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POST COMPLICATIONS IN PATIENTS UNDERGOING VIDEOLAPAROSCOPIC AND CONVENTIONAL CHOLECYSTECTOMY: A LITERATURE REVIEW

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Abstract: Acute cholecystitis is considered an inflammation, of different etiology, of the gallbladder wall. It is evident that the gold standard treatment of this pathology, when it has a lithogenic origin, is performed through surgery, by laparoscopic or open conventional routes and, therefore, such techniques have several complications that are consistent with the morbidity and mortality process. Therefore, the aim of this study was to describe postoperative complications and discomfort in patients undergoing laparoscopic and conventional cholecystectomy. For this, an integrative literature review was carried out, performed as a qualitative research based on academic books, articles, guidelines and materials collected in databases such as UpToDate, Scientific Electronic Library Online - SciELO, National Library of Medicine - PubMED.
In this work, the causal link can be elucidated, as well as the potential impact of postoperative complications of conventional and videolaparoscopic cholecystectomy.
Keywords: Cholecystitis; Cholecystectomy; Complications.

INTRODUCTION

Acute cholecystitis is an inflammation of the gallbladder wall, of which 95% tend to be secondary to the formation of stones, as well as obstruction of the cystic duct and approximately 5% are related to non-obstructive causes (BRAZZELLI et al., 2014). Regarding epidemiology, it is known that in Brazil the rate of cholelithiasis is 9.3%, being more prevalent in people over the age of 50, in women, in obese people and in individuals with type 2 diabetes mellitus, these conditions being considered risk factors for the development of this inflammatory process (CASTRO *et al.*, 2016).

Approximately 90% of patients with cholecystitis tend to be diagnosed with

cholelithiasis. Furthermore, infectious processes caused by parasites tend to be one of the main etiological factors of biliary disease in the Asian and American continents and in the South African region (KO & LEE, 2003). Furthermore, it is worth noting that infection by pathogens such as Salmonella has been described as a primary event in cholecystitis after diagnosis of typhoid fever (INDAR & BECKINGHAM, 2002).

Furthermore, etiological factors include autoimmune processes linked to AIDS, as well as cytomegalovirus and microorganisms of the Cryptosporidium genus. Furthermore, pathogenic bacteria such *as Escherichia coli, Klebsiella, Enterococcus, Pseudomonas and Bacteroides fragilis* are listed as triggering factors for the inflammatory process of the disease (CLAESSON et al., 1984). However, it must be noted that this mechanism of bacterial aggression is not the primary etiological factor of the lesion, as in most patients there is no evidence of primary bacterial growth and, therefore, bacterial inflammatory proliferation tends to be a secondary event and not the trigger for the inflammatory process (INDAR & BECKINGHAM, 2002).

Regarding the therapeutic procedure, it is known that the treatment of cholecystitis can be through urgent, emergency or elective surgical intervention, based on the patient's clinical criteria, as well as the possibility of establishing severity criteria in the patient in question. This way, it is noted that the feasibility and safety of the procedure are directly linked to a practical, agile approach that takes a holistic view of the patient with biliary disease (CASTRO et al., 2016).

Therefore, cholecystectomy is the definitive treatment for cholecystitis, as gallbladder inflammation always persists, regardless of drug therapy (BRAZZELLI et al., 2014). Therefore, it tends to be performed by laparoscopy or in the conventional way, which is laparotomy, that is, by an open approach. In this sense, cholecystectomy is performed as soon as possible after the onset of cholecystitis, unless the patient has severe cholecystitis and is considered a high surgical risk patient or if the inflammation has been present for more than 7 days (DIJK *et al.*, 2019).

It is also important to highlight that the laparoscopic cholecystectomy procedure has become the most popular method for therapeutic management of cholelithiasis since its creation in 1987, in France and later in 1988, in the United States. Therefore, currently, laparoscopic cholecystectomy is considered the gold standard procedure for the surgical management of gallstone diseases (NOOGHABI *et al.*, 2016).

It is worth mentioning that in around 90% of surgical cases, the reason is biliary disorders, so that this etiology is very recurrent, a fact that supports the relevance of properly staging the cause (NOOGHABI et al., 2016). Baseline studies show that in the population, the risk of death after cholecystectomy for gallstones is about 0.1% to 0.7%. Furthermore, due to the large number of procedures performed, complications also become more apparent. However, although rare, such complications can lead to postoperative death after a benign disease, which is considered less acceptable than postoperative mortality resulting from a potentially fatal pathology (CASTRO, *et al.*, 2014)

Videolaparoscopic surgery has a strong potential for improvement when it comes to a natural history of common cholelithiasis, due to the lower incidence of its potential complications. However, around 10% of patients have associated choledocholithiasis, making it difficult for many surgeons to manage this complication through laparoscopy, and thus opt for conversion or an approach via endoscopic papillotomy (GIL et. al, 2007).

Given the incidence of postoperative complications in patients undergoing cholecystectomy, this study is necessary. Thus, certain research in a general hospital in the United Kingdom involving 2,117 patients, of which analyzing the surgical propaedeutics of cholecystectomy, showed that among the patients, many of them had complications, such as biliary fistulas, cardiopulmonary fistulas, infection, septic shock, as well as intestinal abscess. (KANAKALA V *et al*., 2011).

In the meantime, complications can be divided into intraoperative and postoperative. Regarding intraoperative procedures, the following stand out: duodenal injury, bleeding, liver injury, perforation, as well as injury to the gallbladder and common bile duct. Regarding postoperative complications, the following can be highlighted: evisceration, bronchopneumonia, loss of the drain, intraperitoneal effusion, intestinal obstruction, infectious complications, postoperative pain, in addition to the indices associated with surgical site infection (TALASSO, 2008; CASTRO, *et al.*, 2014).

In view of the great losses caused by the iatrogenesis of cholecystectomy surgery and its consequences for the patient's health status, this study sought to analyze postoperative complications in patients undergoing laparoscopic and conventional cholecystectomy.

METHODOLOGY

This work was prepared based on a literature review based on scientific articles and academic books, as well as data collected in databases such as Scientific Electronic Library Online - SciELO, LILACS, National Library of Medicine – PubMED (indexers "cholecystitis", " cholelithiasis", "cholecystectomy", "laparoscopic cholecystectomy", "conventional cholecystectomy", "complications", "infection", "bleeding", "dehiscence", "drilling", "cholecystitis", "cholelithiasis", "cholecystectomy", " laparoscopic cholecystectomy", "conventional cholecystectomy", "complications") and publications from the Ministry of Health. Qualitative research has as its place of study the source of data collection, the main instrument to be used is the researcher himself and has the intention of make a coherent interpretation of the information grouped in the process (Lozada & Nunes, 2019). Among these, only those whose abstract was available were filtered, those published in Portuguese, English or Spanish. Studies in which an integrated approach to the topic of postoperative complications related to laparoscopic and conventional cholecystectomy were not conclusive were obliterated. 835 articles were found in the first search and after considering inclusion and exclusion criteria, and finally 37 articles were used in the discussion and helped the author reach the aforementioned conclusions.

RESULTS AND DISCUSSION

After data crossing, a total of 835 articles were found in electronic searches on the MedLine, LILACS and SCIELO platforms. Using the inclusion and exclusion criteria pre-defined in the methodology, and after removing repeated references, 37 articles were selected for the study. In the LILACS database, 8 articles were found, 4 of which were excluded during the title reading process and 1 was excluded after reading the abstract. In the Scielo database, 4 repeated articles were found and excluded by title.

After analyzing the selected articles, infection in the surgical wound region, as well as gallbladder perforation with extravasation of bile and stones, the process of surgical conversion from laparoscopic to open, episodes of hemorrhage and a course with death were the most common complications in the post-operative period. -operation of the

surgery in question.

Regarding surgical site infections, it is evidenced through studies, which denote as risk factors associated with this postoperative event, the advanced age group, longer time in the surgical suite, the severity profile of the pathology, male gender and wound staging (RICHARDS et al., 2003, BOGDANIC et al., 2013).

When comparing the risk of surgical site infection between conventional and laparoscopic surgery, a six-fold increase in this risk was evident. Nevertheless, the recurrence of surgical site infection after a change from laparoscopic to conventional cholecystectomy was similar to the risk for a planned open cholecystectomy (WARREN *et al*., 2017).

According to studies, the majority of the bacterial load involved in the infectious process at the surgical site after cholecystectomy tends to be of gram-positive origin, which, therefore, does not denote a difference in the distribution of antigens in the two techniques. In laparoscopic cholecystectomy, the distribution of the infectious process occurs more in the organs, although the rate of infection in the specific location of the surgery is lower in this type of procedure when compared with conventional cholecystectomy (COCCOLINI et al., 2015).

With regard to gallbladder perforation and bile leaks during laparoscopy, it is seen that this problem occurs in up to 40% of cases. Therefore, the risk of perforating the gallbladder resulting in biliary leakage, as well as gallstones, is more frequent during laparoscopic cholecystectomy than during open cholecystectomy (BUM-SOO KIM *et al*., 2016).

A survey that highlighted the complication rate of laparoscopic cholecystectomy showed bile leakage in 0.82% of cases. Therefore, the complication rate tends to be high in the early learning phase of the laparoscopic procedure, which can be reduced with effective training of professionals who must proceed under preceptorship and guidance from laparoscopic surgeons with experience throughout the learning phase (FAROOQ et al., 2015).

Regarding surgical conversion, it tends to occur when there is evidence of intraoperative surgical complications or in situations in which the anatomical approach is difficult. Regarding laparoscopic interventions for cholecystitis, there was conversion in 2.31%, so that the female sex had a higher incidence (HANGI et al., 2004), in parallel, the male sex tends to be the most associated with conversion for having greater risk factors for severe biliary disease.

Another extremely important point is the skill of the laparoscopic technique, as it is a predisposing factor for conversion, as well as possible anatomical changes of the gallbladder or portal triad. The pathophysiology of cholecystitis can lead to scarring fibrotic reactions, which can make the laparoscopic approach difficult, leading to the decision to convert to the conventional route. It is therefore inferred that the elucidation of prognostic factors, especially those related to the severity of lithiasis disease, tends to result in some changes in its treatment (FAROOQ *et al*., 2015).

Having highlighted the above-mentioned risk factors, a study states that of the 7242 patients evaluated, 6% needed to undergo the surgical conversion process from laparoscopic to conventional, and most of these were of an older age group and had associated comorbidities, such as diseases neurological, cardiovascular, renal, hepatic and metabolic. The relationship between conversion and recurrence of cholecystitis or pancreatitis attacks tends to be linked to bile duct or visceral injuries, and also shows that obstruction due to stones in the gallbladder neck is a predictor of conversion (PAWAN et al, 2002).

Furthermore, hemorrhagic complications can be mentioned as a major problem intraoperatively due to their high mortality rate, while they are not identified and are not treated quickly. In this sense, the presence of bleeding may occur intraoperatively, during the dissection of the gallbladder or Calot's triangle or during the insertion of the trocar; or post-operatively due to the detachment of metal clips (RADUNOVIC *et al*., 2016).

Furthermore, it is noted that bleeding is evident in up to a third of the main complications arising from laparoscopic cholecystectomy, in addition to being the second most common cause of death. Therefore, in cases of bleeding during laparoscopic cholecystectomy, the incidence of mortality can increase by up to 15% as the underlying cause is not identified and treated correctly (KAUSHIK et al., 2010).

Among the main worsening factors for hematological complications during cholecystectomy, the following stand out: difficult to access gallbladder, complicated biliary inflammation leading to empyema, perforative or gangrenous appearance, in addition to the surgeon's inexperience. It must also be noted that untreated bleeding tends to be risk factors for converting laparoscopic cholecystectomy into conventional cholecystectomy, which generates other types of repercussions, such as increased pain in the postoperative period, as well as increased incidence of surgical site infection (ASHFAQ et al., 2016).

CONCLUSION

Through the present study, it is inferred that among the complications linked to laparoscopic and conventional cholecystectomy, the most recurrent ones evidenced in the selected articles were: surgical wound infection, iatrogenic perforation in the gallbladder region with bile leakage and/ or calculations, surgical conversion procedures due to some risk factor, bleeding complications and even death.

Nowadays, the laparoscopic cholecystectomy procedure is performed on a larger scale, so current research provides more data about the complications associated with the traditional procedure.

Furthermore, it is notable that some studies cite the advantages of the laparoscopic approach, such as reducing the postoperative pain process, in addition to mentioning shorter recovery time and length of hospitalization, which in addition to benefiting patients, tends to reduce costs for patients. the hospital networks.

Considering that the incidence related to complications varied between studies, whether conventional or laparoscopic, it is important and necessary to segment through case-control or cohort studies to better and more clearly stage the risk factors, as well as being aware of how to manage them to avoid certain intra- and/or post-operative aggravations.

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