

## **Cholecystectomy in a General Hospital (Transition: Open vs. Laparoscopic Cholecystectomy). Analysis of Three Years**

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### **Abstract**

**Background:** Langenbuch in 1881 performed the first successful cholecystectomy and thereafter became the procedure of choice for acute and chronic cholecystitis for over 100 years. E Mühe in 1986, performed the first laparoscopic cholecystectomy.

**Objective:** The evolution of both surgical techniques in general surgery at a hospital in newly created second level where it currently has a team of laparoscopy.

**Material and Methods:** A retrospective, observational and descriptive study of a consecutive series of 140 cholecystectomies were carried out over a period of three years. Descriptive statistics with averages and percentages are used.

**Results:** During the study period 140 cholecystectomies were recorded in total, 57 open and 83 laparoscopic. 121 cases were female and 19 male cases. The diagnosis was CCL in 101 cases, 29 cases and 10 cases piocolecyst hydrocolecist. 38 cases were operated in acute cases and 102 scheduled. There were seven cases of conversion. Eight cases with bile duct exploration. Endoscopic retrograde cholangiopancreatography (ERCP) in eight cases. Intraoperative cholangiography in three cases, two in open surgery and laparoscopic surgery case (trancystic via). As for the hospital stay had an average stay of 2.2 days.

**Discussion:** The number of cholecystectomies gave us a ratio of 6: 4 in favor of laparoscopic. Reyes Diaz found that the laparoscopic approach is improving day by day and is imposed as the technique of choice except for complicated cases.

**Keywords:** *Open Cholecystectomy; Laparoscopic Cholecystectomy; Transition*

### **Background**

Langenbuch [1] in Germany in 1881 performed the first successful cholecystectomy and thereafter became the procedure of choice for acute and chronic cholecystitis for more than 100 years. In 1986 Mühe E [2] also in Germany, performed the first laparoscopic cholecystectomy. In 1987, Mouret and Dubois [3,4] in France; McKernan and Reddick [5] and in 1990 Perissat, *et al.* [6] in the United States and Leopoldo Gutiérrez [7] in Mexico initiated the laparoscopic approach, becoming the gold standard for symptomatic cholecystitis and cholelithiasis worldwide.

### **Objective of the Study**

To know the evolution of both surgical techniques in a general surgery service in a newly created second level hospital where laparoscopy equipment is currently available.

## Material and Methods

A retrospective, observational and descriptive study of a consecutive series of 140 cholecystectomies was carried out over a period of three years (June 2011 - June 2015, (the year 2012 was omitted due to lack of data) performed in a second-level hospital of new creation. The variables were considered: age, sex, preoperative diagnosis, bile duct dilatation, history of diabetes mellitus, hypertension, leukocytosis, liver function tests, complicated with mild pancreatitis, jaundice, type of open or laparoscopic surgery, pathway exploration, biliaryotomy or choledochotomy, conversions to open surgery, days of stay, and reinterventions, descriptive statistics were used with averages and percentages, and incomplete or missing records and records were eliminated.

## Results

During the study period, 140 cholecystectomies were counted in total, 57 (40.7%) open and 83 (59.3%) laparoscopic. 121 cases (86.5%) were female and 19 cases (13.5%) male. The oldest patient was 83 years old and the youngest was 16 years old with an average of 33.4 years. The diagnosis was CCL in 101 cases (72.1%), 29 cases (20.8%) with pycholecist and 10 cases (7.1%) with hydrocholecist. 38 cases (27.2%) were operated in the acute phase and 102 cases (72.8%) were scheduled. In ten cases the ultrasound reported dilatation of the common bile duct with 13.1 mm maximum diameter and 6.8 mm minimum diameter with an average of (9.5 mm). 26 patients (18.5%) presented leukocytosis with 36,000/mm<sup>3</sup> the highest value and 11,500/mm<sup>3</sup> the lowest value with an average of 16,979 leukocytes/mm<sup>3</sup>. Eleven patients (7.8%) presented elevated bilirubins at the expense of direct bilirubin. Eleven cases (7.8%) presented high glycemia and only three cases (2.1%) with a history of systemic hypertension. There was a need to convert from laparoscopy to open surgery in six cases (1.3%). Eight cases of bile duct exploration (5.7%). Brush in eight cases (5.7%). Trans-operative cholangiography in three cases (2.1%), two in open surgery and one case in laparoscopic surgery (trancystic). Regarding in-hospital stay, the longest stay was 18 days (a patient of 22 years re-operated) and the lowest one day, with an average of 2.2 days.

## Discussion and Conclusion

Laparoscopic surgery from its origins by gynecologists 8 has evolved dramatically having displaced open surgical interventions in almost all fields of general surgery. In this specialty the techniques that have been intensively developed have been cholecystectomy in any of its acute or chronic phases, fundoplication, inguinal, umbilical and femoral hernioplasties, appendectomy, splenectomy, colectomy, and bariatric surgery [9]. In this case, we only contemplate cholecystectomy because it is the surgery that has proven its usefulness through the laparoscopic technique in most cases and the most performed in our hospital. The number of cholecystectomies gave us a 6:4 ratio in favor of laparoscopy. Reyes Díaz., *et al.* [10] have found that the laparoscopic approach improves day by day and imposes itself as the technique of choice with the exception of complicated pictures. Pérez-morales., *et al.* [11] they even claim that in cases of complicated cholecystitis or cholelithiasis, the safety of the laparoscopic approach is superior. Regarding the conversion of laparoscopic to open surgery, Yang TE., *et al.* [12] the risk factors found in their study to convert are: age > 65 years-old, male gender, acute cholecystitis, thickening of the vesicular wall, diabetes mellitus and previous abdominal surgery. Fortunately this pathology is more frequent in middle ages and in the female gender, we also had few patients with diabetes mellitus and there is also few chaos of previous abdominal surgery which resulted in a conversion rate within the global standards.

An important aspect to consider in this type of surgeries is to take into account that the older age of the patient and a value of ASA class 4 will increase the operative risk and those variables are beyond our control, however, Wysocki AP., *et al.* [13] in their study, they found that if we improve management during the admission of the patient, the moment of operation is chosen carefully (intervention timing) and postoperative management is improved, we will obtain better results. Haltmeier T., *et al.* [14] they found in their study that if patients > 65 years of age with significant comorbidities (ASA ≥ 2) were operated within the first 24 hours of admission, the results were associated with a shorter in-hospital stay, there was no increase in trans-operative complications and there was generally less need to convert to open surgery.

Finally, in a study on open cholecystectomy by Wagas A., *et al.* [15] it confirms that the monetary cost in patients is waiting list for surgery for vesicular disease is considerably raised because almost 30% of them will have new readmissions for the same event so which identify patients at risk of readmission and offer them an early laparoscopic surgery is the best option to reduce hospital costs.

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### Conflict of Interest

None.

### Ethical Approval

None.

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