



Retrospective Perioperative Profile of Laparoscopic Cholecystectomy at Ibnu Sina Teaching Hospital in 2025

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Abstract

Background: Local perioperative profiles can support service evaluation and improve documentation of patients undergoing laparoscopic cholecystectomy. **Objectives:** To describe the demographic, clinical, anesthetic, and perioperative characteristics of patients undergoing laparoscopic cholecystectomy at Ibnu Sina Teaching Hospital, Makassar. **Methods:** A retrospective descriptive cross sectional review included procedures performed from January 1 to December 25, 2025. Total sampling identified 45 records, of which 40 met the eligibility criteria. Demographics, body mass index, indications, comorbidities, intraoperative findings, anesthesia categories, pain scores, and length of hospital stay were summarized using frequencies and percentages. **Results:** Women comprised 31 patients (77.5%), and 26 (65.0%) were aged over 40 years. Acute cholecystitis was the most frequent indication (55.0%), while gallstones with gallbladder distension were recorded in 55.0%. Regional anesthesia was recorded in 23 cases (57.5%) and general anesthesia in 17 (42.5%). Pain scores of 4–6 occurred in 24 cases (60.0%). Hospital stay was ≤ 3 days in 35 cases (87.5%). **Conclusions:** The findings describe the perioperative profile of eligible laparoscopic cholecystectomy cases and provide a baseline for standardized documentation and prospective clinical audit.

Keywords: Cholecystectomy; Gallstones; Medical records; Perioperative care; Retrospective study.

Introduction

Gallstone disease spans asymptomatic stones, biliary symptoms, and inflammatory complications. Its clinical expression reflects interacting metabolic, demographic, and gallbladder factors¹. The European Association for the Study of the Liver (EASL) distinguishes diagnosis and management according to presentation rather than the presence of stones alone². Describing patients who undergo surgery therefore requires both demographic information and the recorded reason for the operation.

Laparoscopic cholecystectomy is central to the management of symptomatic gallbladder disease and acute cholecystitis. The World Society of Emergency Surgery recommendations address diagnosis, timing, and surgical management of acute calculus cholecystitis³. Tokyo Guidelines 2018 emphasize safe operative steps⁴, and a multisociety guideline addresses prevention of bile duct injury⁵. These recommendations make consistent documentation of the presenting disease, operative findings, and perioperative care relevant to surgical audit.

At Ibnu Sina Makassar Hospital, Yusuf and colleagues previously described

cholelithiasis in the 2021 to 2023 period, emphasizing demographic, body mass index, and lipid characteristics⁶. The present study addresses a different question: the perioperative profile of patients undergoing laparoscopic cholecystectomy during a specified interval in 2025. Its contribution is the combined description of operative indications, intraoperative findings, anesthesia categories, recorded pain, and hospital stay, rather than an analysis of determinants of gallstone occurrence.

The research question was: what demographic and recorded perioperative characteristics were present among eligible laparoscopic cholecystectomy cases at Ibnu Sina Teaching Hospital from January 1 to December 25, 2025? The objective was to summarize these characteristics using the available medical record variables. The study was descriptive and did not test a hypothesis about treatment superiority, operative difficulty prediction, or a causal effect on recovery.

Local profiles can guide improvements in routine documentation and identify variables for subsequent clinical audit. An HTJ study of appendectomy patients illustrates the value of clearly defined surgical populations and descriptive reporting, while involving a different operation⁷. An HTJ perioperative anesthesia case report illustrates the importance of specifying anesthetic management and monitoring in clinical reporting⁸. Neither publication provides a direct numerical benchmark for this laparoscopic cholecystectomy sample.

Materials and Methods

Study Design

A retrospective descriptive cross sectional medical record review was conducted at Ibnu Sina Teaching Hospital, Makassar, Indonesia. The clinical interval was January 1 to December 25, 2025, and included existing

records of laparoscopic cholecystectomy within that interval. This interval defines the analyzed cases; it is not presented as complete calendar year surveillance or as the dates on which research extraction occurred. Reporting distinguishes the clinical period, eligibility, recorded variables, and analytical scope in accordance with STROBE and RECORD principles^{9,10}.

Sample

Total sampling was applied to records meeting the stated criteria during the clinical interval. Eligibility required laparoscopic cholecystectomy and completeness of the main study variables. Records with incomplete main variables and cases treated by primary open cholecystectomy were excluded. Forty five records were identified and 40 were eligible for analysis; five records did not meet eligibility. The available screening summary provides the overall excluded count but not the count attributable to each exclusion reason. No sample size based on hypothesis testing was applied.

Data Collection Technique

The source was existing hospital medical records, accessed with institutional permission. The extraction variables were age, sex, body mass index (BMI), operative indication, comorbidity labels, intraoperative findings, anesthesia category, recorded postoperative pain score, and hospital stay. Age was reported in years using the recorded categories of at most 40 and above 40. Sex was summarized using the recorded male and female categories. BMI is expressed in kg/m² and represents body mass relative to squared height; the reported category frequencies were retained.

The BMI categories were below 18.5, 18.5 to 22.9, 23 to 24.9, 25 to 29.9, and above 30 kg/m². These are the intervals recorded in the source summary. Nutritional status labels were not reassigned using a different classification,

because BMI thresholds for Asian populations require explicit definition¹¹. In particular, the label above 30 was not silently changed to at least 30. The obesity label in the comorbidity field was analyzed separately from this BMI interval.

Operative indications were reported under the recorded labels symptomatic cholelithiasis, acute cholecystitis, and chronic cholecystitis. The labels describe the extracted categories, without assigning a new diagnostic hierarchy or Tokyo severity grade. Acute cholecystitis diagnostic criteria and severity grading require specified clinical, laboratory, and imaging information¹²; that standardized assessment was not part of the reported analysis. Although category counts total 40, the tabulation alone does not establish which diagnosis source or precedence rule resolved clinically overlapping conditions.

Comorbidities were retained as labels in the comorbidity field: hypertension, diabetes mellitus, obesity, dyslipidemia, heart disease, chronic liver disease, and none. Each label is reported with the full sample denominator. Their sum is not used to establish that the conditions were mutually exclusive or to derive a burden of multiple conditions. Intraoperative findings were retained as solitary gallstone, multiple gallstones, and gallstones with gallbladder distension. Distension can coexist with either stone count; these reported groups do not establish absence of other concurrent findings or a verified coding hierarchy.

Anesthesia was retained as the recorded general or regional category. The regional label does not establish a particular spinal, epidural, or peripheral technique, its indication, or whether it accompanied general anesthesia. Pain was summarized in the recorded numerical groups 0 to 3, 4 to 6, and 7 to 10. No specific validated instrument or uniform assessment time was assigned retrospectively: numerical and visual analog pain measures

require distinct documentation¹³. Hospital stay was reported in days using at most three and above three days; the available summary does not distinguish total admission duration from time after surgery.

Data Analysis Technique

Data entry and descriptive tabulation used Microsoft Excel. Frequencies and percentages were checked against the analyzed denominator of 40. Each percentage was calculated as the recorded count divided by 40 and multiplied by 100, with one decimal place. The reconstructed tables preserve the source category counts; they do not reconstruct individual records or resolve overlap by assigning patients to new categories. No missing category values were imputed.

For descriptive precision, 95% Wilson confidence intervals were additionally calculated from the reported counts for the proportions of women, acute cholecystitis labels, and hospital stays of at most three days¹⁴. The interval uses the binomial proportion and its denominator, with a standard normal value of 1.96. These intervals describe uncertainty under a binomial model; they do not establish representativeness beyond the eligible cases. Statistical reporting separates numerical description from hypothesis testing in accordance with SAMPL recommendations¹⁵. No comparative tests, adjusted models, or causal estimates were performed.

Ethical Consideration

The study reports approval from the Ethics Committee of Universitas Muslim Indonesia under reference 1004/A.1/KEP-UMI/XII/2025 and institutional permission for medical record access. It used existing clinical records rather than prospectively assigned interventions or research interviews. Data confidentiality was maintained, extraction was limited to variables needed for the study, and the published results are aggregated without patient names or record

identifiers. Secondary use of records remains subject to the approved ethical conditions, including the applicable consent arrangements¹⁶. Retrospective design alone does not establish a consent waiver.

Result

The analyzed sample comprised 40 eligible records from 45 identified records. Women

accounted for 31 cases (77.5%; 95% confidence interval 62.5% to 87.7%), and men accounted for nine (22.5%). Twenty six patients (65.0%) were older than 40 years and 14 (35.0%) were at most 40 years. The older than 40 category is not equivalent to an elderly population. Table 1 presents demographic and BMI categories with a common denominator.

Table 1. Demographic and recorded BMI categories (N = 40)

Variable	Recorded category	n	%
Sex	Men	9	22.5
	Women	31	77.5
Age (years)	≤40	14	35.0
	>40	26	65.0
BMI (kg/m ²)	<18.5	2	5.0
	18.5 to 22.9	14	35.0
	23 to 24.9	7	17.5
	25 to 29.9	5	12.5
	>30	12	30.0

Source: study medical record summary, 2025. Note: Every percentage uses N = 40. BMI intervals preserve the reported labels; exact boundary and rounding rules are not established by the aggregate table.

Acute cholecystitis was recorded as the indication in 22 cases (55.0%; 95% confidence interval 39.8% to 69.3%), symptomatic cholelithiasis in 16 (40.0%), and chronic cholecystitis in two (5.0%). Table 2 presents these recorded indication labels alongside comorbidity labels and intraoperative finding groups. The predominance of acute cholecystitis indicates that inflammatory gallbladder conditions represented the largest recorded indication category among patients undergoing laparoscopic cholecystectomy in this hospital. Their frequencies describe this surgical sample rather than disease prevalence in the community.

The comorbidity field contained hypertension in eight cases (20.0%), diabetes mellitus in three (7.5%), obesity in 11 (27.5%), dyslipidemia in eight (20.0%), heart disease in one (2.5%), chronic liver disease in three (7.5%), and none in six (15.0%). Separately, the BMI field contained 12 cases above 30 kg/m² (30.0%). These two fields have different

recorded counts and are not substituted for each other. This discrepancy highlights the importance of distinguishing clinically recorded comorbidity labels from anthropometric classifications when interpreting retrospective medical records. The findings therefore do not provide a single harmonized estimate of obesity or establish obesity as a predictor of perioperative outcomes.

The intraoperative summary recorded solitary gallstone in nine cases (22.5%), multiple gallstones in nine (22.5%), and gallstones with gallbladder distension in 22 (55.0%). These are the source reporting groups. The summary does not cross classify stone number and distension, and no such cross classification was reconstructed. Consequently, these findings should be interpreted strictly within the documented categories, without inferring additional anatomical relationships or associations with surgical outcomes.

Table 2. Recorded indications, comorbidity labels, and intraoperative groups (N = 40)

Variable	Recorded category	n	%
Indication	Symptomatic cholelithiasis	16	40.0
	Acute cholecystitis	22	55.0
	Chronic cholecystitis	2	5.0
Comorbidity label	Hypertension	8	20.0
	Diabetes mellitus	3	7.5
	Obesity	11	27.5
	Dyslipidemia	8	20.0
	Heart disease	1	2.5
	Chronic liver disease	3	7.5
	None	6	15.0
Intraoperative group	Solitary gallstone	9	22.5
	Multiple gallstones	9	22.5
	Gallstones with gallbladder distension	22	55.0

Source: study medical record summary, 2025. Percentages use N = 40 for each recorded label. The obesity label is separate from the BMI interval in Table 1.

Table 3 summarizes the available anesthesia, pain, and hospital stay categories. Regional anesthesia was recorded in 23 cases (57.5%) and general anesthesia in 17 (42.5%). Pain scores were 0 to 3 in 16 cases (40.0%), 4 to 6 in 24 (60.0%), and 7 to 10 in none. Hospital

stay was at most three days in 35 cases (87.5%; 95% confidence interval 73.9% to 94.5%) and above three days in five (12.5%). These distributions do not identify which anesthesia category accompanied a particular pain score or duration of stay.

Table 3. Recorded anesthesia, pain, and hospital stay categories (N = 40)

Variable	Recorded category	n	%
Anesthesia	General	17	42.5
	Regional	23	57.5
Pain score	0 to 3	16	40.0
	4 to 6	24	60.0
	7 to 10	0	0.0
Hospital stay (days)	≤3	35	87.5
	>3	5	12.5

Source: study medical record summary, 2025. Percentages use N = 40.

No statistical hypothesis or relationship between variables was tested. The available univariate counts do not support comparisons of anesthesia techniques, estimates of predictors of longer stay, or associations between BMI and pain. The selected confidence intervals accompany individual proportions only. No inference about treatment

effectiveness is derived from the descriptive distributions.

Figure 1 displays the three recorded operative indication categories. Each bar shows the count and percentage using N = 40. The figure reproduces the indication portion of Table 2 and does not add a severity classification, diagnostic hierarchy, or comparison of clinical outcomes.

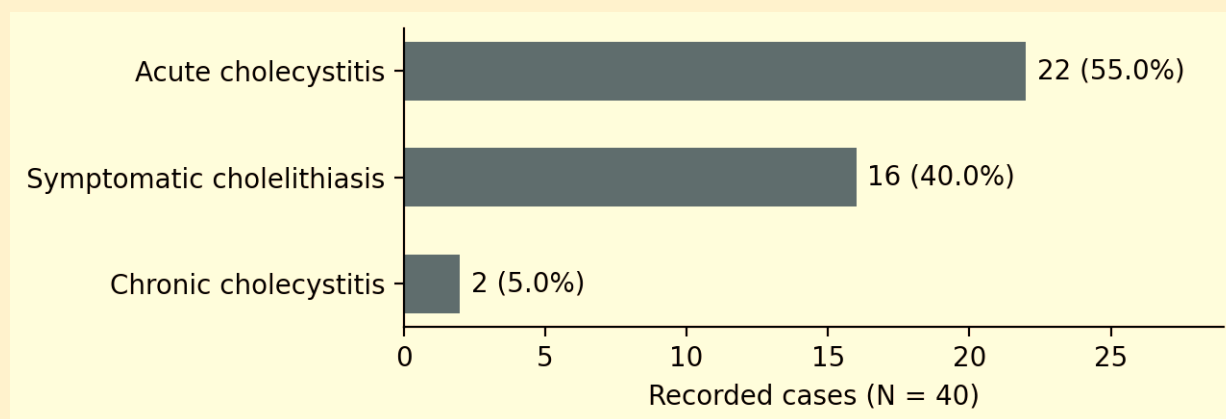


Figure 1. Recorded operative indication categories among 40 eligible laparoscopic cholecystectomy cases.

The eligible cases were predominantly women and patients older than 40 years. Acute cholecystitis and gallstones with gallbladder distension were the most frequent recorded indication and intraoperative groups, respectively. The regional anesthesia category and pain scores of 4 to 6 were more frequent than their alternatives, and most recorded stays were at most three days. These findings answer the descriptive research question without establishing the clinical mechanisms or comparative outcomes behind the distributions.

Discussion

The profile describes the case mix reaching a laparoscopic surgical service during the stated interval. The female predominance and BMI distribution are compatible with demographic and metabolic features discussed in gallstone literature^{1,2}, but a surgical sample cannot estimate the risk of developing gallstones. The 55.0% acute cholecystitis label indicates the prominence of inflammatory presentations in the recorded indications, without specifying Tokyo severity, urgency, or adherence to a particular treatment pathway^{3,12}. The regional anesthesia label in 57.5% of records is a documentation finding; it cannot be equated with spinal anesthesia or used to explain pain or stay. Controlled studies comparing spinal and general anesthesia for laparoscopic

cholecystectomy specify the actual technique, selection criteria, and outcomes^{17,18}. Procedure specific pain recommendations similarly depend on defined treatments and assessment methods¹⁹. Consequently, the observed pain score groups and short recorded stays remain descriptive endpoints.

Yusuf and colleagues examined cholelithiasis at the same hospital during 2021 to 2023⁶, whereas this study describes the perioperative variables of selected laparoscopic cases in 2025. The difference is in population, clinical interval, and outcome scope, not a demonstrated temporal improvement. The appendectomy profile reported by Aryaputra and colleagues supports the role of local descriptive surgical reporting but is not directly comparable by procedure⁷. Gemawan and colleagues provide detailed anesthetic management in a complex surgical case⁸; that case report does not establish a preferred technique for this sample. Syamsi's gastrointestinal surgery audit illustrates how perioperative antibiotic use can be documented as a separate management domain²⁰, which was not analyzed here. Hutasoit's comparison of recovery duration after cataract and pterygium surgery concerns another clinical setting²¹ and reinforces the need to define the procedure and recovery endpoint before using duration as a

benchmark. These HTJ studies supply local reporting context without substituting their results for the present observations.

The practical contribution is a baseline for consistent perioperative recording. Future routine forms should distinguish the operative indication from severity, stone number from gallbladder distension, calculated BMI from recorded comorbidity labels, and general anesthesia from a specified regional technique. Pain documentation should identify the instrument and assessment time^{13,19}. Hospital stay should identify its start and end points, and surgical audit should include explicit adverse event definitions. Safe cholecystectomy guidance provides relevant operative safety priorities⁵, while the Clavien and Dindo classification provides a reproducible framework for grading surgical complications²². These are recommendations for subsequent documentation; the present data do not show that applying them improved care. The profile can inform service planning for the observed case mix without quantifying population demand or comparative surgical quality.

Total sampling within the stated interval and presentation of all reported variable groups give a transparent institutional baseline. The revised tables maintain a common denominator and distinguish fields that might otherwise be conflated. The study involves 40 eligible cases from one hospital, uses retrospective records, and has no comparator group. Eligibility based on completeness may introduce selection bias, and variation in routine recording may introduce information bias. The reason specific allocation of five exclusions, the December 25 endpoint rationale, clinical category precedence, exact BMI boundary rules, pain assessment timing, regional technique, and hospital stay definition are not resolved by the aggregate source. The BMI count above 30 and the obesity comorbidity label are not

interchangeable. Conversion to open surgery, bile duct injury, surgical site infection, readmission, mortality, and outcomes after discharge were not included in the reported analysis; their absence from the tables is not evidence of zero events. The broad age split cannot isolate elderly patients, whose perioperative outcomes require a distinct assessment²³. Generalization and comparisons of surgical safety or recovery are therefore outside this descriptive analysis.

A prospective registry should use a prespecified extraction codebook, record reasons for every exclusion, include a defined complete surveillance interval, and verify agreement between BMI calculations and comorbidity diagnoses. Indications should have an explicit source and precedence rule, while stone number and distension should be recorded separately. Anesthetic technique, adjuncts, pain instrument, assessment times, and admission and discharge dates should be specified. Future analyses of conversion should collect the required patient and operative variables, as illustrated by a validated conversion risk study²⁴, rather than infer risk from the current univariate counts. Follow up should include standardized complications and patient reported outcomes, as evaluated in prospective multicenter research²⁵. Studies of hospital duration should distinguish day surgery from overnight admission, matching the definitions used in comparative reviews²⁶. An adequately sized prospective sample would then allow justified comparisons and adjustment for clinically relevant factors. Furthermore, multicenter studies incorporating standardized data collection protocols and longitudinal follow up are recommended to improve the generalizability, reliability, and clinical applicability of findings across diverse healthcare settings.

Conclusion

Among 40 eligible laparoscopic cholecystectomy records from January 1 to December 25, 2025, women and patients older than 40 years predominated. Acute cholecystitis was the most frequent recorded indication. Regional anesthesia was the more frequent recorded category, pain scores of 4 to 6 were most common, and 87.5% of recorded hospital stays were at most three days. The findings provide an institutional descriptive baseline for improving perioperative documentation and planning prospective audit. They do not establish comparative effectiveness, successful recovery, or the incidence of postoperative complications.

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Conflict of Interest Statement

The author(s) declare no commercial, financial, or personal conflicts of interest related to this research. All authors approved the final manuscript and consented to its publication in *Healthy Tadulako Journal*.

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