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Medicine

CHOLECYSTITIS- CLINICAL AND THERAPEUTICAL ASPECTS

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ABSTRACT

CHOLECYSTITIS, AN INFLAMMATORY AFFECTION WHICH OCCURS IN MOST CASES AS A COMPLICATION OF THE CHOLELITHIASIS, APPEARS IN TWO FORMS: ACUTE AND CHRONIC. THE SURGICAL APPROACH OF THIS PATHOLOGY EVOLVED CONTINUALLY STARTING WITH THE FIRST CHOLECYSTECTOMY MADE BY LAUGENBUCH IN 1882 UP TO THE LAPAROSCOPIC CHOLECYSTECTOMY INTRODUCED IN 1985 WHICH BECAME" THE GOLDEN STANDARD" OF SURGERIES NOWADAYS. LAPAROSCOPIC CHOLECYSTECTOMY CAN TRIGGER A WHOLE RANGE OF COMPLICATIONS AND TECHNICAL DIFFICULTIES. THE AIM OF THE STUDY IS TO MAKE A RETROSPECTIVE ANALYSIS OF THE TREATMENT APPLIED TO PATIENTS HOSPITALIZED FOR ACUTE AND CHRONIC CHOLELITHIASIS IN THE SURGERY CLINIC OF THE RAILWAY CLINICAL HOSPITAL OF CRAIOVA OVER A PERIOD OF 3 YEARS.

THE USED MATERIAL IS REPRESENTED BY THE CLINICAL OBSERVATION SHEETS, SURGICAL PROTOCOLS AND THE DISCHARGE SUMMARIES OF THE PATIENTS. FOR THE PATIENTS INCLUDED IN THE STUDY A WIDE RANGE OF DATA WAS ANALYZED: AGE, SEX, ORIGIN, TYPES OF SURGERIES, INTRASURGERY ACCIDENTS AND INCIDENTS. THE RESULTS WERE IN ACCORDANCE WITH SPECIALTY LITERATURE AND THE CONCLUSIONS WE REACHED ON CERTAIN ASPECTS WERE" SLIGHTLY DIFFERENT" COMPARISON WITH THE ONES FROM THE SPECIALTY LITERATURE.

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INTRODUCTION

Cholecystitis, an inflammatory affection which occurs in most cases as a complication of the vesicular lithiasis, appears in two forms: acute and chronic. The surgical approach of this pathology evolved significantly across the centuries, from the classical surgery which was practiced in the XIXth and XXth centuries, to the laparoscopic cholecystectomy introduced in 1987, which became the "golden standard" of surgeries nowadays.

The gallbladder pathology is dominated by vesicular lithiasis, this one affecting mainly feminine gender after 40 years old, stating that approximatively 20% of the grown-up population suffers from this affection.[8]

Acute cholcystitis is characterized by the acute inflamation of the gallbladder wall, triggered in most of the cases by cholelithiasis. However, there are acute inflammatory conditions of the gallbladder which are alithiasic, more frequently met in men and associated with various etiologies: congenital defects of the bile ducts, secondary forms of sepsis conditions, parasitosis, post surgery or posttraumatic.[9]

Chronic cholecystitis is the most frequent disease of the gallbladder, 90% of the surgeries being made to treat this disease.

MAIN TEXT

I. THE AIM OF THE STUDY

The aim of the study is to make a retrospective analysis of the surgical treatment applied to the patients hospitalised for acute and chronic cholecystitis in The Surgery Clinic of the Railway Clinical Hospital of Craiova over a period of 3 years.

II. MATERIAL AND METHOD

The study was made in The Surgery Clinic of the Railway Clinical Hospital of Craiova on 332 patients diagnosed with acute and chronic diseases of the gallbladder over a period of 3 years, between 1st January 2014 and 31st December 2016, on whom a surgical curative treatment was applied by both classical and laparoscopic cholecystectomy.

The used material was represented by the clinical observation sheets, the surgical protocols and the discharge summaries of the patients. For each of the patients included in the study, the following data were analyzed:

- Age
- Sexul
- Origin and background
- The surgery type
- Intrasurgery incidents and accidents, the way these problems were solved
- Patient's condition at the moment of hospital admission
- Patient's condition at the moment of hospital discharge

[8] Papilian V, Albu I., 2001, Human Anatomy, Vol. 2: Splanhnology, Bucharest, BIC ALL, 127-148
[9] Mills S., 2004, Stenberg's diagnostic surgical pathology, Philadelphia, Lippincott Williams and Wilkins, 1781-1783

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The used study method was the clinical-statistical one, which consisted of making appreciations, comparisons and deductions on the obtained data. The data processing was made by means of Windows Microsoft Office 2007 and Windows Microsoft Excel 2007, the data was put down in charts, variability being represented in charts.

III. RESULTS

A. Repartition of the patients on age groups

The patients who were hospitalized and underwent surgeries at The Surgery Clinic for acute and chronic cholecystitis were between 14 and 85 years, the classification on age groups being noticed in *Figure 1*. Regarding the age distribution, we can notice a maximum of occurrence between the ages 51-70, representing 182 cases (54,81%), while under 41 years old, these diseases being less frequent, only 36 cases.

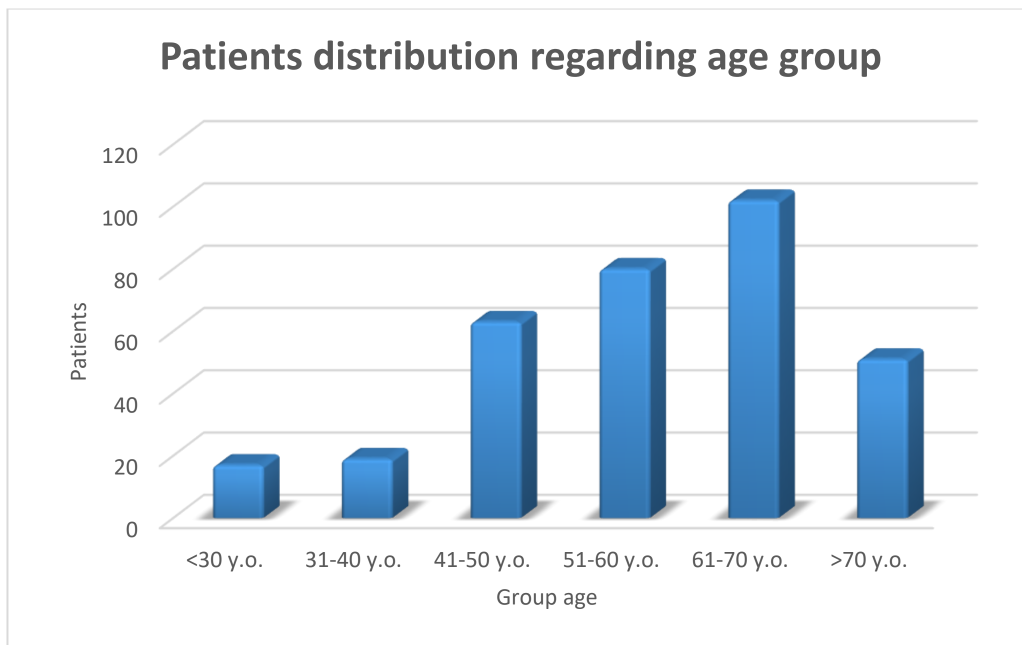

Figure 1. Age of patients included in the study

B. Patients ditribution according to gender

From the point of view of the repartition of patients according to sex, our study included 246 women (74,09%) and 86 men (25,91%), this also being in accordance with speciality literature which states a higher occurrence of this disease in women.

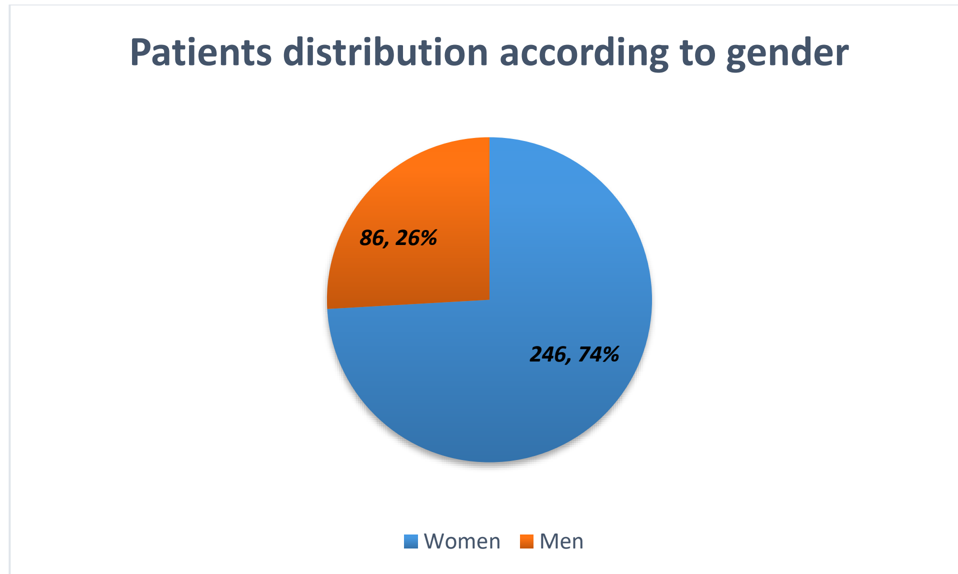

Figure.2. Distribution of the patients according to gender

Introducing the data about sex and age of the patients who underwent a cholecystectomy, we obtained the following Table:

Age	Women	Men	Total
Under 30 years old	15	2	17
31-40 years old	17	2	19
41-50 years old	50	13	63
51-60 years old	63	17	80
61-70 years old	72	30	102
Over 70 years old	29	22	51
Total	246	86	322

Table 1. Repartition of patients according to sex and age

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From *Table 1* we can observe that if under 30 years old, the percentage of women of the total number of cases in that group age is overwhwelming (88,2%), the older the patients are, the smaller the difference gets. Thus, between 41-50 years old, 79% of the patients are women and 21% are men, between 61-70 years old women represent 70,5% and men 29,5% of casses, while in the case of over 70 years old, in the same time with the existence of half number of surgeries, the report according to sex of the patients who underwent a cholecystectomy is 56,8% women and 43,2% men.

C. Patients distribution according to residence area

Regarding patients distribution according to residence area, we noticed a higher number of acute cholecystitis but also of chronic cholecystitis in the case of patients living in urban areas.

Thus, of the total of 332 cases, 255 (76,80%) patients were from urban area, while the rest of 77 patients were from rural areas representing 23,2% of the total number of cases.

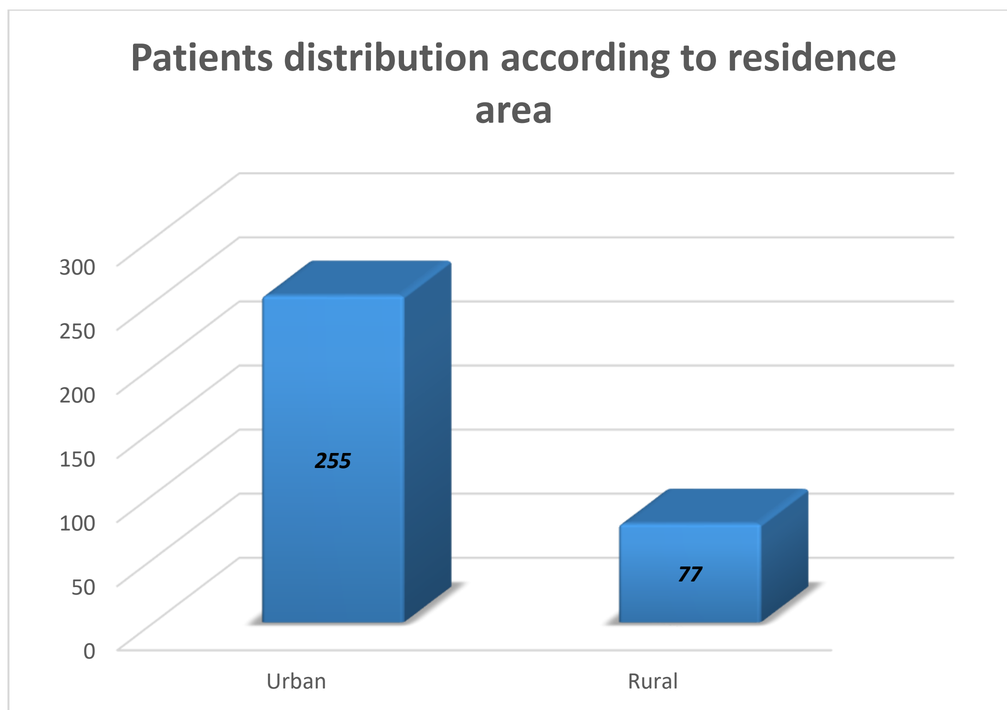

Figure 3. Patients distribution according to residence area

D. Surgery type

The acute or chronic inflamatory patology of the gallbladder can be treated surgically using laparoscopic or classic techniques.

Surgery type	Acute cholecystitis	Chronic cholecystitis
1. Laparoscopic		
Retrograde	66	242
Anterograde	3	2
Bipolar	1	-
2. Classic	11	7

Table 2. Surgery types applied

Analyzing *Table no.2.* we can notice that in the case of chronic cholecystitis, the percent of patients who underwent laparoscopic surgeries is extremely high (97,2%), in comparison with 7 (2,78%) patients who underwent classical approach *(Figure 4)*.

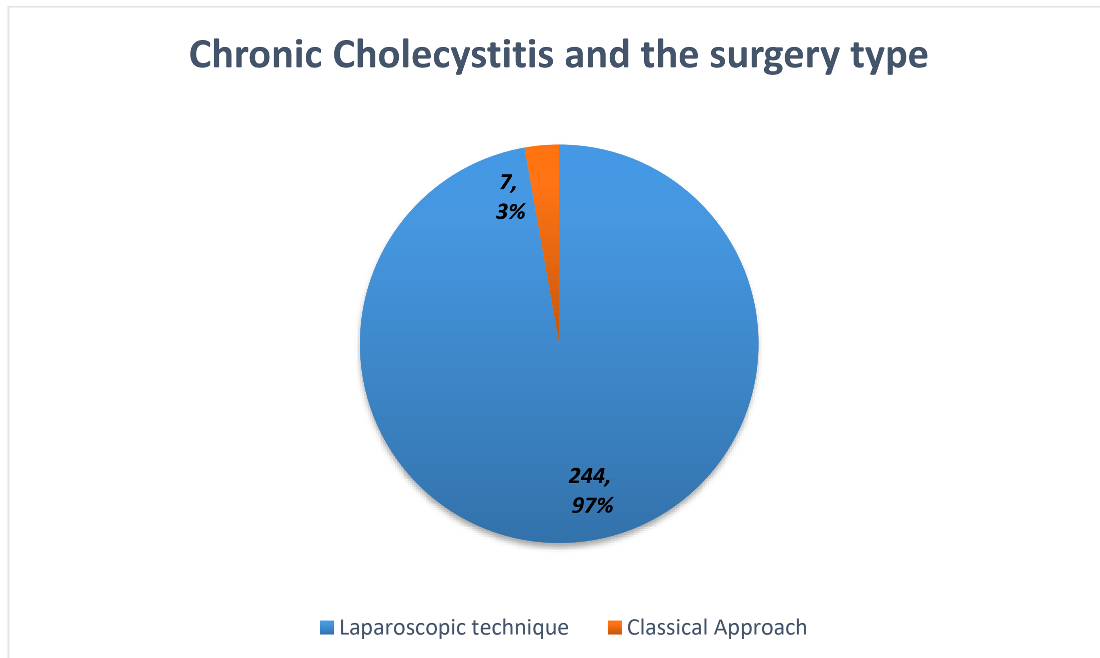

Figure 4. Chronic cholecystitis and the surgery type

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Regarding acute cholecystitis, 70 patients (86,41% of the patients in this category) were performed laparoscopic approach , while 11 patients (13,58%) underwent classical surgery techniques *(Figure 5).*

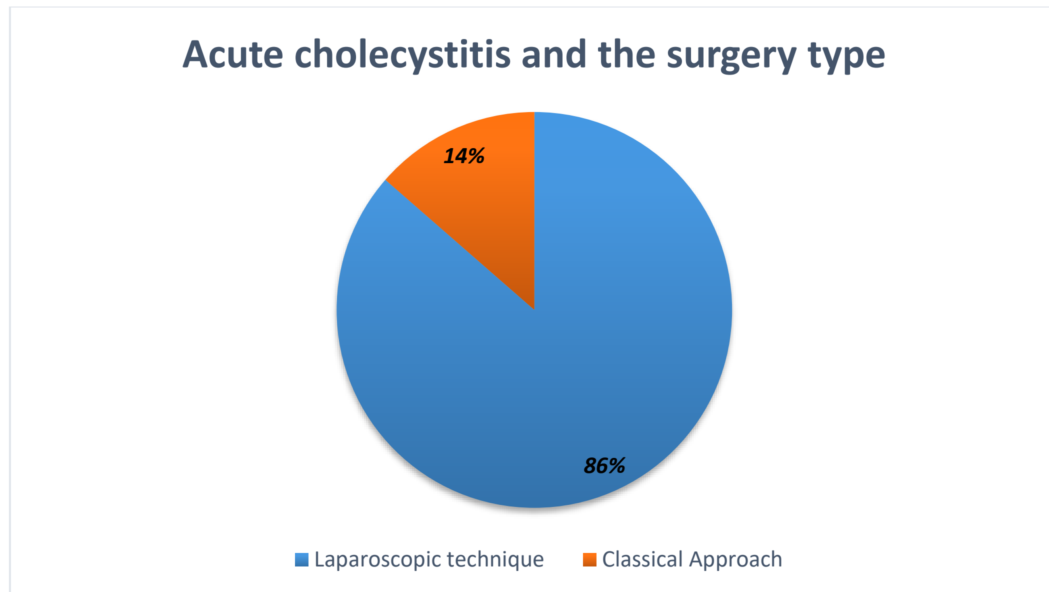

Figure 5. Acute cholecystitis and the surgery type

In what concerns the classic cholecystectomies, these were practiced more in the acute cases which presented more complications or cholelithiasis of the main bile ducts, for the latter practicing more types of anastomosis: choledoco-duodenal witch latero-lateral anastomosis or termino-terminal choledoco-choledochal anastomosis.

IV. DISCUSSIONS

The surgical treatment of acute and chronic cholecystitis was individualized according to each patient's needs, taking into consideration the clinical form of the disease, the general condition of the patient, the comorbidities and paraclinical aspects in order to establish the therapeutic indications.

Pain is the main symptom in the pathology of the gallbladder, being described most frequently at the level of the epigastrium and the right quadrant, this thing being met at the patients included in our clinical study, the one at the level of the right quadrant being reported in all the cases, while the epigastric pains were met in approximatively one third of the cases.

The clinical manifestations which accompany the pain are the ones of the biliary dyspeptic syndrome: nausea, vomiting, postprandial bloating, heartburn, bitter taste, headache, regurgitation and lack of appetite, all of them being more frequently met throughout the evolution of the chronic cholecystitis than in the case of the acute pathology. In contrast, fever and rigors, clinic signs of an infection, were more frequently met in acute cholecystitis. The mechanic jaundice met in 3 cases was associated with the rest of the characteristic elements of post-hepatic jaundice: dark urine and acholic feces.

In what concerns the objective examination of the operated patients, 40% had the mass index over 30, underlining the importance obesity has in the pathogenesis of cholelithiasis, which is the main cause of inflammatory conditions of the gallbladder. Moreover, the Murphy sign– represented by deep pain felt by the patient when breathing profoundly during the examination of the cystic spot, occurred at 30% of the patients suffering from chronic cholecystitis and 61% of the patients suffering from acute cholecystitis.

Abdominal ultrasound represented an investigation with a major role in the orientation of the diagnosis and surgical indication, the existence of gallstones with rear shadow cone establishing the lithiasis etiology of the acute or chronic disease. Thus, only in the situation of 10 cases the lithiasic origin of the gallbladder pathology could not be highlighted, these representing only 3% of the analyzed cases.

Regarding echographic aspects which are useful for the orientation of the positive diagnosis of cholecystitis, acute cholecystitis was more frequently correlated with certain ultrasonographic aspects such as: biliary sludge in a variable quantity, the hypoechogenyc walls of the gallbladder which show the parietal edema, the increased size of the cholecist, zones of parietal necrosis, the double outline of the wall or the intravesical polyps. The echographic aspects which highlited a chronic gallbladder pathology were the hyperechogenic, thicker walls of the gallbladder but also the scleroatrophic aspect, sometimes with a gallbladder molded on calculus.

The ultrasonographic signs of a potentially difficult surgery are: a thicker wall of the gallbladder, contracted gallbladder, the whole cavity of the gallbladder is filled with gallstones, calcified gallbladder, pericholecystic liquid and air in the wall of the gallbladder (emphysematous cholecystitis), acute gangrenous cholecystitis, sessile gallbladder.[10]

In the case of chronic cholecystitis patients, the indication of the surgical treatment is compulsory when it is diagnosed, except the counterindications due to the risk factors (severe cardiac affections, decompensated organ failure). However, the treatment can be individualized according to the symptomatology of the patient and the risk of complications. Thus, for patients with extremely reduced symptomatology, the risk of complications is between 1-3%/year, being possible to accept adopting a corresponding hygienic-dietary regime and periodical reevaluation from the clinical and paraclinical point of view. In exchange, for patients with recurrent or severe symptoms there is a percent of complications of 7%/year, so cholecystectomy is to be discussed here. The surgical indication is clear mainly in the cases of:

- Chronic microscopic cholecystitis with micro-gallstones under 3 mm (danger of migration and complications such as angiocholitis or cholangitis acute pancreatitis), situation met in 5cases;
- Scleroatrophic chronic cholecystitis (risk of complications such as internal fistulas), met in 11 cases;
- Chronic cholecystitis with successive cramps, cholelithiasis in patients under 50 years old (risk of degeneration);
- Complications (acute cholecystitis, jaundice, angiocholitis, acute pancreatitis, bilio-biliary of billio-digestive fistulas).

[10]Arshad M. M., 2011, Advances in Laparoscopic Surgery, Croatia, InTech, 13-28.

In Romania radical intervention is preferred both in the case of silent forms of affected gallbladder, thus making a prophilaxy of septic, mechanical or degenerative neoplastic complications.[11]

Acute cholecystitis is a surgical emergency, its treatment imposing an emergency cholecystectomy. Despite this fact, the anatomio-clinical polymorphism of the acute cholecystitis leads to a difficulty in establishing the therapeutic strategy theoretically and practically. The surgical moment is chosen according to the anatomical and clinical form:

- Immediate emergency: over acute forms, regardless the risks. These cases are reprezented by the acute cholecystitis with peritonitis, respectivelly the gangrenous forms with fast aggravation;
- Postponed emergency 24-72 hours: attitude which is adopted in most of the cases of acute cholecystitis;
- Surgery after timing (3-7 up to 10 days) in the case in which other comorbidities must be investigated;
- Surgery after the cooling of the process, in the case in which the patient refused the former surgery or the medical conservative treatment was chosen.[12]

Taking into consideration the prophile of our surgical section chirurgicale, most of the surgeries were postponed emergencies, except three cases of acute cold cholecystitis lithiasis and a case of acute cold pio-cholecistitis lithiasis.

The prophylactic antimicrobial therapy supposes the administration of a broad-spectrum antibiotic such as one administration of cefalosphorines which precedes the surgery with a few hours, treatment applied in the case of all patients. The antimicrobian curative treatment is applied post-surgery in the case of complications or local infections at the level or at a distance of the wound.

In what concerns the surgery type made, 94,57% of the total number of cholecystectomy interventions were laparoscopic, confirming the status of the present *"golden standard"* of surgeries at the level of the gallbladder, being the most practiced major abdominal surgery in modern countries.

This minimally invasive intervention presents a series of advantages which establish its indication, such as the important decrease number of days in hospital with a faster social reinsertion, the higher comfort of the patient through reducing pain and post surgery ileus, less frequently met suppuration and eventration in comparison with the classical technique, esthetic advantage due to the fact that incisions are much smaller.

However, despite the numerous advantages proved in various clinical studies, laparoscopic cholecystectomy presents a series of disadvantages which had to be taken into consideration in the moment of establishing the thearapeutic decision. Thus, the absolute contraindication of this type of surgery are the impossibility of tolerating the general anestehesia, refractory coagulopathy and gallbladder cancer. In the case of the intra-surgery diagnosis of this affection, the conversion into an open surgery is compulsory, for a higher control of rezection limits and for the lymph nodes extrirpation.

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[11]Angelescu N., 2003, Surgical pathology Treaty , Bucharet, Medical Ed., 421-460, 1899-1983.
[12]Ghelase F., Georgescu I., 1999, General Surgery, Didactic and pedagogical publishing house, Bucharest 338-369.

Numerous situatios which were previously considered as contraindications of the laparoscopic approach (gangrenous cholecystitis, gallbladder empiem, biliary enteric fistula, obesity, pregnancy, the ventriculoperitoneal shunt, cirrhosis, pathological personal history of surgeries at the level of the superior abdominal part) are no longer considered contraindicated, but cases which require a special pre- operatory preparation and a thorough rigorous cost-benefit assessment..

Classical cholecystectomy is the surgery which was done in a number of 11 cases of acute cholecystitis and 7 cases of chronic cholecystitis.

In the case of acute cholecystectomies, the pathologies which imposed a classical cholecystectomy were choledohcal lithiasis and migrated choledochal lithiasis, these being solved through a choledocholithotomy and a latero-lateral choledocho-duodenoanastomosis. The existence of abscesses at the level of the peritoneal cavity, such as the pericholecystic or and the interhepato-diaphragmatic abscesses were treated through peritoneal lavage and drainage.

In the case of a patient who presented the secondary diagnosis of choledochal calculus, hepatic pediculitis and perivisceritis, a biliary external drainage was compulsory through a Kehr tube, the choledocholithotomy and the viscerolysis. Choledochotomy and the latero- lateral anastomosis between the bile duct and the duodenum were compulsory in a case with cholecystoduodenal fistula and in another case with choledochal calculus, chronic oddity under observation and mechanical jaundice.

During the surgeries there were some intra-surgery accidents and incidents which could not be solved through laparoscopic surgery, converting the surgery into a classical one, some of which are going to be presented in detail.

In the case of a 50year-old patient, with the diagnosis of chronic lithiasic cholecystitis which underwent a retrograde laparoscopic cholecystectomy, a punctiform lesion of the main bile duct was made with a Hook clip during the surgery, this incident being acknowledged intra-surgery. In this situation two therapeutical procedures can be applied: converting the laparoscopic surgery into a classical one with a Kehr tube, respectively making a multiple drainage around the lesion of the main bile duct, continuing the surgery laparoscopically. The second choice was adopted. After that, on the first three days after the surgery there was a leak of gall of 300-400 ml/day, which decreased on the fourth day, and stopped on the fifth day. The patient was discharged from hospital on the eighth day after the surgery in good general condition.

A second case is that of a patient of 48 years old hospitalized for acute lithiasic cholecystitis who had an intra-surgery incident when, at the moment of introducing the trocar at the level of the umbilical scar, a wound was produced at the level of the right common iliac vein thus a massive haemoperitoneum occured which was not recognised immediately, leading to a drop of blood pressure and a raise of heartbeats up to 130 beats/minute. In this context, the patient was immediately resuscitated, and the laparoscopic surgery was rapidly converted into a classical one, finding a wound of approximatively 3-4 mm at the level of the la nivelul right common iliac vein which was stit with great difficulty, thus stopping the bleeding. The patient received massive blood transfusions, the evolution was favourable and she was discharged on the tenth day after the surgery.

A case of conversion of laparoscopic approach into a classical one was of a 76 year old man, with the diagnosis of acute lithiasis pio-cholecystitis, who was hospitalized for pains in the epigastrium and in the right quadrant, postprandial bloating, morning bitter taste, heartburt, nausea

and selective lack of apetite. During the surgery an intense process of periviscеral inflamation under the liver made it impossible to visualize the gallbladder after the viscerolyse maneuvres. The conversion of the surgery is decided upon; after the adhesiolysis, we can notice the existence of a process of hepatic pediculosis, and the gallbladder presented a thick wall. The infundibulo-cystic area is dissected with difficulty, and in that moment a lesion of the main bile duct is produced. A cholecystectomy was made and the damaged bile duct was restored through termino-terminal choledoco-choledochal anastomosis protected with a T tube (Kehr). The post -surgery evolution was favourable.

Another case is that of a woman with chronic scleroatrophic cholecystitis in which the ultrasound highlighted a gallbladder molded on the gallstones. Thus, a laparoscopic cholecystectomy was attempted, but during the surgery, the intervention could not be done because of the intense perivisceritis and pediculosis at this level. Later, the atrophy degree of the gallbladder which made a radical classical surgery impossible, thus, an incomplete cholecystectomy was performed, remaining a gallbladder end which contained a big dimensions gallstone (about 1.5 cm). The persistence of the biliary suffering expressed subjectively under the form of an intense dyspeptic syndrome which persisted after the surgery imposed a new surgery after about 2 months with a total cholecystectomy which was made without any incidents.

The fifth case is that of a patient which was hospitalized with the diagnosis of chronic cholecystitis who underwent laparoscopic cholecystectomy without intra-surgery incidents. Despite this fact, during the doctor's visit she showed singns of swetting, she was sleepy, and colourless, she had tachycardia (120 beats/ minute) and low blood pressure (50/30 mmHg), but on the drainage tube there was no blood leaking. An emergency surgery was decided upon, performing a midline xifo-umbilical laparotomy evacuating blood clots and quantities of blood of approximatively 1.5 litters, the cause of this bleeding being the skidding of the clip from the level of the cystic artery. Thus, a ligature was made at the end of the cystic artery also with the draining of the subhepatic space. The evolution was good and the patient was discharged from hospital one week after the surgery.

The sixth case was represented by a young 28 years old patient who underwent laparoscopic cholecystectomy. He suffered a lesion of the hepatic duct which was not recognised during the intervention. After the surgery, about 1.5 liters a day of gall which persisted for 10-12 days was drained. Thus, in order to set a precise diagnosis, a cholangiography was done, observing the partial section of the right hepatic duct. The patient was transferred a fost transferat to another Surgery Clinic, where he underwent an endoscopy.

V. CONCLUSIONS

- In the study groups, the chronic cholecystitis was much more frequent than acute cholecystitis.
- The division on sexes showed that biliary diseases were more frequent in the case of women than in the case of men.
- The inflammatory diseases of the gallbladder were more frequent in the case of the patients of 51-70 years old living in urban areas.
- The abdominal ultrasound was the main paraclinical investigation used in the diagnosis of cholecystitis, in the majority of cases revealing the presence of gallstones.

- The laparoscopic cholecystectomy became the gold standard of the treatment of biliary pathology in the last two decades, 94,57% of the surgeries made during the clinical study being made through laparoscopic technique.
- The advantage of the laparoscopic cholecystectomy is clearly superior to classic cholecystectomy, the patients being faster inserted into society, the pain and the hospitalization after the surgery being lower, immediate or further complications being almost inexistent.
- The conversion of the surgery from laparoscopic into classical one is a proof of surgical progress not a failure, this being imposed by the extensive inflammatory processes, important fibrosis or iatrogenic lesions of the main bile ducts.
- The multidisciplinary approach and solving the case in due time in order to repair the biliary lesions are essential for obtain best results.
- Although specialty literature states that the number of hospitalization days is low, only a few days, in the case of laparoscopic surgeries, our study showed the fact that most of the cases were included in the group of patients who were hospitalized for a period of 5-10 days.

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All authors equally contributed in the research and drafting of this paper.
All authors report no pottential conflict of interest.

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