

# Assessment of the Benefits of Laparoscopic Cholecystectomy In Elderly Patients

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**Abstract— Aim:** The aim of the study is to analyze the operating time, hospital stay, rates of conversion, morbidity and mortality in elderly patients undergoing laparoscopic cholecystectomy in UMHATEM "N.I.Pirogov".

**Material and Methods:** For a period of one year from 1.1.2013 to 31.12.2013 in the Department of General, Visceral and Emergency surgery in UMHATEM "Pirogov" 467 elderly patients with calculous cholecystitis were operated. Laparoscopic cholecystectomy was performed in 416 cases. Conventional cholecystectomy was performed in the remaining 51 cases. In this study the parameters - age, gender, clinical symptoms, treatment, morbidity and mortality were analyzed. Age in this retrospective analysis ranged from 61 to 93 years (average 72 years). Gender distribution was 304 (73.08%) female and 112(26.92%) male.

**Results:** The operating time varied between 20 and 170 minutes (average 55 minutes). The hospital stay is registered from 48 hours to 8 days (average 3 days). Seventeen patients (4,09%) required conversion to laparotomy. The most common cause was acute cholecystitis - 270 patients (64.9%). Postoperative surgical morbidity includes 17 patients (operative wound suppuration, ileus, postoperative hernia, jaundice). The mortality was 1.2% -5 patients.

**Conclusion:** Elderly patients undergoing laparoscopic surgery for calculous cholecystitis have short hospital stays and low morbidity. Operating time and recovery interval are short, demonstrating that laparoscopic cholecystectomy is a safe and effective procedure in elderly patients.

**Keywords —** calculous cholecystitis, laparoscopy, conversion, comorbidity, aged.

## I. INTRODUCTION

Cholecystolithiasis occurs in 3-20% of the world's population [1]. This is the most common abdominal surgical disease in elderly patients with a frequency of 21.4% in patients aged between 60-69 years and 27.5% over the age of 70[2]. It may occur asymptotically, but complicated conditions such as biliary peritonitis and cholelithiasis are common [3], [4]. Laparoscopic cholecystectomy has been accepted as a gold standard in the treatment of gallstone disease. Cholecystectomy is one of the most commonly performed abdominal surgeries, with the incidence among adults ranging between 8.3% and 24% [2]. In recent years, laparoscopic interventions for this disease prevailed in Bulgaria, approaching rates reported in literature.

Although age seems to have a negative influence on surgical outcome, most publications show that the chronological age alone is irrelevant. In fact, the decrease in functional abilities, more common comorbidities, chronic or complicated gallstone disease, such as acute cholecystitis or biliary pancreatitis, often a consequence of biliary calculus, are responsible for increasing perioperative morbidity and mortality. They are also a common cause for conversion. Therefore, elective surgical treatment is recommended for the clinically symptomatic elderly, as long as they are compensated [2].

The present study aims to analyze the operating time, hospital stay, rates of conversion, morbidity and mortality in elderly patients undergoing laparoscopic cholecystectomy.

## II. MATERIAL AND METHODS

For a period of one year from 1.1.2013 to 31.12.2013 in the Department of General, Visceral and Emergency surgery in UMHATEM "Pirogov" 467 elderly patients with calculous cholecystitis were operated. In 416 cases laparoscopic cholecystectomy was performed, in the remaining 51 – open cholecystectomy. In this study the parameters - age, gender, clinical symptoms, treatment, morbidity and mortality were analyzed. Age in this retrospective analysis ranged from 61 to 93 years (average 72 years). Gender distribution was 304 (73.08%) female and 112(26.92%) male.

Gallbladder disease is identified by anamnesis, physical examination, laboratory data and ultrasound. A diagnosis was based on a micro- and macroscopic examination of the gallbladder. Indication for surgery is most often acute cholecystitis (270 patients 64.9%), followed by chronic cholecystitis (104-25%) and gallbladder polyp (5 to 1.2%). Of these, 29 were with choledocholithiasis (6.97%) and 8 with gallbladder neoplasm (1.92%). In the last group in 3 cases laparoscopy was converted to laparotomy due to the macroscopic identification of cancer. The remaining 5 were diagnosed by histopathological examination of the gallbladder and were scheduled for a new oncological surgical intervention. The choledocholithiasis was treated with preoperative Endoscopic Retrograde Cholangiopancreatography (ERCP).

### III. RESULTS

The operating time varied between 20 and 170 minutes (average 55 minutes). The hospital stay ranged from 48 hours to 8 days (average 3 days). Seventeen patients (4.09%) required conversion to laparotomy. The main reasons were advanced inflammatory process or oncological disease of the gallbladder, as well as anatomic variations or technical difficulties. This in turn prolonged the hospital stay. The most common is acute cholecystitis - 270 patients (64.9%). Other factors, which can contribute to the frequency of conversion can be: surgical experience, a small number of laparoscopies during training, technical difficulties, choledocholithiasis, postoperative adhesions. Postoperative surgical morbidity includes 17 patients (operative wound suppuration, ileus, postoperative hernia, jaundice). Complications also affected comorbidity - 178 patients (42.79%) had arterial hypertension, diabetes, post-cerebrovascular disease status, abnormal coagulation status.

The 30 day mortality was 1.2% - 5 patients, caused by exacerbation of existing comorbidity and major dysrhythmias.

### IV. DISCUSSION

Laparoscopic cholecystectomy is the gold standard for the treatment of cholelithiasis in elderly patients [6]. It has been widely spread in Bulgaria and all over the world in recent decades. The age of patients is a factor that has worried surgeons, but it is not an obstacle to laparoscopy [7]. Primarily, in elderly patients the focus is on the comorbidities. In this study, the average duration of the intervention was 55 minutes and is comparable to current literature. This value tends to decrease with increasing experience of the surgeon and systematization of the technique. Reduction of the operative time in elderly patients contributes to the reduction of surgical trauma and the anaesthetic time. It is important for young surgeons to avoid hasty maneuvers due to an increased risk of iatrogenic lesions. On the other hand, delayed intervention is a risk factor for post-operative complications [11]. Also, it is important that the operation is performed safely, efficiently and in a timely manner.

The average hospital stay has been three days, once again consistent with the published literature [9], [12], [13]. This is of great importance for the rapid mobilization and recovery in elderly patients. Prolonged hospital stay is mainly associated with peri- or postoperative surgical or non-surgical complications as well as complicated comorbidity.

An acceptable conversion rate of 4.09% (17 cases) was observed [5], [15]. Patients undergoing conversion, respectively, have extended operating time [5], but this does not affect the registered mortality. Conversion was mainly done in women with acute cholecystitis. This could be due to the predominance of the gender in our study - 304 cases (73.08%). Acute cholecystitis was the most common diagnosis on admission (64.9%).

Experienced surgeon supervision in the early stages of training is key and can improve conversion rates. It is noteworthy that the conversion is related to the following situations: technical difficulties in structure dissection, destructive cholecystitis, haemorrhage, iatrogenic lesion of the biliary tree [16], [17], choledocholithiasis and male gender with acute cholecystitis [15]. Difficulty in identifying anatomical structures is also a cause of conversion [18]. In the present study, reasons for conversion are: multiple adhesions, destructive cholecystitis, haemorrhage, choledocholithiasis.

The observed morbidity is 4.09% and mortality -1.2%. This also compares favorably with established results [12], [19]- [21]. Most of the complications are promptly treated - suppuration with modern methods (VAC dressing), postoperative hernias - with hernia repair, jaundice - with ERCP.

Laparoscopic cholecystectomy is a safe procedure in elderly patients but complicated biliary pathology is associated with increased postoperative morbidity [22]. Morbidity after laparoscopy is primarily related to the severity of biliary illness, rather than the chronological age. In order to improve surgical outcomes in the elderly, surgery should be done early [8].

Registered mortality is 1.2%, caused by exacerbation of existing comorbidity and major dysrhythmias.

### V. CONCLUSION

Elderly patients undergoing laparoscopic surgery for calculous cholecystitis have short hospital stays and low morbidity. Operating time and recovery interval are short, demonstrating that laparoscopic cholecystectomy is a safe and effective procedure in elderly patients.

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## REFERENCES

- [1] Tang B, Cushieri A. Conversion during laparoscopic cholecystectomy: risk factors and effects on patient outcome. *J Gastrointes Surg* 2006; 10(7):1081-91.
- [2] Régo RE, de Campos T, de Moricz A, Silva RA, Pacheco Júnior AM. Cholecystectomy in the elderly: early results of open versus lparoscopic approach. *Rev Assoc Med Bras* 2003; 49(3):293-9.
- [3] Picci R, Perri SG, Dalla Torre A, Pietrasanta D, Castaldo P, Nicita A, et al. Therapy of asymptomatic gallstones: indications and limits. *Chir Ital* 2005; 57(1):35-45.
- [4] Sakorafas GH, Milingos D, Peros G. Asymptomatic cholelithiasis: is cholecystectomy really needed? A critical reappraisal 15 years after the introduction of laparoscopic cholecystectomy. *Dig Dis Sci* 2007; 52(5):1313-25.
- [5] Lima EC, Queiroz FL, Ladeira FN, Ferreira BM, Bueno JGP, Magalhães EA. Análise dos fatores implicados na conversão da colecistectomia laparoscópica. *Rev Col Bras Cir* 2007; 34(5):321-5.
- [6] Polychronidis A, Botaitis S, Tsaroucha A, Tripsianis G, Boumova A, Pitiakoudis M, et al. Laparoscopic cholecystectomy in elderly patients. *J Gastrointest Liver Dis* 2008; 17(3):309-13.
- [7] Annamaneni RK, Moraitis D, Cayten CG. Laparoscopic cholecystectomy in the elderly. *JLS* 2005; 9(4):408-10.
- [8] Kim HO, Yun JW, Shin JH, Hwang SI, Cho YK, Son BH, et al. Outcome of laparoscopic cholecystectomy is not influenced by chronological age in the elderly. *World J Gastroenterol* 2009; 15(6):722-6.
- [9] Cheng SP, Chang YC, Liu CL, Yang TL, Jeng KS, Lee JJ, et al. Factors associated with prolonged stay after laparoscopic cholecystectomy in elderly patients. *Surg Endosc* 2008; 22(5):1283-9.
- [10] Malik AM, Laghari AA, Talpur KA, Memon A, Pathan R, Memon JM. Laparoscopic cholecystectomy in the elderly patients. An experience at Liaquat University Hospital Jamshoro. *J Ayub Med Coll Abbottabad* 2007; 19(4):45-8.
- [11] Lyass S, Perry Y, Venturero M, Muggia-Sullam M, Eid A, Durst A, Reissman P. Laparoscopic cholecystectomy: what does affect the outcome? A retrospective multifactorial regression analysis. *Surg Endosc* 2000; 14(7):661-5.
- [12] Ibanez AL, Escalona PA, Devaud JN, Monteiro MP, Ramirez WE, Pimentel MF, et al. Laparoscopic cholecystectomy: 10 years at the Hospital Clínico Pontificia Universidad Católica de Chile. *Rev Chil Cir* 2007; 59(1):10-5.
- [13] Amaral PCG, Azaro Filho EM, Fortes MF, Eittinger Jr E, Cangussu HC, Fahel E. Taxas de complicações e tempo de permanência hospitalar foram maiores em pacientes idosos submetidos à videolaparocolecistectomia. Resultados após colecistectomia videolaparoscópica em pacientes idosos. *Rev bras videocir* 2006; 4(2):48-53.
- [14] Johansson M, Thune A, Nelvin L, Lundell L. Randomized clinical trial of day-care versus overnight-stay laparoscopic cholecystectomy. *Br J Surg* 2006; 93(1):40-5.
- [15] Golden WE, Cleves MA, Johnston JC. Laparoscopic cholecystectomy in the geriatric population. *J Am Geriatr Soc* 1996; 44(11):1380-3.
- [16] Coelho JC, Bonilha R, Pitaki SA, Cordeiro RM, Salvalaggio PR, Bonin EA, et al. Prevalence of gallstones in a Brazilian population. *Int Surg* 1999; 84(1):25-8.
- [17] Milcent M, Santos EG, Bravo Neto GP. Lesão iatrogênica da via biliar principal em colecistectomia videolaparoscópica. *Rev Col Bras Cir* 2005; 32(6):332-6.
- [18] Mayol J, Martinez-Sarmiento J, Tamayo FJ, Fernandez-Represa JA. Complications of laparoscopic cholecystectomy in the ageing patient. *Age Ageing* 1997; 26(2):77-81.
- [19] Pavlidis TE, Marakis GN, Symeonidis N, Psarras K, Ballas K, Rafailidis S, et al. Considerations concerning laparoscopic cholecystectomy in the extremely elderly. *J Laparoendosc Adv Surg Tech A* 2008; 18(1):56-60.
- [20] Montalva NS, Flisfisch FH, Lena PL, Cerda SR, Hernandez FF, Matus FC, et al. Resultados de la colecistectomia videolaparoscópica en el adulto mayor. *Rev chil cir* 2007; 59(6):425-9.
- [21] Brunt LM, Quasebarth MA, Dunnegan DL, Soper NJ. Outcomes analysis of laparoscopic cholecystectomy in the extremely elderly. *Surg Endosc* 2001; 15(7):700-5.
- [22] Chang WT, Yu FJ, Hsieh MY, Huang MC, Lee KT, Chen JS, et al. Laparoscopic cholecystectomy in aged patients. *Hepatogastroenterology* 2009; 56(93):950-5.