ORIGINAL ARTICLE

Simultaneous Surgery and Management in Patients with Chronic Cholecystitis and Gynecological Diseases

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Abstract

Introduction: Simultaneous surgery for chronic cholecystitis and gynecological diseases is a complex clinical scenario that requires careful consideration of the operation and anesthetic risks involved. This study aimed to evaluate the outcomes of patients who underwent simultaneous operations for these combined conditions at the National Clinical Center of the Ministry of Health of the Kyrgyz Republic between 2019 and 2023. **Materials and Methods:** A total of 132 patients were divided into two groups based on the surgical approach and volume of the operation: Group I (n = 63, 47.7%) underwent laparoscopic cholecystectomy and gynecological laparoscopy (LC + GL), while Group II (n = 69, 52.3%) underwent LC and open cholecystectomy (LC + OC). **Results:** The mean age was 53.5 ± 2.8 years for Group 1 and 52.2 ± 2.7 years for Group 2, with no significant age difference between the groups ($P > 0.05$). The most common gynecological diseases among the patients were uterine fibroids (52.2%), adenomyosis (30.3%), and ovarian cysts (11.4%). In 35 (55.5%) patients who underwent LC, surgeons employed conventional methods for pelvic organ operations, utilizing a 10 mm periumbilical trocar for the laparoscope and two 5 mm trocars in the iliac regions. **Conclusion:** The results suggest that simultaneous surgery for chronic cholecystitis and gynecological diseases can be performed safely, reducing the patient's physical burden and treatment and recovery time. However, further research is needed to better understand the risks and benefits of this approach in different patient populations.

Key words: Chronic cholecystitis, gynecological diseases, gynecological laparoscopy, laparoscopic cholecystectomy, open cholecystectomy, trendelenburg position

INTRODUCTION

The clinical scenario of patients with chronic cholecystitis and gynecological diseases is complicated by the need for simultaneous surgery.[1] According to Atabaev *et al*., the decision to perform simultaneous surgery for these combined diseases depends on the operation and anesthetic risks involved and can lead to complications in patients with high-risk factors.[2] However, this study suggests that scheduling operations at different stages may be more appropriate for patients with significant anesthetic and operational risks. In contrast, Samoilov *et al*. reported that simultaneous laparoscopic bariatric operations and radical interventions for neoplasms of the female reproductive system can be performed safely in patients with morbid obesity, without additional risks or complications.[3]

Atabaev *et al*. and Samoilov *et al*. noted that chronic cholecystitis,[2,3] a common pediatric inflammatory condition, often remains undiagnosed and is linked to gallbladder carcinoma through toll-like receptor mechanisms.[4,5] Vaisi-Raygani and Asgari emphasized the significant role of inflammation in

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Received: 02-08-2024
Revised: 16-09-2024
Accepted: 22-09-2024

female reproductive disorders,[6] potentially affecting fertility, while oxidative stress has also been implicated in female infertility.[7] Hasheminasab *et al*. highlighted *Crocus sativus's* efficacy in treating various female reproductive disorders.[8] Zinc is crucial to the female reproductive system and may therapeutically address conditions such as polycystic ovary syndrome and dysmenorrhea.[9] Finally, the emerging field of mechanobiology in the female reproductive system requires further research to understand the impact of mechanical forces on reproductive physiology and disorders.[10]

Increasingly, patients present with both surgical and gynecological conditions, making simultaneous surgery a more optimal approach. The key benefit is reducing the patient's physical burden by performing multiple interventions simultaneously, thereby decreasing the treatment and recovery time. This study provides results for patients who underwent simultaneous operations for chronic cholecystitis and gynecological conditions.

MATERIALS AND METHODS

A total of 132 patients underwent simultaneous operations for the combined conditions of chronic cholecystitis and gynecological diseases at the National Clinical Center of the Ministry of Health of the Kyrgyz Republic between 2019 and 2023. All surgeries were performed as planned, following examination at both the FMC and hospital. The patients were divided into two groups based on the surgical approach and volume of the operation: Group I consisted of 63 (47.7%) patients who underwent laparoscopic cholecystectomy and gynecological laparoscopy (LC + GL), while Group II comprised 69 (52.3%) patients who underwent LC and open cholecystectomy (LC + OC).

Laparoscopic and gynecological surgeries have distinct characteristics. After LC, gynecological surgery was performed. The surgical team's arrangement and patient's position changed to the Trendelenburg stance. The surgeon stood to the patient's left, the first assistant with a camera on the right, and a second assistant with a uterine manipulator between the patient's legs for laparoscopic hysterectomy. The patient's legs were separated by 90°, with the hips aligned to facilitate instrument use. A uterine manipulator was inserted and fixed using bullet forceps. Additional trocars were introduced and the patient was placed in a 15° Trendelenburg position with a slight lateral tilt for better exposure.

The periumbilical approach, with a laparoscope inserted into the trocar and preserved peritoneum, was used after cholecystectomy. The gynecological stage varied according to the patient's condition, pathology, and surgical intervention volume. The number of additional trocars varied, with each case considered individually after revising the pelvis based on surgical expediency and technical convenience principles.

Statistical analysis, version 11.5 of the Statistical Package for the Social Sciences, was employed. The results are presented as n (%). Statistical significance was set at $P < 0.05$. Confidentiality was maintained for data collected from patients who gave informed consent. This study was approved by the minutes of second meeting of the bioethics committee of the National Surgical Center named after M.M. Mamakeev of the Ministry of Health of the Kyrgyz Republic (dated May 03, 2024) and was conducted in compliance with the criteria outlined in the declaration of Helsinki.

RESULTS

Table 1 shows that most patients were between 41 and 50 years old (34.8%, $n = 46$). In addition, 36.4% ($n = 48$) were aged 51–60, and 7.6% ($n = 10$) were 61–70. Only 8.3% ($n = 11$) of the patients were aged 70 years or older. The mean age was 53.5 ± 2.8 years for Group 1 and 52.2 ± 2.7 years for Group 2, indicating no significant age difference between the groups ($P > 0.05$).

Following LC, simultaneous GL with OC were performed for patients in Groups I and II. LC and GL operations are commonly performed to treat chronic cholecystitis and gynecological diseases. Uterine fibroids were found in 33 patients (52.3%), adenomyosis in 19 (30.1%), ovarian cysts in 15 (11.4%), and other gynecological diseases in 8 (6.1%). Table 2 details the nature and structure of gynecological diseases among surgical patients.

The patients were instructed to fast after 20:00 the night before surgery, and a cleansing enema was administered. Thirty min before the operation premedication and bladder catheterization using a Foley catheter were performed. The procedure began with standard LC.

In 35 (55.5%) patients who underwent LC, surgeons employed conventional methods for pelvic organ operations, utilizing a 10-mm periumbilical trocar for the laparoscope, two 5-mm trocars in the iliac regions, and 3–5 cm medial to the anterosuperior iliac spine. These techniques were used in the second stage of extensive gynecological procedures, technically challenging cases, pelvic adhesion management, and removal of left appendage space-occupying formations. In addition, these methods were employed for large-bodied patients and those with an appendectomy scar, in which the right iliac region trocar was inserted through the scar under visual guidance. The primary reasons for selecting these techniques are their ease of use and effective instrument manipulation within the anatomical area.

In the second stage, involving 25 (39.6%) patients, we utilized a single additional 5 mm access to the left iliac region. The remaining trocars, including one for the laparoscope in the umbilical region and another along the right anterior axillary line, were employed, as in the first stage. For LC, the

Table 1: The distribution of operated patients by age

Age groups	LC+GL (%)	LC+OC (%)	Total patients (%)
31–40 years old	8 (12.8)	9 (13.0)	17 (12.9)
41–50 years old	24 (38.1)	22 (31.9)	46 (34.8)
51–60 years old	23 (36.5)	25 (36.2)	48 (36.4)
61–70 years old	4 (6.3)	6 (8.7)	10 (7.6)
70 years and above	4 (6.3)	7 (10.2)	11 (8.3)
Total	63 (100)	69 (100)	132 (100)

Values are presented as the *n* (%). LC+GL: Laparoscopic cholecystectomy and gynecological laparoscopy, LC+OC: Laparoscopic cholecystectomy and open cholecystectomy

Table 2: Chronic cholecystitis and gynecological diseases of operated patients

Groups	LC+GL (%)	LC+OC (%)	Total patients (%)
Uterine fibroids	33 (52.3)	36 (52.2)	69 (52.2)
Adenomyosis	19 (30.1)	21 (30.4)	40 (30.3)
Ovarian cyst	6 (9.5)	9 (13.1)	15 (11.4)
Hydrosalpinx	5 (8.1)	3 (4.3)	8 (6.1)
Total	63 (100)	69 (100)	132 (100)

Values are presented as the *n* (%). LC+GL: Laparoscopic cholecystectomy and gynecological laparoscopy, LC+OC: Laparoscopic cholecystectomy and open cholecystectomy

fourth access was placed 3–4 cm lower and 1–2 cm medial than usual, suitable for small-scale appendage operations, typically on the right, in patients with short stature (distances between the xiphoid process and pubic symphysis <35 cm, and between the anterosuperior iliac axes <33 cm). In 5 (8%) patients, no additional access was required in the second stage. During gynecological procedures, instruments were inserted through 5 mm trocars at the third and fourth points along the right midclavicular line and right anterior axillary line (5–7 cm below the costal arch). This option is feasible for miniature patients with right appendage pathology, without technical difficulties. Four cases involved the removal of right ovarian cysts; one involved conservative myomectomy, where a 3-cm subserous myoma on a pedicle in the uterine fundus area on the right was removed.

Access during simultaneous LC and OC varies based on the surgical intervention volume, intraoperative revision results, surgeon skills, and patient constitution. Shifting the fourth access along the anterior axillary line by 5–7 cm below the costal arch and 1–2 cm more medially could reduce additional punctures. Our study showed a 46.5% reduction in the access standards. In 44.3% of gynecological cases, only one additional puncture was made in the left iliac region, and no extra incisions were needed in 8% of patients, with a cutting operation time of 5–10 min. Each case must consider the necessity of surgical procedures, qualifications of the surgical team, and patient safety. The mean laparoscopic surgery duration was 119 ± 6 min, with a smooth early post-operative period. Patients experience early activation and minimal pain, antibacterial and analgesic therapy, and therapeutic pathology correction. The mean post-operative hospital stay was 7–9 days.

DISCUSSION

Simultaneous operations for chronic cholecystitis and gynecological diseases are technically feasible and safe in specific cases.[3] However, potential risks must be considered, particularly in patients with high operational and anesthetic risks.[2] The role of inflammation in reproductive disorders and possible therapeutic interventions and the need for further research in mechanobiology underscore the complexity of managing these conditions. Thus, a multidisciplinary approach is essential, accounting for an individual patient's risk profile and the interplay between various factors affecting the female reproductive system.

LC is the gold standard for treating chronic cholecystitis with gallstones and has been proven to be effective and safe in multiple studies.[11-13] Research indicates that it results in shorter operation times, reduced blood loss, shorter hospital stays, and lower postoperative pain and inflammation than OC.[11-13] In addition, it enhances post-operative quality of life.[12]

However, the existing literature does not address the simultaneous management of gynecological diseases with LC in women. GL, a separate minimally invasive technique for diagnosing and treating various conditions, has not been integrated with LC. Further research is needed to explore the feasibility and outcomes of combining GL with LC in women with coexisting gynecological conditions.

LC and OC are surgical treatments for chronic cholecystitis characterized by gallbladder inflammation, often due to gallstones. While no direct evidence exists on the outcomes of these procedures in women with gynecological diseases, studies indicate that LC generally offers better perioperative outcomes than OC, including shorter operation time, less blood loss, shorter hospital stay, and improved postoperative quality of life.[12,13] LC also shows lower levels of post-operative inflammatory markers and fewer complications.[11,12]

Male patients with acute cholecystitis often experience more severe inflammation than female patients,[14] suggesting that women may have less severe inflammation and potentially better surgical outcomes, although this requires further study. Evidence supports LC over OC for superior outcomes, although data on women with gynecological diseases and chronic cholecystitis are lacking. Surgical planning should consider individual patient factors including gynecological comorbidities, warranting additional research on their impact on surgical outcomes.[11-13]

CONCLUSION

In cases where a woman has chronic cholecystitis alongside gynecological issues, LC is preferable, even if pelvic intervention is not possible. This approach corrects both surgical problems at different abdominal levels, ensures a favorable cosmetic outcome, and allows for rapid recovery without requiring traumatic wide median laparotomy or separate surgeries. The simultaneous procedure provides psychological and financial benefits to patients.

ACKNOWLEDGMENT

None.

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Source of Support: Nil. **Conflicts of Interest:** None declared.