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DOI: <https://doi.org/10.28942/atu.j.v6i3y2026.163>**SAFETY AND CLINICAL OUTCOMES OF SIMULTANEOUS ABDOMINAL PROCEDURES DURING LAPAROSCOPIC CHOLECYSTECTOMY**

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Abstract

Gallstone disease remains one of the most common surgical conditions worldwide, and laparoscopic cholecystectomy is widely accepted as the gold standard for its treatment. A considerable proportion of patients undergoing laparoscopic cholecystectomy present with concomitant abdominal or pelvic pathologies, raising the clinical question of whether simultaneous surgical procedures can be safely performed during the same operative session. This retrospective observational study analyzed clinical outcomes in patients who underwent laparoscopic cholecystectomy combined with simultaneous abdominal surgical procedures between 2015 and 2025. A total of 410 patients were included. Demographic characteristics, types of simultaneous procedures, surgical approaches, postoperative complications, and length of hospital stay were evaluated using descriptive statistical methods. Results. Female patients predominated (83.4%), and the majority belonged to middle-aged and elderly groups. The most frequently performed simultaneous procedures were gynecological operations and abdominal wall hernia repairs. A completely laparoscopic approach was used in 70.48% of cases, whereas a combined laparoscopic–open strategy was required in the remaining patients. Postoperative complications occurred in 2.7% of cases and were limited to minor events corresponding to Clavien–Dindo grades I–II. No mortality was observed. Patients treated with a fully laparoscopic approach had shorter hospital stay and faster postoperative recovery.

Simultaneous abdominal surgical procedures performed during laparoscopic cholecystectomy appear to be safe and effective in appropriately selected patients. The findings suggest that this strategy may reduce the need for repeated anesthesia and hospitalization, thereby offering potential clinical and socioeconomic benefits.

Keywords: *Laparoscopic cholecystectomy, simultaneous surgery, gallstone disease, abdominal surgical procedures, minimally invasive surgery, surgical outcomes*

INTRODUCTION

Gallstone disease is one of the most

prevalent disorders of the hepatobiliary system and represents a major public health and socioeconomic burden worldwide. Epidemiological studies indicate that its prevalence ranges from 10% to 20% in the adult population and increases with age, female sex, obesity, metabolic syndrome, and dietary factors [1].

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Laparoscopic cholecystectomy is currently recognized as the gold standard for the treatment of symptomatic gallstone disease, because of its low morbidity, short hospital stays and rapid postoperative recovery [2]. With increasing life expectancy and the growing prevalence of comorbid conditions, many patients scheduled for laparoscopic cholecystectomy also present with concomitant abdominal or pelvic diseases requiring surgical treatment [3].

Traditionally, these disorders have been managed in separate operative sessions. However, staged surgery requires repeated anesthesia, additional hospitalization, delayed recovery, and increased healthcare costs. Simultaneous (one-stage) surgery has therefore emerged as an attractive alternative, enabling treatment of multiple pathologies during a single operative session while potentially reducing overall treatment time and improving patient convenience [2–6].

Although recent studies have demonstrated that simultaneous laparoscopic procedures are generally safe and feasible in appropriately selected patients, the available evidence remains heterogeneous because of differences in patient selection, operative techniques, and outcome assessment [5,13,15]

A major limitation is the lack of unified clinical guidelines and standardized recommendations regarding indications, contraindications, optimal sequencing of surgical steps, and risk factors influencing outcomes. Consequently, decision-making often relies on individual surgeon experience [13,18].

Therefore, analyzing clinical outcomes of simultaneous abdominal procedures performed during laparoscopic cholecystectomy in a large patient cohort is of significant scientific and practical importance.

MATERIALS AND METHODS

This retrospective observational clinical study included 410 consecutive patients who underwent simultaneous abdominal procedures during laparoscopic cholecystectomy between 2015 and 2025. The patients' age ranged from 28 to 86 years, with females predominating (83.4%). Age and sex distribution are presented in Table 1.

Preoperative evaluation included medical history, physical examination, routine laboratory investigations, abdominal ultrasonography, and additional imaging studies when clinically indicated. The indication for simultaneous surgery was established individually according to the patient's clinical condition, concomitant pathology, and the surgeon's judgment.

Table 1. Age and Sex Distribution of Patients

Age group	Male n (%)	Female n (%)	Total n (%)
≤30	4 (0.98)	31 (7.56)	35 (8.54)
31–40	8 (1.95)	65 (15.85)	73 (17.80)
41–50	14 (3.42)	76 (18.53)	90 (21.95)
51–60	21 (5.12)	56 (13.66)	77 (18.78)
61–70	15 (3.66)	71 (17.32)	86 (20.98)
>70	6 (1.46)	43 (10.49)	49 (11.95)

Comorbidities were considered when determining surgical tactics. The most common conditions included arterial

hypertension, diabetes mellitus, ischemic heart disease, and chronic respiratory diseases.

Clinical data were extracted retrospectively from medical records and analyzed using descriptive statistical methods. Continuous variables are presented as ranges,

whereas categorical variables are expressed as absolute numbers (n) and percentages (%).

Table 2. Structure of Comorbidities

Comorbidity	n (%)
Hypertension	93 (22.7)
Ischemic heart disease	43 (10.5)
Diabetes mellitus	65 (15.9)
Chronic bronchitis/COPD	43 (10.5)

Comorbidities were considered when determining surgical tactics. The most common conditions included arterial hypertension, diabetes mellitus, ischemic heart disease, and chronic respiratory diseases.

All patients underwent laparoscopic cholecystectomy as the primary procedure. Additional simultaneous interventions were performed during the same operative session according to the type of concomitant abdominal or pelvic pathology

Table 3. Types of Simultaneous Procedures

Procedure	N
LC + gynecological surgery	214
LC + abdominal wall hernia repair	72
LC + adhesiolysis	49
LC + appendectomy	7
LC + liver resection/cyst	5
Others	63

According to the surgical approach, patients were classified into two groups:
Group I – Fully laparoscopic approach

Group II – Combined laparoscopic and open approach

Table 4. Surgical Approach Distribution

Group	Approach	n (%)
I	Full laparoscopic	289 (70.48)
II	Laparoscopic + open	121 (29.52)

Preoperative evaluation included detailed medical history, physical examination, routine laboratory tests, abdominal ultrasonography, and additional imaging studies when indicated. Surgical strategy (fully laparoscopic or combined laparoscopic–open approach) was determined according to the type of

concomitant pathology, technical feasibility, and intraoperative findings.

Data were analyzed using descriptive statistical methods and are presented as absolute numbers (n) and percentages (%). No inferential statistical analysis was performed because of the descriptive retrospective design of the study.

RESULTS

Among 410 patients, 342 (83.4%) were female and 68 (16.6%) were male. The majority of patients belonged to the middle-aged and elderly groups (Table 1).

Gynecological procedures constituted the largest proportion of simultaneous interventions (214 cases), followed by abdominal wall hernia repair (72 cases), adhesiolysis (49 cases), appendectomy (7 cases), and liver procedures (5 cases) (Table 3).

A fully laparoscopic approach was used in 289 patients (70.48%), whereas 121 patients (29.52%) required a combined laparoscopic–open approach (Table 4)

The most frequently observed comorbidities were hypertension (22.7%), diabetes mellitus (15.9%), and ischemic heart disease (10.5%) (Table 2).

Postoperative complications occurred in 11 patients (2.7%). These were mild and managed conservatively, including superficial wound inflammation and residual pain syndrome. All complications were classified as Clavien–Dindo Grade I–II, and no mortality was recorded.

The mean length of hospital stay was 2.8 ± 0.9 days in the fully laparoscopic group and 4.1 ± 1.2 days in the combined laparoscopic–open group ($p = 0.003$).

DISCUSSION

Simultaneous abdominal surgery during laparoscopic cholecystectomy remains a topic of growing interest in minimally invasive surgery. The present study demonstrates that, in carefully selected patients, performing multiple procedures in a single session does not significantly increase perioperative risk. These findings are consistent with previous studies reporting that simultaneous laparoscopic procedures can be performed safely without increasing postoperative morbidity [1–6,13].

The complication rate of 2.7% confirms the acceptable safety profile of this approach and is consistent with literature data reporting complication rates between 2–5%, mostly mild and manageable conservatively [2,5,13].

The type of surgical approach appeared to influence postoperative outcomes. The fully laparoscopic technique was associated with shorter hospitalization and faster recovery, confirming the advantages of minimally invasive surgery. However, because only descriptive statistical analysis was performed, these findings should be interpreted with caution.

The predominance of gynecological procedures and hernia repairs reflects the high prevalence of these conditions, particularly among women with gallstone disease. These combined procedures are technically feasible due to anatomical proximity and have also been reported by other authors as the most frequently performed simultaneous interventions [4,5,15–18].

Simultaneous surgery also offers economic advantages by reducing hospitalization, anesthesia exposure, and recovery time, although economic parameters were not directly analyzed in this study. A major concern is prolonged operative time; however, advances in laparoscopic techniques and anesthesia have minimized its clinical impact [13,18].

Patient selection remains crucial. High-risk patients with severe cardiopulmonary conditions require careful evaluation. The optimal sequence of surgical steps remains controversial and should be individualized based on patient condition and technical considerations.

The present study has several limitations. Its retrospective single-center design and the absence of inferential statistical analysis limit the strength and generalizability of the conclusions.

Therefore, prospective multicenter studies with comparative statistical analyses are warranted to further validate these findings.

CONCLUSION

Simultaneous abdominal procedures during laparoscopic cholecystectomy appear to be a safe and effective treatment strategy in appropriately selected patients. In the present study, postoperative complications were infrequent and limited to Clavien–Dindo Grade I–II events, and no mortality was observed. Fully laparoscopic techniques were associated with shorter hospitalization and better recovery outcomes.

The findings suggest that simultaneous surgery may reduce the need for repeated anesthesia and hospitalization, thereby offering potential clinical and socioeconomic benefits.

Further prospective multicenter studies with comparative statistical analyses are needed to confirm these findings and establish standardized recommendations for patient selection and surgical strategy

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LAPAROSKOPIK XOLESISTEKTOMIYA ZAMANI SIMULTAN ABDOMINAL ƏMƏLIYYATLARIN TƏHLÜKƏSİZLİYİ VƏ KLİNİK NƏTİCƏLƏRİ

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Xülasə

Öd daşı xəstəliyi dünyada ən geniş yayılmış cərrahi patologiyalardan biri olaraq qalmaqdadır və laparoskopik xolesistektomiya onun müalicəsində “qızıl standart” hesab olunur. Laparoskopik xolesistektomiya icra olunan pasiyentlərin əhəmiyyətli hissəsində yanaşı abdominal və ya kiçik çanaq patologiyalarının mövcudluğu eyni əməliyyat seansında simultan cərrahi müdaxilələrin təhlükəsizliyinin və məqsədəuyğunluğunun qiymətləndirilməsini aktuallaşdırır.

Bu retrospektiv müşahidə xarakterli tədqiqatda 2015–2025-ci illər ərzində laparoskopik xolesistektomiya zamanı simultan abdominal cərrahi əməliyyatlar icra edilmiş 410 pasiyentin klinik nəticələri təhlil edilmişdir. Demografik göstəricilər, simultan əməliyyatların növləri, cərrahi taktika, əməliyyatsonrası ağrılaşmalar və hospitalizasiya müddəti deskriptiv statistik üsullarla qiymətləndirilmişdir.

Pasiyentlərin 83,4%-ni qadınlar təşkil etmiş, əksəriyyəti isə orta və yaşlı yaş qruplarına aid olmuşdur. Ən çox icra edilən simultan əməliyyatlar ginekoloji cərrahi müdaxilələr və qarın ön divarı yırtıqlarının plastikası olmuşdur. Xəstələrin 70,48%-də əməliyyatın bütün mərhələləri tam laparoskopik üsulla həyata keçirilmişdir. Əməliyyatsonrası ağrılaşmalar 2,7% hallarda müşahidə edilmiş və yalnız Clavien–Dindo təsnifatına görə I–II dərəcəli yüngül ağrılaşmalar qeydə alınmışdır. Letallıq halı müşahidə edilməmişdir. Tam laparoskopik yanaşma daha qısa hospitalizasiya müddəti və daha sürətli əməliyyatsonrası bərpa ilə əlaqələndirilmişdir.

Laparoskopik xolesistektomiya zamanı simultan abdominal əməliyyatlar düzgün seçilmiş pasiyentlərdə təhlükəsiz və effektiv cərrahi yanaşma hesab oluna bilər. Əldə olunan nəticələr bu yanaşmanın təkrar narkoz və hospitalizasiya ehtiyacını azalda biləcəyini, bununla da klinik və potensial sosial-iqtisadi üstünlüklər təmin edə biləcəyini göstərir. Bu nəticələrin təsdiqlənməsi və pasiyent seçimi ilə cərrahi

taktikanın standartlaşdırılması üçün müqayisəli statistik təhlilləri əhatə edən gələcək prospektiv, çoxmərkəzli tədqiqatlara ehtiyac vardır.

Açar sözlər: *laparoskopik xolesistektomiya; simultan cərrahiyyə; öd daşı xəstəliyi; abdominal cərrahi əməliyyatlar; minimal invaziv cərrahiyyə; cərrahi nəticələr*

БЕЗОПАСНОСТЬ И КЛИНИЧЕСКИЕ ИСХОДЫ ОДНОВРЕМЕННЫХ АБДОМИНАЛЬНЫХ ОПЕРАЦИЙ ПРИ ЛАПАРОСКОПИЧЕСКОЙ ХОЛЕЦИСТЭКТОМИИ

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Резюме

Желчнокаменная болезнь остается одним из наиболее распространенных хирургических заболеваний в мире, а лапароскопическая холецистэктомия широко признана «золотым стандартом» ее лечения. Значительная часть пациентов, которым выполняется лапароскопическая холецистэктомия, имеет сопутствующие патологии органов брюшной полости или малого таза, что ставит вопрос о возможности безопасного выполнения симультанных хирургических вмешательств в рамках одной операции. В данном ретроспективном обсервационном исследовании были проанализированы клинические исходы лечения пациентов, перенесших лапароскопическую холецистэктомию с симультанными хирургическими вмешательствами на органах брюшной полости в период с 2015 по 2025 год. В исследование было включено 410 пациентов. Оценивались демографические характеристики, виды симультанных вмешательств, хирургические подходы, послеоперационные осложнения и длительность госпитализации с использованием методов описательной статистики. Среди пациентов преобладали женщины (83,4%), при этом большинство относилось к группе среднего и пожилого возраста. Наиболее часто выполняемыми симультанными вмешательствами были гинекологические операции и операции по поводу грыж брюшной стенки. Полностью лапароскопический подход был применен в 70,48% случаев, тогда как в остальных случаях использовался комбинированный лапароскопически-открытый подход. Послеоперационные осложнения наблюдались в 2,7% случаев и ограничивались осложнениями I–II степени по классификации Clavien–Dindo. Летальных исходов зарегистрировано не было. Полностью лапароскопический подход ассоциировался с более коротким сроком госпитализации и более быстрым послеоперационным восстановлением.

Одновременные абдоминальные хирургические вмешательства, выполняемые при лапароскопической холецистэктомии, представляются безопасной и эффективной хирургической тактикой у правильно отобранных пациентов. Полученные результаты позволяют предположить, что данный подход может снизить необходимость повторной анестезии и госпитализации, обеспечивая потенциальные клинические и социально-экономические преимущества. Для подтверждения полученных результатов необходимы дальнейшие проспективные многоцентровые исследования с применением сравнительного статистического анализа.

Ключевые слова: *лапароскопическая холецистэктомия; симультанные операции; желчнокаменная болезнь; абдоминальные хирургические вмешательства; малоинвазивная хирургия; хирургические исходы.*