibility of simultaneous operations, the possibility and necessity of their more frequent performance in elective surgery is quite obvious. The advantages of combined interventions are substantiated, proved and presented in the literature. Firstly, the patient gets rid of 2 and sometimes 3 diseases, the main of which, as a rule, poses a direct threat to the patient's life or health, and the concomitant pathology is fraught with unpredictable development of at least one or even several dangerous complications. Consequently, surgical treatment turns out to be "doubly timely". Secondly, simultaneous elimination of concomitant abdominal disease excludes all possible technical difficulties and complications that are caused by adhesions and may arise during the second operation in the course of stage treatment of the patient. This circumstance is especially relevant if the second intervention is planned to be performed laparoscopically. The third and very important in modern conditions advantage is the high economic efficiency of simultaneous surgical treatment, which excludes repeated hospitalisation with the mandatory scope of preoperative examination, and in some cases preoperative preparation. In addition, bed-day rates in combined interventions are much lower than the total duration of hospitalisation in two-stage treatment. Finally, it should be noted that any operation is a strong stressor for each patient, and the expectation of another hospitalisation is accompanied by pronounced psychological discomfort and even fear. It is not uncommon for patients to avoid the second intervention under various pretexts, and in the

absence of significant complaints, and even refuse it altogether. In this respect, simultaneous operations have another important advantage [10].

With modern anaesthesia and intensive care capabilities, the volume of surgical intervention, i.e., the degree of surgical aggression, is no longer the leading factor determining the nature and severity of the early postoperative period [26,30,32]. Moreover, the modern arsenal of endovideosurgical, laparoscopically assisted and combined techniques makes it possible to significantly expand the volume of surgery without a significant, i.e. clinically significant, increase in the degree of surgical aggression and, accordingly, stress of urgent adaptive reactions of the organism. The severity of the latter two factors is also reduced due to multilevel analgesia [14].

Consequently, the risk of simultaneous intervention is determined, first of all, by the level of functional reserves of the patient, and the degree of this risk in most cases is comparable to that of isolated performance of the main stage of intervention [4,11]. Many authors convincingly show that the immediate results of simultaneous operations are not inferior to the results of similar isolated interventions in a number of indicators. The obligatory conditions for this are complete examination of the patient with determination of his functional reserves, justification of indications for combined surgery and the choice of the variant of its performance, and preoperative preparation [7]. If these conditions are met, good immediate results of various simultaneous interventions are achieved also among elderly and even elderly patients of the 3rd group of surgical and anaesthetic risk according to the ASA classification [11]. There is evidence that the incidence of early complications after combined operations is significantly lower than the total number of complications in two-stage surgical treatment of comparable groups of patients [2,12].

Conclusions: Thus, the analysis of the literature allows us to draw 2 main conclusions. Firstly, controversial issues concerning terminology and classification of simultaneous surgeries as well as indications and contraindications to them require discussion, definition and systematisation for a unified understanding of the listed aspects. Secondly, the obvious advantages of reasonable simultaneous operations on the abdominal organs are a guideline for increasing the frequency of these interventions in modern conditions.

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