LUMEN ET VIRTUS

Comparison of the length of hospital stay after open cholecystectomy and videolaparoscopic in a tertiary public hospital in Western São Paulo

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ABSTRACT

Cholecystitis consists of a chronic or acute inflammation of the gallbladder, associated or not with bacterial infection, and sometimes resulting mainly from the accumulation of stones inside, a process that is called cholelithiasis. Cholelithiasis usually has an insidious course and little symptoms at first, and the diagnosis usually comes with imaging tests performed after intense abdominal cramps that take the patient to the emergency room.

Keywords: Open Cholecystectomy, Videolaparoscopic Cholecystectomy, Length of Stay, Tertiary Public Hospital.

INTRODUCTION

Cholecystitis consists of a chronic or acute inflammation of the gallbladder, associated or not with bacterial infection, and sometimes resulting mainly from the accumulation of stones inside, a process that is called cholelithiasis. Cholelithiasis usually has an insidious course and little symptoms at first, and the diagnosis usually comes with imaging tests performed after intense abdominal cramps that take the patient to the emergency room[1].

The pathophysiology of cholelithiasis consists of obstruction of the cystic duct by one of the stones stored inside the gallbladder, which leads to a distension of the organ, followed by inflammation and/or bacterial infection. The classic symptomatology is composed of abdominal pain in the right upper quadrant, anorexia, nausea and vomiting and, in some cases, fever[2].

Among the most feared complications, we have the rupture of the cystic wall, sepsis and peritonitis. Such complications usually occur in cases where surgical treatment is not readily administered in cases of acute cholecystitis. The overall mortality rate is 3%, including cases in which the recommended treatment is correctly performed[3].

The gold standard treatment for cholecystitis is cholecystectomy, a relatively simple and safe surgery, which can be performed in an elective or emergency regime, with different access routes today, whose recovery usually has a benign evolution and restoration of the full executive capacities of the patients submitted[2,3].

For reasons that are not fully understood, the incidence of cholecystitis in women is up to 3x higher than in men, especially from the 5th decade of life; Since the 1980s, when there was a global advance in elective cholecystectomies, the number of emergency cholecystectomies derived from cholecystitis has decreased proportionally[2].

With the advancement of technologies in the medical field, alternatives to traditional surgical approaches have emerged, which has the potential to significantly impact the evolution of the patient's condition; Currently, there are laparoscopic (or videolaparoscopic).

OBJECTIVES

The present study aims to analyze and compare the time between laparoscopic and open cholecystectomy and the discharge of patients submitted to the respective procedures, showing the one who presents, if there is a difference, the best post-surgical recovery profile.

METHODS

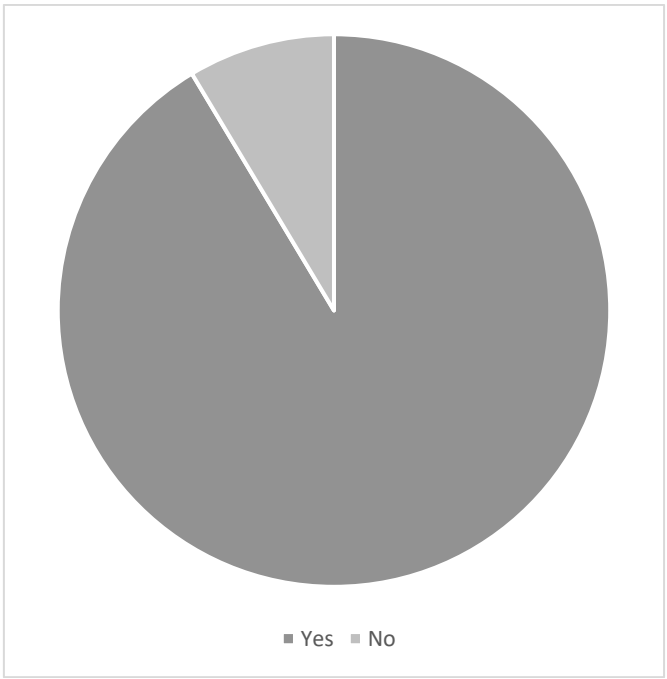
We analyzed the medical records, which contained the surgical reports, of patients treated at a tertiary public hospital in the interior of the State of São Paulo from January 2022 to January 2023, whose ICD (international registry of diseases) linked to care was K80 (cholelithiasis). In the mentioned period, 1744 patients whose ICD was cholelithiasis were treated.

From there, we evaluated the period between the surgery and the time elapsed until discharge from the ward, considering the day of the procedure as day 1. The data were analyzed and tabulated in the Microsoft Office Excel 2014 software, where representative graphs were extracted from the numerical indicators obtained after collecting the information from all medical records.

RESULTS

Of the 1744 medical records evaluated, cholecystectomy was performed in 91.4% of the consultations (Graph 1). In the remaining 8.6%, the procedure was not performed for various reasons, which were not widely evaluated by this study, but among which were patient refusal, diagnostic error, or death, among others.

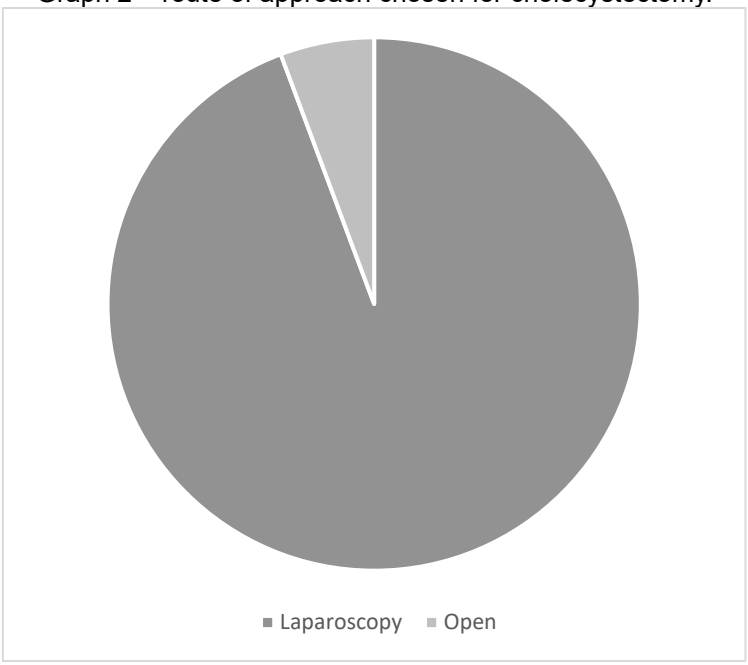
Graph 1 – Did patients diagnosed with cholelithiasis receive treatment in the same hospitalization as the diagnosis?



Of the 1594 patients who underwent cholecystectomy in this period, 1503, or 94.3%, underwent videolaparoscopy, and the remaining 5.7%, or 91 procedures, were approached

by the open approach (Graph 2). Here, again, the research team did not focus on the reasons that led to one type of approach or another, only its actual performance.

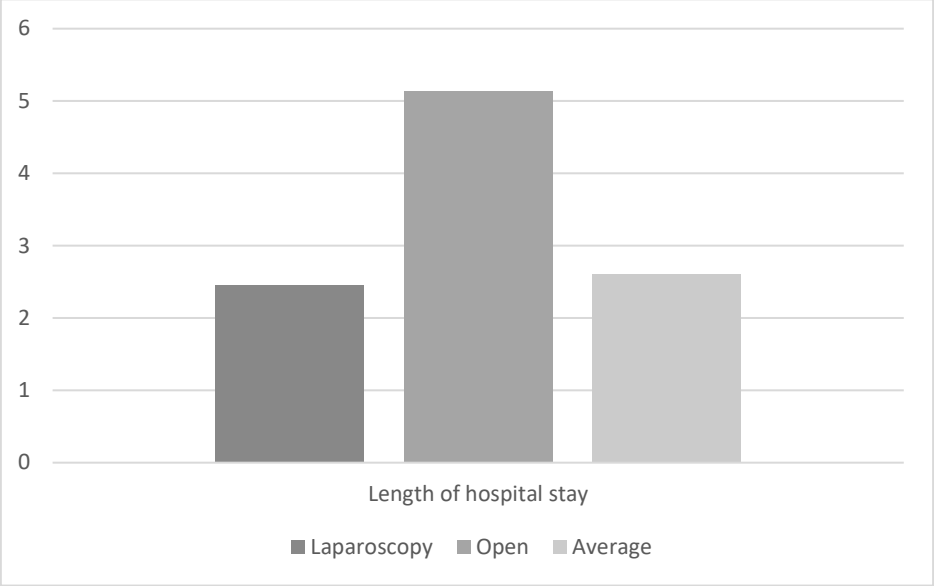
Graph 2 – route of approach chosen for cholecystectomy.



The length of hospital stay ranged from 1 day (i.e., discharge on the same day after the procedure) to 15 days, and this longer period corresponds to only 1 patient among the more than 1500 who underwent surgery, regardless of the route. About 75% of the patients were discharged on the second day after cholecystectomy, and 10.2% on the third.

Regarding the length of hospital stay, when comparing the methods of approach for cholecystectomy, patients treated by conventional laparotomy had an average of 5.14 days of hospitalization after the procedure. On the other hand, the mean number of laparoscopic patients approached by videolaparoscopy had a considerably lower mean length of hospital stay, 2.46 days, while the overall mean was 2.61 days (Graph 3).

Graph 3 – length of hospital stay after cholecystectomy by type of approach adopted.



DISCUSSION

Cholecystectomy is a relatively simple surgical procedure and part of the daily routine of general surgeons around the world, however, even though it is almost a routine practice, it is not free of risks and intraoperative and postoperative complications. Two approaches are widely used today: laparoscopic, or videolaparoscopic, which requires small incisions through which instruments are passed that allow the visualization of intra-abdominal structures by video, and open, which requires a larger incision (Kocher's incision), located in the cystic pocket and which allows direct visualization of the structure to be excluded and its surroundings[2,3].

In the literature review carried out for this study, in the publications of the last 10 years, no significant studies were found that compare the performance of the laparoscopic and open technique, however, it was possible to observe the vast number of articles that compare the laparoscopic technique with even less invasive robotic techniques; this reflects the lag in the technologies available in Brazil, especially in the Unified Health System (SUS) in relation to what is offered in rich countries.

Although it is not one of the techniques observed by this study, as it is not available in the hospital where it was conducted, the robotic technique still presents contradictory results in relation to laparoscopy; Kalata *et al.,* 2023 states that surgeries that used robotic technology had a higher incidence of bile duct injuries during the procedures, and in those that were uneventful, the recovery time of patients was not significantly shorter when compared to those operated laparoscopically[5].

Ghanem *et al.,* 2020, observed in their retrospective cohort that the robotic technique did reduce the length of hospital stay for patients, which could, in the long run, justify the

high investments in such expensive and modern equipment, which requires very qualified labor. Another relevant point of the study was the procedure time, which is not longer than that of laparoscopic cholecystectomy[6].

Returning to the Brazilian reality of the SUS, in the tertiary hospital where this research was conducted, the robotic technique is not implemented for cholecystectomies, which makes the laparoscopic technique the most modern available; For reserved cases, open cholecystectomy is chosen, such as when there are anatomical variations that make the less invasive procedure difficult.

Regarding the characterization of the incisions performed, videolaparoscopy has a prominent advantage: the incisions for the passage of the cannulas that place the instruments in the abdominal cavity are very small when compared to the Kocher incision, the most traditional one used in the open technique. This in itself provides an easier and shorter recovery for patients, as it reduces limitations and makes the healing process well distributed and of low complexity[3,4,7].

In addition, as it is a surgery with smaller incisions, another crucial factor must be taken into account: postoperative pain management. Patients who have undergone less invasive surgical techniques are generally able to reestablish their autonomy more quickly, which allows better recovery after surgery, which facilitates release for outpatient follow-up, when necessary[2,6].

Specifically regarding the open technique, the only case found among the more than 1500 evaluated by this study, of a prolonged hospitalization (15 days or more) was, in fact, after an open cholecystectomy. In the case in question, there were infectious complications that led to a long postponement of the patient's discharge. The literature reports that the complication rates in laparoscopic cholecystectomies are around 3%, while open cholecystectomy exceeds 7%, which makes laparoscopic cholecystectomy the first choice in cases where the procedure is indicated[7,8,9.]

In short, we can attribute the fact that the length of stay in this tertiary public hospital in patients who underwent open cholecystectomies is more than 2x higher than the average of those who had it done laparoscopically to the fact that the approach itself is much more invasive and, therefore, subject to general complications, whether infectious, pain or of a similar nature; the results obtained were, for the most part, compatible with what is found in the scientific literature, worldwide, of the last 10 years, although it is worth noting the lag of the techniques widely available in Brazil compared to the first world.

CONCLUSION

Laparoscopic cholecystectomy, or videolaparoscopic cholecystectomy, had a better performance than open cholecystectomy, when compared in relation to the length of hospital stay of patients after these procedures. This is due, according to the latest in the scientific literature, to the fact that the incisions in the laparoscopic route are smaller, with more efficient healing and less need for analgesics in patients submitted to this technique, in addition to the lower infectious risks attributed to it.

CONFLICTS OF INTEREST

The authors declare that they do not have any potential conflict of interest that could compromise the impartiality of this scientific research.

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