

Laparoscopic cholecystectomy and concomitant diseases

Effectiveness of the single step treatment



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Pietro Caglià, Angelo Tracia, Luca Amodeo, Lucio Tracia, Corrado Amodeo,
Massimiliano Veroux

Department of Medical and Surgical Sciences, Advanced Technologies "G. Ingrassia" University of Catania, Italy

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AIM: *With the expanded use of laparoscopy, the options for combined surgical procedures have also increased and can be a modality of choice for coexisting pathologies in the abdomen. In our study we evaluate the safety and the efficacy of a number of surgical procedures combined with laparoscopic cholecystectomy and report our results.*

MATERIAL OF STUDY: *We conducted a retrospective study on 19 consecutive patients who underwent laparoscopic cholecystectomy simultaneously with other operations.*

RESULTS: *No conversion to open surgery was necessary. Postoperative complications occurred in three patients. The mean postoperative hospital stay was 3 days (range 2-4) and a few patients required more than 48 hours postoperative hospitalization. The perioperative mortality rate was 0%.*

DISCUSSION: *Concomitant surgical procedures result in longer operating time, but certainly the patient benefits from a single exposure to anesthesia, single hospital stay, and single period of absence from work.*

CONCLUSIONS: *Combining surgeries does not significantly alter the outcome of the procedure, proved to be a safe and feasible and present an interesting alternative to two separate operations. Prospective studies with long-term follow-up are required to better understand the implications of simultaneous operations.*

KEY WORDS: Laparoscopic combined procedures, Minimally invasive surgery

Introduction

The field of Minimally invasive surgical procedures have evolved and improved rapidly since Muhe performed the first laparoscopic cholecystectomy in 1985¹. Laparoscopy has now been applied to almost every area of surgery

due to improvements in optics, mechanical instrumentation, and education of the surgeon and its benefits have been well established². From a patient perspective, it decreases post-operative pain and discomfort, reduces hospital stay, improve cosmetics appearance and ultimately facilitates a more rapid recovery and resumption of normal activity. With the expanded use of laparoscopy, the options for combined surgical procedures have also increased and can be a modality of choice for coexisting pathologies in the abdomen. Particularly laparoscopic cholecystectomy has been combined with appendectomy, splenectomy, herniorrhaphy, gynaecological procedures, sleeve gastrectomy and others³⁻⁷. This not only provides the patient all the advantages of minimally invasive surgery, but also gives the benefits of single time anesthesia for surgical intervention for multiple pathologies. Moreover a new burden for technology will be to

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Correspondence to: Pietro Caglià, MD, Ph.D., Department of Medical and Surgical Sciences, Advanced Technologies "G. Ingrassia" University of Catania, Italy, Via S. Sofia 86, 95123 Catania, Italy (e-mail: cagliapi@unict.it)

reduce costs as well as improve safety and maximize efficiency and will, therefore, be measured by factors such as shortened operating times, improved outcomes, lesser morbidity and diminished use of personnel. In this study we evaluate the safety and the efficacy of a number of surgical procedures combined with laparoscopic cholecystectomy and report our results.

Material and Methods

To address the question of the laparoscopic combined procedures, we conducted a retrospective study evaluating the medical records of 23 consecutive patients who underwent laparoscopic cholecystectomy simultaneously with other operations. The following data were reviewed: age and gender, ASA score, comorbid illness, prior abdominal surgery, clinical presentation, operative time, conversion rate, post-operative morbidity and mortality rate, length of hospital stay. It was possible to have the complete data of only 19 patients operated with laparoscopic procedure. The mean age was 42 years (range 19-72). The ratio of men to women was 10:9 respectively, with no significant difference in average age between the two gender. Comorbid conditions included hypertension in 1 patients with incisional hernia, peripheral vascular disease and diabetes mellitus in two patients with inguinal hernia. All comorbidities were controlled pharmacologically. Gallstone was the primary pathology in 11 patients and was associated with GERD 1, adrenal myelolipoma 1, inguinal hernia 6, incisional hernia 2, ovarian cyst 1. Inguinal hernia was bilateral in 1 patients of the six. The two incisional hernia were located respectively upon a previous incision of McBurney and a transverse suprapubic incision sec. Pfannenstiel. In the others 8 patients (sub-acute or chronic appendicitis 4, ovarian endometrioma 1, dermoid ovarian cyst 1, left varicocele 2), gallstone was diagnosed as concomitant disease and then treated simultaneously with the patient's consent.

Preoperatively all patients underwent all basic investigations, ultrasonography of the abdomen or abdominopelvic computed tomography when considered it necessary. The patients of symptomatic GERD/hiatus hernia had a gastroscopy and 24-hour pH monitoring. Patients classified as having complicated gallstone disease (acute cholecystitis, biliary pancreatitis, obstructive jaundice and cholangitis) were excluded. Contraindication to perform a combined procedure which involved the use of mesh was the presence of contaminated or potentially contaminated condition. Significant comorbidities like coronary artery disease, airway obstructive disease, and renal impairment were also considered as contraindications to performing combined laparoscopic procedures.

Elderly patients (70 or more) were not excluded because, as we previously reported, laparoscopic cholecystectomy in these patients is a relatively safe procedure ⁸.

The all operation were performed with the patient under general anesthesia by the same surgical team and done by a board certified surgeon or by a surgical trainee under supervision of the former. Laparoscopic cholecystectomy was performed using a standard four-trocars technique. An open technique was used in all cases to introduce the umbilical cannula as previous described by our group ⁹. Laparoscopic appendectomy, inguinal and incisional hernia repair, left varicocele and gynaecological procedures were performed using the umbilical, right and left flank trocars placed for the cholecystectomy. A second closed suction drainage was used only after performing the ovarian drilling. Laparoscopic right adrenalectomy and Nissen fundoplication were performed with a standard technique before the cholecystectomy. Two additional trocars were positioned during laparoscopic right adrenalectomy in order to facilitate the cholecystectomy.

The patient received an intravenous antibiotic prophylaxis one hour before the operation and a therapeutic dose was administered during the hospitalization. Post-operative follow-up was performed at 1, 2 and 4 weeks.

Results

In this report 19 patients successfully underwent laparoscopic cholecystectomy combined with others surgical procedures. The longest time was taken for the patient who underwent laparoscopic right adrenalectomy (170 min). No conversion to open surgery was necessary. Postoperative complications occurred in three patients. One of the complications was directly related to the surgical procedure itself including a post-operative bleeding from a trocar site which did not require reoperation. Two patients experienced a prolonged post-operative ileus, which resolved under conservative treatment (nasogastric tube and pharmacological bowel stimulation). The oral intake was started in the postoperative period in accordance with the clinical conditions. The mean post-operative hospital stay was 3 days (range 2-4) and a few patients required more than 48 hours postoperative hospitalization. The perioperative mortality rate was 0%.

Discussion

Since the advent of laparoscopic surgery, its application has continually widened. Laparoscopic cholecystectomy is currently the procedure of choice for managing gallstone disease and were demonstrated the physiological benefits and positive socioeconomic effects over the open procedure. Laparoscopic cholecystectomy is considered less traumatic than open cholecystectomy, and the many advantages of the laparoscopic procedure include less patient discomfort, early hospital discharge, early return to a normal lifestyle, and lower cost ^{10,11}.

Advancement in minimally invasive surgery have now made it possible to perform surgical procedures for pathologies simultaneously, offering maximum benefit to the patients. Moreover the position of the trocars during the laparoscopic cholecystectomy allows the easy access to all the abdominal cavity enabling combined surgical procedures and only in some cases it is necessary to place additional trocars, especially when the concomitant disease is detected preoperatively. In this case a slight change of the trocars standard position may offer definite advantages without compromising the safety and effectiveness of the procedure. All the combined procedures have proved equally safe and efficacious as when done singularly and showed no increase in the postoperative wound infection or additional morbidity. About the technique in the literature there is not a standardization. Some authors perform first the more symptomatic condition and also the pathology that was potentially contaminated whereas others give priority to the cholecystectomy¹². In our opinion cholecystectomy should be performed always first especially when combined with prosthetic surgery in order to avoid the potential resulting complication of mesh infection.

Perforation of the gall bladder and spread of the bile juice and gallstones into the peritoneal cavity during LC is common, with an incidence of 13%-40%¹³. Many studies have reported that intraperitoneal contamination with bile and calculi does not affect the clinical outcomes¹⁴⁻¹⁷. However, there are also many cases of postoperative complications, such as intra-abdominal abscesses and wound infections¹⁸. Although Warren et al. reports an increased incidence of wound infections when appendectomy is performed during a cholecystectomy⁵, other authors in their review found no increase in operative time, fever or infectious complications^{19,20}.

Similar results have been highlighted in the patients who underwent gynaecological procedures and varicocelectomy^{4,6}. According to many authors our report showed no increase in the intraoperative complications or postoperative morbidity after appendectomy, ovarian cystectomy, ovarian drilling and varicocelectomy. Abdominal wall defects, such as inguinal or incisional hernia, together they represent in our series the most frequent condition associated with gallstones. It is now well recognized the positive impact of the laparoscopic abdominal approach even if this surgical procedure is not immune to complications²¹. In our series cholecystectomy has not added any morbidity to the surgical procedure. The postoperative course of the patient followed that of the more morbid procedure and the subsequent mesh repair and the postoperative course remained uneventful. All the surgical procedures performed in the lower abdomen such as appendectomy, inguinal and incisional hernia repair, varicocelectomy or gynaecological procedures combined with cholecystectomy, were performed without any variations in the port placement. Therefore only for the appendectomy there was a slight difference in the posi-

tion of the trocar placed in the right and left flank, respect to the technique usually used by our group²². In the procedures that required working in the upper abdomen, cholecystectomy was performed after right adrenalectomy or Nissen fundoplication. In these cases the trocars have been placed respecting the standard position of the surgical procedure performed first. To allow the easy and safe running of the cholecystectomy it was necessary to place two additional trocars only during the right adrenalectomy. Adhesiolysis was performed in almost all the procedures, but unlike other authors, has not been considered by us a combined intervention.

Conclusions

Despite the limited number of cases, our series seems to lead to results similar to those reported by other authors. Combining procedures result in longer operating time, but certainly the patient benefits from a single exposure to anesthesia, single hospital stay, and single period of absence from work. The duration of hospital stay for a patient who underwent combined procedure was similar to the duration of stay of the patient who had undergone a single procedure. However despite the increasing number of cases in performing multiple procedures in one laparoscopic step, care should be taken to evaluate the specific risk factors in each case. Highlighting the clear correlation between the skill and experience of the surgeon and the conducting of a surgical procedure that should be considered "advanced", it is possible to assert that combining surgeries proved to be safe and feasible and present an interesting alternative to two separate procedures. Prospective studies with long-term follow-up are required to better understand the implications of simultaneous operations.

Riassunto

Con il diffondersi della chirurgia video-laparoscopica si è posto in maniera crescente il problema di dover affrontare più patologie addominali coesistenti. La colecistectomia laparoscopica, in particolare, è stata spesso associata ad altre procedure laparoscopiche quali appendicectomia, splenectomia, ernioplastica o laparoplastica, interventi ginecologici ed altri. Sono stati esaminati retrospettivamente i dati relativi a 23 pazienti sottoposti a colecistectomia video-laparoscopica simultaneamente ad altri interventi. Solo di 19 pazienti è stato possibile raccogliere tutte le notizie cliniche necessarie alla valutazione. La colelitiasi rappresentava la prima patologia in 11 pazienti. La colecistectomia laparoscopica è stata associata a 1 funduplicatio sec. Nissen, 1 adrenalectomia destra, 6 ernioplastiche inguinali, 2 laparoplastiche, 1 asportazione di cisti ovarica. In altre 8 pazienti (4 appendiciti sub-acute o croniche, 1 cisti endometrioide ovarica, 1

dermoide ovarico, 2 varicoceli sx) la calcolosi della colecisti è stata diagnosticata come patologia concomitante e trattata simultaneamente con il consenso del paziente. Tutti gli interventi sono stati eseguiti in anestesia generale e dallo stesso team. Nonostante il limitato numero di pazienti inclusi nella nostra serie, i risultati sono simili a quelli riportati da altri Autori. Il lieve aumento dei tempi operatori, rilevato durante le procedure chirurgiche associate, viene compensato dall'innegabile vantaggio di una singola esposizione all'anestesia e di una unica degenza ospedaliera. Particolare attenzione va comunque riservata alla valutazione dei fattori di rischio relativi ai singoli pazienti.

References

1. Jani K, Rajan PS, Sendhilkumar K, Palanivelu C: *Twenty years after Erich Muhe: Persisting controversies with the gold standard of laparoscopic cholecystectomy*. J Minim Access Surg, 2006; 2: 49-58.
2. Geis WP, Kim HC, McAfee PC, Kang JG, Brennan Jr. EJ: *Synergistic benefits of combined technologies in complex, minimally invasive surgical procedures, Clinical experience and educational processes*. Surg Endosc, 1996; 10(10):1025-28.
3. Vecchio R, Intagliata E, Marchese S, La Corte F, Cacciola RR, Cacciola E: *Laparoscopic splenectomy coupled with laparoscopic cholecystectomy*. Journal of the Society of Laparoendoscopic Surgeons, 2014; 18:252-57.
4. Yamagishi S, Watanabe T: *Concomitant laparoscopic splenectomy and cholecystectomy for management of hereditary spherocytosis associated with gallstones*. J Clin Gastroenterol, 2000; 30(4):447.
5. Wang Q, Deng S, Li E: *Combined laparoscopic surgery*. Zhonghua Wai Ke Za Zhi, 1997; 35: 84-88.
6. Warren JL, Penberthy LT, Addiss DG, McBean AM: *Appendectomy incidental to cholecystectomy among elderly Medicare beneficiaries*. Surg Gynecol Obstet, 1993; 177: 288-94.
7. Ghidirim GHP, Gladun EV, Danch AV, Mishina E: *Combined laparoscopic treatment of polycystic ovary disease and gallstones*. J Am Assoc Gynecol Laparosc, 1996; 3(4 suppl.): S15.
8. Caglià P, Costa S, Tracia A et al.: *Can laparoscopic cholecystectomy be safely performed in the elderly?* Ann Ital Chir, 2012; 83(1): 21-24.
9. Immè A, Caglià P, Pulvirenti A: *The first access in video-laparoscopy surgery*. Chirurgia, 1998; 11(6):418-19.
10. Gadacz TR: *U.S. experience with laparoscopic cholecystectomy*. Am J Surg, 1993; 165: 450-54.
11. Deziel DJ, Millikan KW, Economou SG, Doolas A, Ko S, Airan MC: *Complications of laparoscopic cholecystectomy: a national survey of 4,292 hospitals and analysis of 77,604 cases*. Am J Surg, 1993; 165: 9-14.
12. Wadhwa A, P.K. Chowbey PK, Sharma A, Khullar R, Soni V, Baijal M: *Combined procedures in laparoscopic surgery*. Surg Laparosc Endosc Percutan Tech, 2003; 13: 382-86.
13. Zulfikaroglu B, Ozalp N, Mahir Ozmen M, Koc M: *What happens to the lost gallstone during laparoscopic cholecystectomy?* Surg Endosc, 2003; 17:158.
14. Kimura T, Goto H, Takeuchi Y, Yoshida M, Kobayashi T, Sakuramachi S, Harada Y: *Intra-abdominal contamination after gallbladder perforation during laparoscopic cholecystectomy and its complications*. Surg Endosc, 1996; 10: 888-91.
15. Manukyan MN, Demirkalem P, Gulluglu BM, Tuney D, Yegen C, Yalin R, Aktan AO: *Retained abdominal gallstones during laparoscopic cholecystectomy*. Am J Surg, 2005; 189: 450-52.
16. Soper NJ, Dunnegan DL: *Does intraoperative gallbladder perforation influence the early outcome of laparoscopic cholecystectomy?* Surg Laparosc Endosc, 1991; 1:156-61.
17. Assaff Y, Matter I, Sabo E, Mogilner JG, Nash E, Abrahamson J: *Laparoscopic cholecystectomy for acute cholecystitis and the consequences of gallbladder perforation, bile spillage, and "loss" of stones*. Eur J Surg, 1998; 164: 425-31.
18. Tumer AR, Yuksek YN, Yasti AC, Gozalan U, Kama NA: *Dropped gallstones during laparoscopic cholecystectomy: the consequences*. World Journal Surgery, 2005; 29(4):437-40.
19. Voitk AJ, Lowry JB: *Is incidental appendectomy a safe practice?* Can J Surg, 1998; 31: 448-51.
20. Wolff BG: *Current status of incidental surgery*. Disease Colon Rectum, 1995; 38(4): 435-41.
21. Caglià P, Tracia A, Borzi L et al.: *Incisional hernia in the elderly: risk factors and clinical considerations*. International Journal of Surgery, 2014; 12: S164-S169.
22. Caglià P, Tracia A, Spataro D et al.: *Appendix stump closure with endoloop in laparoscopic appendectomy*. Annali Italiani Chirurgia, 2014; 85(6):606-09.