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## SIMULTANEOUS LAPAROSCOPIC OPERATIONS IN COMBINATION WITH GYNECOLOGICAL AND SURGICAL PATHOLOGY

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Laparoscopic gynecology has been used worldwide over the last few decades. Many surgical interventions previously performed laparotomically use minimally invasive laparoscopic techniques. Gynecological diseases often occur with other pathologies of internal organs that require surgical treatment. Simultaneous interventions have numerical advantages compared to traditional methods of surgical treatment. As a result of the analyzed clinical data of the conducted research, it can be stated that the simultaneous operations performed to solve gynecological and general surgical pathologies had a course similar to traditional surgical interventions. No cases of development of complications or adverse events were recorded. All patients received the maximum possible amount of treatment with the elimination of more pathological processes, which significantly improved their quality of life.

**Key words:** gynecology, simultaneous operations, operative treatment, surgery, laparoscopic operation.

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## СИМУЛЬТАННІ ЛАПАРОСКОПІЧНІ ОПЕРАЦІЇ ПРИ ПОЄДНАННІ ГІНЕКОЛОГІЧНОЇ ТА ХІРУРГІЧНОЇ ПАТОЛОГІЇ

Лапароскопічна гінекологія активно та успішно використовується у всьому світі впродовж декількох останніх десятиліть. Велика кількість оперативних втручань, які раніше виконувалися лапаротомічно, наразі виконуються малоінвазивними лапароскопічними техніками. Гінекологічні захворювання нерідко зустрічаються з іншими патологіями внутрішніх органів, що потребують хірургічного лікування. Симультанні втручання мають чисельні переваги порівняно з традиційними методами хірургічного лікування. В результаті проаналізованих клінічних даних, проведеного дослідження, можна стверджувати, що симультанні операції, що виконувалися з метою вирішення гінекологічних та загальнохірургічних патологій мали перебіг подібний до традиційних оперативних втручань, не було зафіксовано випадків розвитку ускладнень чи небажаних явищ. Усі хворі отримали максимально можливий об'єм лікування з ліквідацією більшої кількості патологічних процесів, що дозволило достовірно покращити якість їх життя.

**Ключові слова:** гінекологія, симультанні операції, оперативне лікування, хірургія, лапароскопічна операція.

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Operative gynecology is in constant dynamic development [6, 13, 15]. Laparoscopic gynecology has been used worldwide over the last few decades [10, 14]. Many surgical interventions previously performed laparotomically are currently performed using minimally invasive laparoscopic techniques [10, 14, 15].

Due to the increase in the life expectancy of women and the improvement of the diagnostic capabilities of modern medicine, the tendency to increase the number of patients who have 2–3 concomitant surgical pathologies have increased [4].

Gynecological diseases often occur with other pathologies of internal organs that require surgical treatment. Diseases of the organs of the abdominal cavity, small pelvis, and retroperitoneal space in combination, according to the World Health Organization, occur in 20–30 % of patients, which presents surgeons and gynecologists with the task of simultaneous correction of pathologies [1–4, 11, 12]. As a rule, surgical interventions for similar pathologies are performed in stages in ordinary urological, surgical and gynecological hospitals. For example, a patient is first operated on for an ovarian cyst at a gynecologist, a kidney tumor at a urologist, gallstone disease or a hernia at a surgical hospital [1–3]. In such a situation, the treatment and postoperative rehabilitation process stretches for 6–9 months, and two or three postoperative scars remain on the patient's body. If the patient has already undergone one complex operation, it is difficult for her to dare to have a second, no less complicated, operation [5].

In recent years, in providing gynecological care to patients, in addition to purely medical aspects, great attention has been paid to intensifying the work of gynecological hospitals, rational use of bed stock, reducing economic costs, and expanding the scope of financial expenses. Increasing the effectiveness of

treatment of gynecological patients who require surgical intervention if they have combined surgical pathology is achieved by performing simultaneous operations [1, 3, 4, 11, 12].

The term “simultaneous” comes from the Latin word “simul”, meaning “at the same time”. Currently, “simultaneous operations” refers to surgical operations performed simultaneously on 2 or more organs for pathologies that are etiologically unrelated from one or more approaches [4].

There are several classifications of simultaneous operations, according to A.A. Zemliakin of 1991:

1. According to the urgency of operations:
  - emergency services;
  - planned ones.
2. For indices:
  - according to absolute indices;
  - according to relative indices;
  - forced operations.
3. The deadline for deciding to perform a simultaneous operation:
  - pre-planned;
  - unplanned.
4. Operational access:
  - from a single access;
  - with two or more accesses.

Directly in surgical intervention, the main and accompanying stages are distinguished. The priority of performing these stages in each specific case is decided strictly individually based on the urgency, scope of the intervention, anatomical and pathophysiological features of the pathology, and technical and personnel support.

Simultaneous interventions have numerous advantages over traditional methods of surgical treatment, namely: laparoscopic access provides an opportunity for diagnostic examination of the entire abdominal cavity in its various departments, minor blood loss during the intervention, less pronounced pain syndrome in the postoperative period, early activation of patients, cosmetic aesthetics, reduction of rehabilitation period after intervention, economic benefit and less psychological traumatization of patients [7].

Despite the high level of combined pathology, the number of simultaneous operations performed remains at 1.3–6.8 % [2, 3, 7].

**The purpose** of the study was to improve the treatment of gynecological patients with combined surgical pathology by comparing the effect of simultaneous operations on the duration of the intervention, the course of the postoperative period and assessing the quality of life of those who underwent such interventions; exploring the possibility of introducing more simultaneous operations into clinical practice.

**Materials and methods.** To evaluate the duration of simultaneous interventions in gynecological practice using laparoscopy and assess the quality of life of patients in the postoperative stage, we analyzed the clinical data of patients who underwent simultaneous endovideoscopic operations in the period 2015–2020 on the basis of the Poltava Central Regional Clinical Hospital. We compared them with laparoscopic interventions in the presence of one gynecological or surgical pathology during the same period.

The study included patients who underwent laparoscopic surgery for one pathology: ovarian cystic changes or cyst rupture (45 patients), chronic calculous cholecystitis (56 patients), acute appendicitis (79 patients), ventral, umbilical and inguinal hernias (34 patient). Laparoscopic total hysterectomy was performed in 12 patients. The mean age of the comparison group (CG) was  $46 \pm 5.6$  years old. The analysis was performed only among female patients.

The experimental group (EG) consisted of 15 patients who underwent simultaneous interventions on the organs of the abdominal cavity in combination with surgical pathology:

- Ovarian cyst removal (cystectomy) in combination with cholecystectomy – 5 operations;
- Cystectomy + appendectomy – 2 operations;
- Cystectomy + hernioplasty using the TAPP method – 2 operations;
- Cystectomy + hernioplasty of the umbilical hernia (stitching) – 1 operation;
- Cystectomy + hernioplasty of ventral hernia (IPOM) – 2 operations;
- Hysterectomy + cholecystectomy – 2 operations;
- Cystectomy + appendectomy + hernioplasty (TAPP) + iliac lymph node biopsy – 1 operation.

In the comparison and study groups, we analyzed clinical parameters such as the duration of interventions (min.), volume of intraoperative blood loss (mL), duration of pain syndrome (days), time of patient activation (days), quality of life (QoL) of patients in the 4-week period after the intervention using

the TheShortForm-36 (SF-36) quality of life questionnaire [8]. It should be noted that the duration of the intervention and blood loss during simultaneous operations were compared with similar indicators during the corresponding interventions in the presence of the same pathology.

**Results of the study and their discussion.** During our assessment of the postoperative condition and analysis of clinical data of patients who underwent surgical treatment (all surgical interventions were performed laparoscopically) of one surgical or gynecological pathology, we obtained the following data, shown in Table 1. Clinical results were evaluated by parameters such as the duration of surgery in minutes, the volume of blood loss in mL, the duration of postoperative pain in days, and patient activation.

Table 1

**Clinical results of patients with laparoscopic operations for one pathological condition**

Surgery	Quantity	Duration of the operation (min.)	Blood loss (mL)	Pain syndrome (days)	Patient activation
Cystectomy	45	30–50 min.	20–30 mL	1.3±0.3	1st day
Cholecystectomy	56	40–60 min.	30–45 mL	2±0.4	1st day
Appendectomy	79	50–60 min.	20–30 mL	1.5±1	1st day
Hernioplasty (TAPP)	20	50–60 min.	10–15 mL	2.5±0.4	1st day
Hernioplasty (IPOM)	11	45–60 min.	15–20 ml	2±0.5	1st day
Suturing of umbilical hernia	3	15–20 min.	10–15 mL	1.9±0.3	1st day
Hysterectomy	12	60–100 min.	50–150 mL	1.5±1	1st day

In patients who underwent appendectomy, the duration of the operation did not exceed one hour, on mean 50–60 minutes, the blood loss was 20–30 mL on mean, and the pain in the area of the operative wounds was bothering for no more than a day and a half. from the moment of intervention. When cholecystectomy was performed, the duration of the operation was up to one hour, a mean of 40–60 minutes, blood loss did not exceed 45 ml, and patients complained of pain for a mean of two days.

When hernioplasty was performed by the TAPP method (transabdominal preperitoneal plastic surgery of the inguinal hernia), the duration of operations did not exceed one hour, on mean 50–60 minutes, blood loss was minimal and amounted to 10 to 15 ml, the pain syndrome was present for up to two and a half days.

In patients who underwent hernioplasty by the IPOM method (using a mesh transplant on the peritoneum for umbilical or ventral hernias), operations were 45 to 60 minutes long. Blood loss did not exceed 20 ml, and pain in the area of postoperative wounds remained present for up to two days.

When suturing umbilical hernias, the intervention took a mean of 15–20 minutes, blood loss was up to 15 mL, and the pain syndrome lasted less than two days.

In patients with a hysterectomy, the duration of operations was 60–100 minutes, blood loss was up to 150 mL, and the pain syndrome did not exceed a day and a half.

When analyzing the clinical data of the research group that underwent simultaneous laparoscopic surgery (with surgical pathology), we obtained the following data presented in Table 2. The same parameters evaluated clinical results as in patients who underwent intervention for one pathology.

Table 2

**Clinical results of patients with simultaneous laparoscopic operations (with surgical pathology)**

Surgery	Quantity	Duration of the operation (min.)	Blood loss (mL)	Pain syndrome (days)	Patient activation
Cystectomy + cholecystectomy	5	60–90 min.	50–60 mL	1 day	1st day
Cystectomy + appendectomy	2	60–90 min.	30–40 mL	1 day	1st day
Cystectomy + hernioplasty (TAPP)	2	60–100 min.	30–40 mL	1 day	1st day
Cystectomy + hernioplasty of the umbilical hernia (suturing)	1	55 min.	30 mL	1 day	1st day
Cystectomy + hernioplasty of the ventral hernia (IPOM)	2	80–100 min.	30–45 mL	1 day	1st day
Hysterectomy + cholecystectomy	2	150–175 min.	130–150 mL	2 days	1st day
Cystectomy + appendectomy + hernioplasty (TAPP) + iliac lymph node biopsy	1	85 min.	45 mL	2 days	1st day

The clinical results of patients who underwent both cystectomy and cholecystectomy were characterized by the following data: the duration of the operation was on mean 60–90 minutes, blood loss up to about 60 mL, pain in the area of postoperative wounds persisted on mean for about one day from the moment of intervention.

When cystectomy and appendectomy were performed, the operation was 60–90 minutes on mean, blood loss did not exceed 40 mL, and patients complained of pain for up to one day on mean.

When cystectomy and hernioplasty by the TAPP method (transabdominal preperitoneal plastic surgery of the inguinal hernia) are performed – the duration of operations was a mean 60–100 minutes, blood loss ranged from 30 to 40 mL, pain syndrome was present on mean up to one day.

When performing a cystectomy and suturing the umbilical hernia, the intervention took 55 minutes, blood loss was up to 30 mL, and the pain syndrome lasted less than a day.

In patients who underwent hernioplasty by the IPOM method (use of a mesh transplant on the peritoneum for umbilical or ventral hernias) and cystectomy, the duration of operations was from 80 to 100 minutes. Blood loss did not exceed 30–45 mL, and pain in the area of postoperative wounds remained present for up to one day.

In patients with hysterectomy and cholecystectomy, the duration of operations was 150–175 minutes, blood loss was up to 150 ml, and the pain syndrome did not exceed two days.

When simultaneous cystectomy, appendectomy, hernioplasty by the TAPP method and biopsy of the articular lymph node were performed, the operation was 85 minutes, the blood loss did not exceed 45 mL, and the patient complained of pain syndrome for two days. In our study, we also monitored QoL levels in CG and SG patients using the SF-36 questionnaire, which includes 36 items that are grouped into 8 scales: physical functioning, role-based physical functioning, pain intensity, overall health, vitality, social functioning, role-based emotional functioning, and psychological health. Fig. 1 shows the mean indices of quality of life according to the conducted questionnaire using the SF-36 questionnaire.

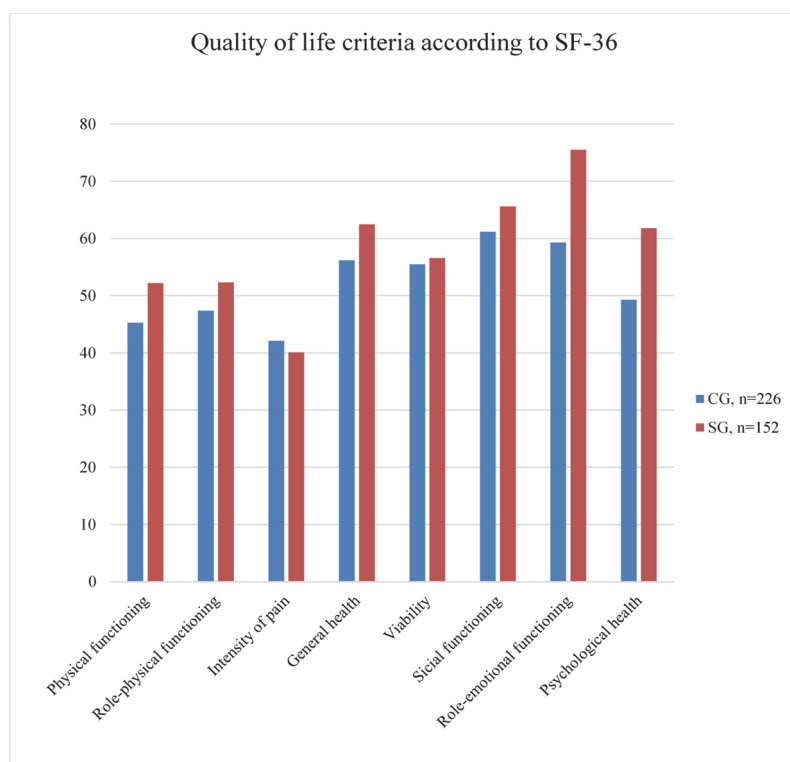


Fig. 1. QoL indices in patients with CG and SG in the 4-week period after surgery on the SF-36 scale.

for operation of laparoscopic equipment, and placement of ports, and when performing simultaneous interventions, several surgical issues are solved at the same time and a significant saving of time is observed.

– the mean volume of blood loss did not exceed the total indicative blood loss in separately performed operations.

– the time of activation during simultaneous surgical treatment did not differ from the time of activation of patients during individual operations. Activation of patients, as in CG and SG, occurred on the 1st day.

– the quality of life of patients in the 4-week observation period after surgical treatment was higher in patients who underwent simultaneous operations due to the resolution of several surgical pathologies during one surgical intervention.

– patients with SG were monitored for 6 months for early and late postoperative complications. We have not identified any cases of postoperative complications or relapses of diseases.

According to the indicated parameters, we can observe a higher quality of life at discharge in SG patients (n=15) compared to CG patients (n=226). This shows a more comprehensive and purposeful approach to meeting the patients' life needs when performing simultaneous surgical interventions.

Comparing and analyzing the data obtained during our research in SG and CG, we noted certain features of simultaneous interventions, which can be summarized by the following statements:

– the duration of simultaneous interventions was shorter than the total time of separately performed laparoscopic interventions for the same pathology. It should be noted that when performing the operative treatment, a lot of time is spent on anesthesia provision, preparation

– depending on the number of solved surgical issues during one simultaneous operation, the number of necessary hospitalizations and the duration of the patient's sick leave and bed days are reduced.

When evaluating data from literary sources [1, 2, 3] and comparing the clinical results of previous studies with our observations, we can state the similarity of the obtained results and conclusions. As in our study, simultaneous operations have their own significant advantages over the control group. However, the sample of patients in the SG was significantly smaller than in the comparative one, which significantly impacted the obtained data.

### Conclusion

As a result of the analyzed clinical data of the conducted research, it can be stated that the simultaneous operations performed to solve gynecological and general surgical pathologies had a course similar to traditional surgical interventions. No cases of development of complications or adverse events were recorded. All patients received the maximum possible amount of treatment with the elimination of more pathological processes, which significantly improved their quality of life. This allows us to state that if there are indices, appropriate technical and personnel support, simultaneous operations can positively affect the course of the postoperative period and will allow us to solve issues of surgical diseases of various profiles, particularly gynecological and general surgical.

*Prospects for further research: It is planned to expand the volume of patients for research and study of the impact of simultaneous operations on the general condition of patients, terms and features of the course of the postoperative period, laboratory indicators and determination of clear recommendations regarding the feasibility of carrying out such operations. Further study of this problem will allow us to expand the indices for conducting simultaneous operations in gynecology, optimize the technique of their implementation and management of the postoperative period, and improve patients' quality of life.*

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