

Postoperative nursing care following laparoscopic cholecystectomy

Cuidados de enfermería postquirúrgicos en la colecistectomía laparoscópica

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ABSTRACT

Introduction: Laparoscopic cholecystectomy has become the gold standard for treating gallbladder pathology. Postoperative nursing care plays a fundamental role in patient recovery and prevention of adverse events, although gaps have been identified in knowledge and practice of specific care. **Methods:** A narrative review was conducted through searches in scientific databases including PubMed, Scopus, and regional sources, selecting studies published between 2019-2025 on postoperative nursing care, complications, and quality strategies in patients undergoing laparoscopic cholecystectomy. **Results:** Postoperative nursing care encompasses vital sign monitoring, pain management, early mobilization, and self-care education. Main postoperative complications include nausea, vomiting, pain, and surgical site infections. Evidence-based prevention strategies include ERAS protocols, multidisciplinary management guidelines, and patient safety protocols. Patient satisfaction constitutes a fundamental quality indicator that reflects the effectiveness of nursing care provided. **Conclusions:** Postoperative nursing care quality in laparoscopic cholecystectomy is multifactorial and requires comprehensive approaches combining standardized protocols, continuous training, holistic care, and systematic evaluation of clinical outcomes and patient satisfaction to ensure optimal recovery and complication prevention.

Keywords: laparoscopic cholecystectomy Postoperative Care, patient safety, quality of care.

RESUMEN

Introducción: La colecistectomía laparoscópica se ha establecido como el estándar de oro para el tratamiento de la patología vesicular. Los cuidados de enfermería postoperatorios juegan un papel fundamental en la recuperación del paciente y la prevención de eventos adversos, aunque se han identificado brechas en el conocimiento y práctica de cuidados específicos. **Métodos:** Se realizó una revisión narrativa mediante búsqueda en bases de datos científicas incluyendo PubMed, Scopus y fuentes regionales, seleccionando estudios publicados entre 2019-2025 sobre cuidados de enfermería postquirúrgicos, complicaciones y estrategias de calidad en pacientes sometidos a colecistectomía laparoscópica. **Resultados:** Los cuidados de enfermería postquirúrgicos abarcan monitoreo de signos vitales, manejo del dolor, movilización temprana y educación para el autocuidado. Las principales complicaciones postoperatorias incluyen náuseas, vómitos, dolor e infecciones del sitio quirúrgico. Las estrategias de prevención basadas en evidencia incluyen protocolos ERAS, guías de manejo multidisciplinario y protocolos de seguridad del paciente. La satisfacción del paciente constituye un indicador de calidad fundamental que refleja la efectividad de los cuidados de enfermería brindados. **Conclusiones:** La calidad de los cuidados de enfermería postquirúrgicos en colecistectomía laparoscópica es multifactorial y requiere enfoques integrales que combinen protocolos estandarizados, capacitación continua, cuidado holístico y evaluación sistemática de resultados clínicos y satisfacción del paciente para garantizar una recuperación óptima y prevención de complicaciones.

Palabras clave: colecistectomía laparoscópica, Cuidados Posoperatorios, seguridad del paciente, calidad asistencial.

Introduction

Laparoscopic cholecystectomy represents a significant advance in hepatobiliary surgery, establishing itself as the procedure of choice for the treatment of gallbladder diseases, particularly cholelithiasis and acute cholecystitis. This minimally invasive technique has transformed the surgical approach, offering substantial advantages over traditional open surgery, including reduced postoperative pain, accelerated recovery, shorter hospital stays, and better cosmetic outcomes. (1,2)

The postoperative period is a critical phase in which nursing care plays a fundamental role in the patient's successful recovery and in the prevention of adverse events. Scientific evidence indicates that patients undergoing laparoscopic cholecystectomy require specific postoperative care and close monitoring by nursing staff, as the quality of this care has a direct effect on clinical outcomes. (3,4)

Postoperative care for these patients encompasses various aspects, ranging from vital sign monitoring and pain management to early mobilization and self-care education. This care should be provided following standardized protocols but adapted to the individual needs of each patient. (5,6) However, significant gaps in nursing staff knowledge and practices related to this specific form of care have been identified, which may affect the quality of care and patient satisfaction. (7,8)

Despite the existence of standardized protocols, variability has been observed in the application of this care, which can negatively influence patient recovery and increase the risk of postoperative complications. Although complications are rare in this procedure, they can significantly slow the recovery process; therefore, it is essential to have a highly trained nursing team capable of early detection of warning signs and symptoms. (9,10)

The purpose of this narrative review is to synthesize the available scientific evidence on postoperative nursing care for patients undergoing laparoscopic cholecystectomy and identify the main complications, preventive strategies, and factors contributing to the quality of care and patient satisfaction.

Methodology

A narrative review of the scientific literature on postoperative nursing care for patients undergoing laparoscopic cholecystectomy was conducted. The literature search was performed between January and March 2025 using the following scientific information platforms: PubMed/MEDLINE, SCOPUS, SciELO, and Latin American regional repositories.

Inclusion criteria:

Scientific publications from 2019 to 2025; research on postoperative nursing care in laparoscopic cholecystectomy; studies on postoperative complications and their prevention; studies on quality of care and patient satisfaction in laparoscopic surgery; and documents in Spanish, English, or Portuguese.

Exclusion criteria:

Publications without full-text availability; research not directly related to laparoscopic cholecystectomy or postoperative nursing care; documents with significant methodological deficiencies; and duplicate records.

Selection and analysis:

Initially, 168 potentially relevant documents were identified. After removing duplicates and applying selection criteria through the evaluation of titles and abstracts, 52 articles were preselected for full-text analysis. Finally, 43 publications that met all the established criteria were included.

The extracted data were organized into the following thematic areas: laparoscopic cholecystectomy and its surgical technique; postoperative nursing care in the immediate and intermediate posts; standardized care protocols; postoperative complications and their prevention; the nursing care process; quality of care; and patient satisfaction.

Procedure

Laparoscopic cholecystectomy: technical fundamentals

Laparoscopic cholecystectomy is a minimally invasive surgical procedure for the removal of the gallbladder using specialized instruments inserted through small abdominal incisions. Compared with traditional techniques, this technique represents a significant advance in hepatobiliary surgery, allowing for faster recovery and less surgical trauma. (11,12)

Table 1. Database search strategy.

Database	Search Terms	Filters Applied
PubMed/MEDLINE	"laparoscopic cholecystectomy" AND "nursing care" AND "postoperative" "cholecystectomy" AND "postoperative complications" AND "nursing"	- Language: English, Spanish- Type: Original articles, reviews- Humans - Full text available- Adults
SciELO	"laparoscopic cholecystectomy" AND "nursing care" AND "postoperative" "surgical nursing" AND "cholecystectomy" AND "postoperative complications"	- Language: Spanish, Portuguese- Open access articles - Countries: Ecuador, Latin America- Reviews and observational studies
Scopus	"laparoscopic cholecystectomy" AND "nursing intervention" AND "quality of care" "ERAS protocol" AND "cholecystectomy" AND "nursing"	- Field: Nursing, Medicine- Document type: Articles, Reviews - Language: English- Open access
Web of Science	TS=("laparoscopic cholecystectomy" AND "postoperative nursing care")	- Categories: Nursing, Surgery - Highly cited articles
CINAHL	"cholecystectomy" AND "postoperative care" AND "nursing assessment" "surgical nursing" AND "laparoscopic surgery" AND "patient satisfaction"	- Full text - Evidence-based practice - Peer-reviewed - Quantitative studies
LILACS	"cholecystectomy" AND "perioperative nursing" AND "postoperative care"	- Language: Spanish, Portuguese- Latin America and the Caribbean
Cochrane Library	"cholecystectomy" AND "nursing" AND "postoperative"	- Systematic reviews- Clinical trials
Google Scholar	"nursing care" "laparoscopic cholecystectomy" "Ecuador"	- Language: Spanish- Relevant citations- Theses and gray literature
VHL (Virtual Health Library)	"cholecystectomy" AND "nursing care" AND "postoperative complications"	- Countries of interest: Ecuador- Full text

Source: Prepared by the authors.

Records identified through database

searches:

n = 168

Excluded:

n = 116

Full-text articles evaluated for eligibility:

n = 52

Excluded:

n = 9

Articles evaluated in full text:

n = 43

Figure 1. Article preselection and selection process.

Source: own calculations

Among the advantages over conventional techniques are less postoperative pain, rapid recovery, reduced infection rates, shorter hospital stays, and better cosmetic results. (13) Laparoscopy has become the gold standard for treating gallbladder diseases, demonstrating multiple benefits over open cholecystectomy, including lower operative mortality and shorter recovery times. (14,15)

Nursing Care during the Immediate Postoperative Period

The immediate postoperative period, which lasts for the first 24 hours, represents a critical phase during which nursing professionals assess the patient's response to the surgical procedure and promptly identify potential complications. Care facilitates prompt patient recovery and minimizes the risk of complications. (16,17)

Key points for this stage include initial assessment and monitoring of vital signs, pain management using multimodal analgesia, surgical wound care, respiratory care, and early mobilization and ambulation. Continuous assessment allows for early detection of signs of deterioration and timely intervention. (18)

Nursing Care during the Immediate Postoperative Period

In this stage, care focuses on the following: gradual reintroduction of diet, control of nausea and vomiting, adequate hydration through fluid balance, assessment of bowel function, management of catheters if necessary, and evaluation for medical discharge on the basis of the patient's recovery and progress. Continuous monitoring allows for the identification of late complications and facilitates a safe transition to hospital discharge. (19)

Standardized care protocols

ERAS (enhanced recovery after surgery) protocols

ERAS protocols constitute a multidisciplinary model of perioperative care designed to optimize surgical patient recovery by reducing surgical stress and promoting faster recovery. They are widely used in general surgery and aim to provide surgical care at a lower cost while improving patient outcomes. (20)

Multidisciplinary management guidelines

Multidisciplinary management represents a comprehensive approach to healthcare, where professionals from different specialties collaborate to provide holistic, patient-centered care. The components include a core intervention team, comprehensive patient assessment, a complete medical history, prioritization of interventions, personalized care, patient follow-up, and monitoring and evaluation of postoperative progress. (21,22,23)

Patient safety protocols

Patient safety is a fundamental component of quality of care that seeks to prevent adverse events and minimize risks during healthcare delivery. The promotion and improvement of patient safety are based on enhancing the quality of care and preventing unnecessary harm, with a focus on restoring or maintaining health. (24,25)

Postoperative Complications and Prevention

Laparoscopic cholecystectomy is associated with iatrogenic injuries to the biliary tract and various risk factors. Prevention of complications includes avoiding bile leakage, jaundice caused by obstruction, and hepatic ischemia following vascular injury. Other reported complications include bleeding, wound infections, gallstones, strictures, and stenosis. (26)

Identifying risk factors for conversion to open surgery in acute cholecystitis allows for individualized patient care and improved outcomes. Risk factors include complex dissection of the hepatocellular triangle and bleeding, which may result in conversion to open cholecystectomy and are associated with increased morbidity. (27)

Nursing Care Process

The nursing care process (NCP) is a systematic and organized method for providing individualized care focused on resolving patients' actual and potential health problems. It represents a fundamental tool that guides the professional practice of nursing, enabling scientific, humanized, and high-quality care. (28)

Postoperative assessment includes a comprehensive evaluation, systems assessment, risk identification, and detailed documentation. Currently, nursing staff utilize NANDA diagnoses, NIC interventions, NOC outcomes, and personalized care plans. Outcome assessment encompasses recovery indicators, progress monitoring, and patient feedback. (29,30)

Quality of Care and Patient Satisfaction

The quality of postsurgical care is a comprehensive process that seeks to ensure safe, effective, and patient-centered care following a surgical procedure. (31) Quality indicators in postsurgical care are defined by recovery time, complications, patient satisfaction, and hospital readmissions. (32)

Patient satisfaction is a key indicator that reflects the patient's perception of the quality of care received. Nursing staff use 21 measurement tools, standardized surveys, and expectation tracking to assess this aspect. To ensure quality of care, assessment scales, quality audits, and quality management systems are used. (33,35)

Results

A review of the selected articles revealed eight key aspects of postoperative care following laparoscopic cholecystectomy, along with their respective recommendations on the basis of scientific evidence.

The results of pain management revealed that multimodal analgesia, which combines NSAIDs with acetaminophen and individualized assessment, effectively reduces postoperative pain while minimizing the side effects of opioids. Wound care demonstrated that the use of hydrocolloid dressings, advanced antiseptics, and digital monitoring effectively prevents surgical site infections.

Early physical activity, through early mobilization and modified ERAS protocols, was shown to accelerate recovery and reduce complications such as thrombosis and paralytic ileus. A personalized dietary regimen, with nutritional supplements and adaptive progression, optimizes metabolic recovery and healing.

Monitoring vital signs using telemonitoring and artificial intelligence enables the early detection of complications. Medical follow-up via telemedicine and mobile apps ensures continuity of care while reducing unnecessary in-person visits.

The identification of warning signs using standardized criteria and early warning systems prevents major complications and reduces hospital readmissions. Finally, selective and personalized postoperative medication minimizes the risks of infection and antimicrobial resistance.

These results demonstrate that the systematic integration of these eight dimensions of care, supported by standardized protocols and current technologies, significantly improves clinical outcomes and patient satisfaction in laparoscopic cholecystectomy.

Table 1: Postoperative care strategies for laparoscopic cholecystectomy.

Appearance	Description	Recommendations	Rationale	References
Pain management	Postoperative Pain Management	- Multimodal analgesics - Combining NSAIDs with acetaminophen - Individual pain assessment - Consider local analgesia	Reduce pain and minimize opioid side effects	(36)
Wound care	Management of surgical sites	- Hydrocolloid adhesive dressings - State-of-the-art antiseptics - Digital wound healing monitoring - Specific hygiene protocol	Preventing infections with advanced technologies	(37)
Physical activity	Progressive rehabilitation	- Early mobilization - Modified ERAS protocol - Breathing exercises - Early rehabilitation	Accelerate recovery and reduce complications	(38)
Nutrition	Dietary regimen	- Personalized nutrition - Nutritional supplements - Progressive adaptive diet - Micronutrient monitoring	Optimize metabolic recovery	(39)
Vital sign monitoring	Postoperative monitoring	- Digital telemonitoring - Remote monitoring - Artificial intelligence technologies - Critical monitoring parameters ()	Early detection of complications	(40)
Medical follow-up	Follow-up visits	- Telemedicine - Virtual appointments - Monitoring app - Multidisciplinary evaluation	Continuity of care and reduction in in-person visits	(41)
Warning signs	Identification of complications	- Standardized criteria - Early warning systems - Rapid response protocol - Comprehensive risk assessment	Prevention of postoperative complications	(42)
Medication	Postoperative treatment	- Selective antibiotics - Personalized therapy - Reduction of resistance - Pharmacological monitoring	Minimizing the risk of infection and side effects	(43)

Appearance	Description	Recommendations	Rationale	References
Medication	Postoperative treatment	- Selective antibiotics - Personalized therapy - Reduction of resistance - Pharmacological monitoring	Minimizing the risk of infection and side effects	(43)

Source: Author’s own work

Conclusions

Postoperative nursing care for patients undergoing laparoscopic cholecystectomy is essential to ensure optimal recovery and prevent complications. Evidence shows that this care must be comprehensive, covering multiple aspects from the immediate postoperative period through hospital discharge.

The implementation of standardized protocols such as ERAS, multidisciplinary management guidelines, and patient safety protocols has been shown to improve clinical outcomes, reduce complications, and shorten hospital stays. However, their effectiveness depends on the adequate training of nursing staff and institutional commitment to quality of care.

The nursing care process is an essential tool that enables the tailoring of care to each patient’s specific needs, facilitating the early identification of complications and the implementation of timely interventions.

Patient satisfaction emerges as a fundamental quality indicator that reflects not only the technical effectiveness of care but also the humanistic component of nursing care. The systematic evaluation of this indicator allows for the identification of areas for improvement and the enhancement of service quality.

It is recommended that the effectiveness of specific interventions adapted to the local context be researched, continuing education programs for nursing staff should be developed, and monitoring systems that allow for the systematic evaluation of the quality of postoperative care and its impact on clinical outcomes and patient satisfaction should be established.

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