

## **Diagnosis and Management of the Choledocolithiasis and its Complications. Long-Term Results. Service Surgery Hospital Naval Almirante NEF**

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### **Abstract**

**Introduction:** In spite of the technological advances the handle of the choledocolithiasis and his complications keeps on being controversial.

**Objective:** Determine the methods diagnostics and therapeutic more effective in patients that consult by choledocolithiasis. Define the population prevalence, examinations of laboratory and imaging test, treatments and complications.

**Material and Method:** Study analytical observational retrospective of patients taken part by choledocolithiasis from the year 2010 to the 2015. Analyzing the variable age, sex, laboratory, imaging test, endoscopic procedure (CPRE) or surgical, rehospitalization, reintervention, complications and mortality. It used STATA 12 and proof of Fischer.

**Results:** Of 100 patients analyzed, 56% women, with average of age of 71,3 years. To 93 of them it affected him at least a CPRE, 38 patient surgeries. The diagnostics to the entry were 46% acute colangitis, 32% coledocian colic, 17% acute pancreatitis. To the laboratory the GGTP increased 11 times by on his value. The abdominal ultrasound determined choledocolithiasis in 27,2%, the CT scan in 66,6% and the colangiorensonance in 93%. There was not significant difference regarding complications, rehospitalization and mortality in patients subjected to CPRE versus surgery. The diameter average of the biliary tract and lithiasis was of 12 mm and 9 mm in which they went to CPRE and of 17 mm and 11 mm in which they went to surgery respectively.

**Conclusion:** Frequent Pathology in elderly women, suspect when it elevate GGTP and request Colangiorensonancia for diagnostic confirmation. Derive to CPRE or Surgery according to number and size of lithiasis.

**Keywords:** *Choledocholithiasis; CPRE (Colangiopancreatografía Endoscópica Retrograda); Endoscopic Retrograde Cholangiopancreatography; GGTP (Gamma Glutamyl Transpeptidasa); Gamma Glutamyltranspeptidase*

### **Introduction**

Gallstones and its complications is one of the most frequent pathologies in our country that requires a timely and effective surgical resolution to prevent complications and higher associated costs arising from its attention. This is why to clarify that laboratory studies, images and therapeutic procedures have better resolution and clinical effectiveness will save us time, money and improve the statistics of the health system [1,2].

Despite the technological advances of the last decade the handling of the choledocolithiasis continues to be controversial and dependent of the human and technical equipment of the clinical services [1,2].

In the last 15 years, several papers have been published about the diagnostic methods more specific for their detection, such as abdominal ultrasound, CT scan and resonance; and on the effectiveness and risks of the different techniques of handling for this pathology from the coledocostomy Kehr t-tube to the laparoscopic and endoscopic handling and its combinations that have been carried out in different national centers with dispersed results as to resolutivity and recidival of the long-term choledocolithiasis without achieving a consensus [1-7].

### Objectives

The main is determining what are the most diagnostic and therapeutic methods more effectively in patients consulting in elective and/or urgent form by clinical picture of choledocolithiasis and its complications as obstructive jaundice, coledocian colic, acute colangitis and biliary acute pancreatitis in our attendance center. The secondaries are to define the most prevalent population with these pathologies, diagnostics, laboratory examinations and image objectives to their income and the treatments raised and its complications to short and long term.

### Material and Method

Analytical descriptive observational study of patients intervened by choledocolithiasis and its complications from the year 2010 until 2015. Analyzing the variables of age, sex, imagenology, laboratory, endoscopic procedure and/or surgery carried out, rehospitalization, reintervention, illness-free time, complications serious and mortality. To achieve it we review clinical, electronic, image, surgical and endoscopic protocols of patients intervened from 2010 to December 2015 by endoscopic and/or surgical choledocolithiasis, using the codes of CPRE, biliodigestive derivation and coledocostomy, with follow up until June 2016. Patients that carried out these procedures with another diagnosis different from choledocolithiasis, such as gallstone alone, periampullary neoplasms and biliary fistulas, miscoded patients who carried out another surgery or endoscopic procedure other than the CPRE, were excluded.

Of the 339 surgical and endoscopic interventions recorded with the codes of CPRE, Coledocostomy and biliodigestive derivation, 81 of them correspond to coledocostomy and/or biliodigestive derivation and 258 to CPRE performed from 2010 to 2015. Other causes of obstructive jaundice other than lithiasis were excluded remaining with 38 surgical patients and 62 patients with CPRE since great part of these patients presented more than one endoscopic procedure CPRE or their clinical sheets were not available for being deceased.

The statistical analysis was carried out with the stata 12 program using tests for qualitative variables (exact fisher test) and quantitative variables (t-student).

### Results

Of the 100 analyzed patients 44 were male sex and 56 women. The age average was 71.3 years, 93 of them have at least one endoscopic procedure (CPRE), in 17 cases 2 or more CPRE were performed. In 38 cases was required surgical intervention for final treatment.

In 46 cases the diagnosis of entry was of acute cholangitis, 32 coledocian colic, 17 acute pancreatitis and 5 acute cholecystitis (Table 1).

Diagnosis	No patients
Acute Cholangitis	46
Coledocian colic	32
Acute Pancreatitis	17
Acute Cholecystitis	5

Table 1: Clinical Hospital Admissions Diagnosis.

As regards the laboratory examinations, the alkaline phosphatase level was raised 2.7 times above the normal value and the GGTP 11 times above its range.

The studies of images that were carried out were: in 44 cases abdominal ultrasound, that in 12 (27.2%) patients demonstrated the presence of choledocolithiasis. 72 patients taken CT scan Abdomen-Pelvis and in 48 (66.6%) of them the presence of choledocolithiasis was demonstrated. In 46 cases, Abdomen Resonance and Colangiorensonance was requested and 43 (93%) cases achieved to demonstrate lithiasis in biliary tract (Table 2).

<b>Imagenological Studies</b>	<b>% Diagnosis Choledocolithiasis</b>
Abdominal ultrasound = 44	12 Cases 27,2%
Abdominal CT scan = 72	48 Cases 66,6%
RNM Abdomen and Colangio RNM = 46	43 Cases 93%

**Table 2:** Realized Imaging Studies.

The average diameter of the biliary tract recorded in the studies of images was 12 mm in patients submitted exclusively to CPRE and 17 mm in patients who went to surgery. The average size of the lithiasis demonstrated was 9 mm in the endoscopic group and 11 mm in the group that went to surgery.

In 34 patients of the total of the sample, more than 1 calculation was demonstrated in the imagenology.

Of the 62 patients who were only to CPRE 15 reigned for complications derived from choledocolithiasis at average at 9 months from high. In 12 cases it was needed to repeat the CPRE to remove residual lithiasis, control bleeding postpapilotomy or remove biliary endoprotesis installed in the first procedure. In those of these patients, third CPRE was necessary to resolve the residual lithiasis. Of the 12 patients who required a larger number of procedures, we observe that in 4 cases they had multiple choledocolithiasis and in 7 cases a lithiasis size greater than or equal to 10 mm diameter. In 10 patients of the total of the sample were presented with serious complications derived from the procedure such as: 8 Balthazar C-E acute pancreatitis that increased hospital stay more than 1 week, 1 gastric perforation after second CPRE that required surgery and 1 high digestive hemorrhage that required endoscopic handling. A patient with a background of coronary cardiopathy died for massive infarction after the procedure (Table 3 and 4).

<b>Complications CPRE</b>	<b>No</b>
Acute pancreatitis Balthazar C-E	8
Gastric perforation	1
High digestive bleeding	1
Massive AMI	1*

**Table 3:** Serious complications derived from CPRE.

\*: Dies

<b>Causes re-entry post CPRE</b>	<b>No</b>
Acute colangitis and residual lithiasis	6
Extraction stent biliary or programmed CPRE	1
Biliar Acute Pancreatitis	2
Other medical pathologies	1

**Table 4:** SCauses of Rehospitalization Derived from CPRE

\*: Re-entry average time: 9 months after the initial procedure.

As to patients submitted to surgery for failure or impossibility to perform CPRE, 20 were subjected to coledocostomy Kehr t-tube, 17 to biliodigestive bypass (cholechojejunostomy, Choledochoduodenostomy) and one to laparoscopic resection of remnant cystic duct. Surgical complications previous were: 2 infections of the operating site in patients subjected to Choledochoduodenostomy that required surgical assessment; a hemoperitoneum, another with acute cardiac insufficiency post surgery and a patient with sepsis that did not respond to treatment and that failed, had been subjected to coledocostomy Kehr t-tube, but on admission he had cholangitis and chronic pathologies renal and pulmonary.

Three patients presented long-term surgical complications: one incisional hernia with surgical repair, 2 residual choledocolithiasis that required new surgery one coledocostomy and another biliodigestive derivation (Table 5 and 6).

	Medical Complications	Surgical Complications
Early	<ul style="list-style-type: none"> <li>• 1 ICA (Acute Heart Failure)****</li> <li>• 1 Hepatic Insufficiency****</li> <li>• 2 Refractory Septic Shock and FOM****</li> </ul>	2 IAAS (Choledochoduodenostomy)*
Delayed		1 Incisional Hernia**
Reintervention		2 Residual lithiasis***

**Table 5:** Complications Derived from Open Surgery.

\*: Surgical Toilet in pavilion

\*\*: Hernioplasty with mesh 1 year after

\*\*\*: 1 required coledocostomy and other biliodigestive bypass

\*\*\*\*: They die in the ICU postoperatively

	Surgery (n = 38)	CPRE (n = 62)	p value*
Complications	3	10	0,36 (NS)
Reintervention	2	12	0,073 (NS)
Rehospitalization	10	15	0,816 (NS)
Deceased	4	1	0,06 (NS)

**Table 6:** Comparison Results CPRE V/S Surgery.

## Discussion

According to the national survey of biliary pathology of 2010 in Chile, the average of cholecystectomy per year by hospital center is 470 cases, gallstones is 10% associated with choledocolithiasis. The diagnostic techniques vary according to the availability of the hospital center using clinical, laboratory and image criteria as abdominal ultrasound, CT scan, magnetic nuclear resonance (RNM); echography and intraoperative cholangiography. Nomination and intraoperative ultrasound that deliver high sensitivity and diagnostic specificity of choledocolithiasis is not available from urgency in most public hospitals, so the early diagnosis of this pathology is difficult.

In several publications of the last 10 years, the use of intraoperative cholangiography as a diagnostic and therapeutic is described, but according to the evidence delivered by the methanolysis of dr manterola in 2007, no demonstration of the residual choledocolithiasis rate increases the operating time.

In terms of management, it is noted that in the last years, endoscopic resolution has increased very importantly in the case of primary choledocolithiasis and the combined endoscopy technique (CPRE) plus laparoscopy (cholecystectomy) or completely laparoscopic in the case of secondary choledocolithiasis with good results in unique and small lithiasis; i do not have in lithiasis greater than 1 cm and multiple that frequently require endoscopic procedures to repetition increasing costs and morbidity.

The surgical mortality in this study is considerably higher than the values published in the last years, but it is probably due to the severity of their patients and long hospital stay and because the surgery was the last resort for his recovery

### **Conclusions**

Complications derived from choledocolithiasis preferably affect patients of the third age and female sex. You have to have a high clinical suspect and laboratory when you present history patterns and request studies of images that ensure better diagnostic effectiveness such as colangiorenance and avoid as well as delays in the diagnosis. Discuss adequate handling by considering the risks and benefits of the patient's endoscopic and surgical and factor procedures size, number of lithiasis and biliary diameter to avoid multiple endoscopic attempts and unresolved surgeries that lead to more complications, greater hospital and higher stay risk of mortality.

It would be convenient to develop a joint program between surgeons and endoscopists so that in patients that require cholecystectomy along with endoscopic handling, it will be possible to carry out combined procedures and evaluate their effectiveness. Consider derivative surgery in patients with primary choledocholithiasis that fail in CPRE, with lithiasis greater than 10 mm or multiple.

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