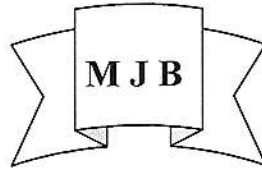


Does Seliction Exist in Laparoscopic Cholecystectomy? A Personal Veiw of 110 Patients

Nashwan K. Mahjob

University of Mosul ,College of Medicine, Dept. of Surgery, Mosul,
IRAQ.



Abstract

A prospective study included 110 patients with gallbladder pathology, diagnosed on clinical bases and ultrasonic examination and proved by intra operative finding and histopatological evaluation of the removed gallbladders.

The aim of this study is to know wither the selection of the surgical procedure (open or laparoscopic cholecystectomy) has an effect on decreasing the intra and postoperative complication and increasing the success rate of laparoscopic cholecystectomy.

Open cholecystectomy was performed to 35 patients because of:

- 1- Cardiac problem that cannot withstand abdominal insufflation.
- 2- Associated intra abdominal pathology.
- 3- Previous multiple abdominal operations.
- 4- complicated cholecystitis inform of empayema or gangrenous cholecystitis, presence of common bile duct stone, or exceeding three days from the last attack with out response to medical treatment.
- 5- Refusal of laparoscopic cholecystectomy by the patients.

Seventy five patients underwent laparoscopic cholecystectomy, the intra and post operative complications were recorded as well as the success rate of the operation which compare with other studies.

The study concluded that selection is exist and it is decrease the intra and post operative complications and increase the success rate of the operation.

الخلاصة

دراسة مستقبلية ضمت 110 مريضا مصابا بالتهاب المرارة وقد تم التشخيص بواسطة الفحص السريري والامواج فوق الصوتية وتم التأكد من التشخيص اثناء التداخل الجراحي والفحص النسيجي للمرارات المستصلحة. ان الغاية من هذه الدراسة هو لمعرفة تأثير انتقاء نوع التداخل الجراحي (المنظاري او فتح البطن) واختيار الوقت المناسب لاجراء العملية في نسبة حدوث المضاعفات اثناء وبعد عملية استئصال المرارة و نسبة نجاح العملية.

تم اجراء عملية استئصال المرارة بطريقة فتح البطن ل35 مريضا للأسباب التالية:

1. اصابة المريض بامراض قلبية لا تتناسب مع نفخ البطن بالغاز.
2. وجود حالة مرضية اخرى اضافة لالتهاب المرارة يحتم علاجها فتح البطن.
3. اجراء عدة عمليات سابقة بالبطن .
4. الالتهاب المعقد للمرارة كالاصابة بخراج او غنغرين المرارة او وجود حصاة في القناة الصفراوية العظمى او مرور اكثر من ثلاثة ايام على بداية الالتهاب دو الاستفاده من العلاج التحفظي.
5. رفض المريض اجراء التداخل الجراحي بواسطة المنظار.

بينما تم اجراء التداخل الجراحي بواسطة المنظار ل75 مريضا بعد الحصول على موافقتهم لذلك وقد تم تسجيل المضاعفات التي حصلت اثناء او بعد العملية الجراحية وقورنت مع دراسات اخرى. وقد اثبتت الدراسة ان انتقاء طريقة التداخل الجراحي كان لها الاثر الواضح في الاقلال من المضاعفات البسيطة و الخطيرة التي من الممكن حدوثها اثناء وبعد الجراحة بالمنظار كما ادت الى زيادة معدل نجاح العملية.

Introduction

About 10 to 15% of population has gallbladder stones and surgery offers the only permanent cure in symptomatic condition (1). The manufacturing of the complicated equipments and surgical instruments plied an important rule in the success of the revolution of laparoscopic surgery, which become the modern technique for many surgical procedures where cholecystectomy being on the top of the list, especially for uncomplicated gallbladders (2). But no one can ignore the traditional way of cholecystectomy, simply because it cannot be replaced and it well be remain the way when there is no other way. LC proved to be the golden slandered procedure for the treatment of gallbladder pathology (4,5), but the outcome of such surgery is only favorable with careful planning and execution and its safety is by appropriate selection of cases especially in complicated conditions(6-8). The question is that: does LC fit for all patients with cholecystitis, the answer is definitely no because of scientific technical and legal points of view.

Patients and methods

This is a prospective study that included one hundred ten patients with cholecystitis, the diagnoses was clinical, augmented by ultrasonic evaluation, documented by intraoperative finding and histopathological analyses of the removed gallbladders. The age, gender and duration of the last illness were recorded, the presence of cardiac problem and associated intraabdominal pathology were evaluated and

investigated, the severity of gallbladder inflammation and the state of biliary passages were analyzed.

The decision for OC was decided by the surgeon as the procedure of choice in patients with:

- 1- Cardiac problem that cannot tolerate intraabdominal insufflations.
- 2-Multiple previous abdominal operations.
- 3- Associated intraabdominal pathology that required exploration.
- 4-Comlicated gallbladder as proved by clinical and ultrasonic examination in form of:
 - A- Associated common bile duct stone.
 - B- Upper abdominal rigidity.
 - C-Palpable gallbladder with wall thickness more than 0.6 cm.
 - D- Those that exceeds 72 hours from the last attack without response to medical therapy.

In the remaining patients, both types of surgery were discussed regarding there technique, possible intra and post operative complication, and the patients wishes in choosing the type of operation was respected with out suggestion from the surgeon.

The patients who underwent LC procedure were evaluated regarding the intra and post operative complication and the success rate, which compared with other studies.

Results

The study included 110 patients, there age range was 18 to 76 years (mean age 43.5 year), there were 93 female and 19 male patients. Eighty one patients (73.6%) with chronic cholecystitis and 29 patients (26.4%) with acute illness.

Open cholecystectomy was decided by the surgeon in 20 patients (18%), 12 patients of them with acute and 8 patients with chronic cholecystitis. The indication for choosing OC was:

1- Major cardiac problem in form of history of myocardial infarction in 3 patients.

2- Associated intraabdominal pathology in form of hydrated cyst of the liver in 2 patients and spherocytoses with splenomegally in 1 patient where splenectomy was indicated.

3- Previous multiple abdominal surgery in 3 patients, one with previous colostomy for sigmoid carcinoma, second with previous bullet injury to abdomen and subsequent exploration for intestinal obstruction, a third with history of perforated duodenal ulcer that complicated by pelvic abscess.

4- Complicated cholecystitis as proved by clinical and ultrasonic examinations in form of:

A- Common bile duct stone in 3 patients.

B- Upper abdominal rigidity with high fever suggestive of empyema or gangrenous gallbladder in 2 patients.

C- Palpable gallbladder with wall thickness > 0.6 cm by ultrasound in 2 patients.

D- Those that exceeded 72 hours from the last illness with failure of response to medical therapy in 5 patients.

The remaining 90 patients (82%) were allowed to choose the type of surgery they prefer after discussing each procedure with the surgeon regarding their technique and possible intra and post operative complications. Fifteen patients (16%) refused LC, 6 patients with acute and 9 patients with chronic cholecystitis, and their wishes were respected. LC was performed in 75 patients (68%) who thought to be fit technically and legally for such procedure; they were 60 patients with chronic and 15 patients with uncomplicated acute cholecystitis. The operation succeeded in 72 patients

(96%). Conversion to OC was needed in 3 patients (4%) because of:

1- Associated choledochoduodenal fistula in one patient.

2- Severe adhesion at calot triangle that obscure visualization of vital structures in 2 patients.

Minor intraoperative complications were reported in 12 patients (16%) in form of :Gallbladder perforation in 6 patients (8%), slipped stone in 3 patients (4%) bleeding from gallbladder bed in 2 patients (2.6%) and minor liver tear in 1 patient (1.3%)

Minor post operative complication reported in 4 patients 4 (5.2%) as wound infection in 3 patients (4%) and acute gastric erosion in 1 patient (1.3%).

No major intra or postoperative complications were recorded in this study.

Discussion

Open biliary surgery was initiated by John Stought at 1867(9) . Sense that time, surgeon try to find less invasive, more save, and better cosmetic results, till the introduction of laparoscopic surgery when Mouret succeeded in performing the first LC at 1987(10) . The demand on modern surgeon become extremely complex after that, because of the expensive and complicated equipments and the special training programs that needed to prevent hazardous complication(12) . This drawback can be prevented only by growing experience and constantly improving of technical imaging as well as controlling of who, when and where to apply such surgery(13) .

In various types of gallbladder disease, there are favorable and non favorable conditions that may influence the outcome, information about these factors well help elucidate the optimum circumstances for LC or indicate when this procedure is best avoided (14) . These factors includes: Complicated gallbladder inform of empyema or

gangrenous cholecystitis, thick wall gallbladder, abdominal rigidity, obstructive jaundice, and acute cholecystitis that exceeded the golden time for operation (72 hours from last attack)(1, 9, 15-20).

Norway surgeons, found that only 80% of patients can run safe LC by using the sever complication index chart (SCIC)(21). Bittner et al suggested that LC is safe in 90% of chronic cholecystitis and 60 to 80% in acute form, and OC should remain the procedure of choice in high risk patients(22). This indicate that the problem in chronic and uncomplicated gallbladder has been solved but not that with complicated cholecystitis, which is better treated by OC (23,24).

On the other hand, the following variables found to be very useful in selecting OC as defined by Shrenk et al(25):

- 1- Upper abdominal rigidity ($p < 0.01$).
- 2- Previous upper abdominal surgery ($p < 0.01$).
- 3- Shrunken gallbladder ($p < 0.01$).
- 4- Acute attack more than 3 days ($p < 0.05$).
- 5- Thick wall gallbladder ($p < 0.05$).
- 6- WBC $> 100(9)$ Gm/L ($p < 0.05$).
- 7- Hydrops gallbladder ($p < 0.05$).

These factors believed to be the dangerous zone for LC where the inflammation and adhesion in their maximum level that may interfere with adequate visualization of calot triangle increasing the chance of bleeding, biliary injury and conversion rate(26,27).

Ultrasonic examination revealed to be of important value in predicting difficulties encounter during LC especially for gallbladder thickness and common bile duct diameter(28). In this study, ultrasound proved to be very effective in evaluating complicated cholecystitis and diagnosing the presence of associated intraabdominal pathology, help in selecting the best surgical procedure.

The associated cardiac problem acts against the success of LC and play negatively with its safety, mostly because of the high intraabdominal pressure that created by CO₂ insufflation, which is regarded intolerable in high risk patients(29). Pneumo peritoneum proved to induce increase in the peripheral and pulmonary vascular resistance, heart rate and cardiac output. It also decreases the preload and increases the after load result in increase oxygen demand by myocardial cells that may potentate the dangerous of myocardial infarction in patients with already existing cardiac disease, that is why LC should be limited in such patients (30-36). The presence of extensive abdominal adhesion resulting from previous abdominal exploration or peritonitis may interfere with safety of LC and make a possible contraindication of it-(38,39). On the other hand, missing pathology during LC may encounter in 0.6% (40), which may necessitate exploration and this can be decreased by adequate preoperative evaluation.

It is found that 9% of patients refuse LC (41), the operation was suggested by family doctor in 43% and by the surgeon in 41%(42) and only 44% of patients think that LC is safer than the traditional operation (43). In this study 15 patients (16%) refused LC, which indicate that there is still misconception about the procedure execution and safety among patients as it among surgeons(44). It is proved that selection of patients for LC decreases the cost of the operation on hospital and patients(45), on the other hand, there is an important increase in the lawsuits after LC in France, USA and Germany especially for common bile duct injury and this can be decreased by avoiding operation in complicated cases(46,47). Major intraoperative complication may reach up to 4.4%, the mortality from such complication may reach 6%(48), this mortality can be decreased by avoiding operation in complicated cases, one can say that

planned OC is better than complicated LC(49). Minor intraoperative complication may reach up to 43% (12,50), in this study we reported no

major intra complication and only 12 patients (16%) developed minor intraoperative complication as shown in table.

Table 1 the minor intraoperative complication with comparison with other study.

Type of complication	No. and percent in this study	percentage in other studies
Gallbladder perforation	6 (8%)	19.2% ⁻⁵¹⁻ , 34% ⁻¹⁰⁻ , 41% ⁻²⁷⁻
Slipped stone	3 (4%)	9 to 40% ⁻⁵²⁻
Bleeding from gallbladder bed	2 (2.6%)	8.2% ⁻²⁷⁻ , 15.6% ⁻⁵¹⁻
Minor liver tear	1(1.3%)	2 to 5% ⁻⁵¹⁻

The most common minor post operative complication was wound infection, it was recorded in 3 patients, and 7.4% in other study(51) all wound infection occurred at the epegastric incision where the gallbladder was retrieved.

Conversion rate vary from 0 to 30% (4,13,23,43,44,51), it was only 4% in this study.

Conclusion

Laparoscopic cholecystectomy is an excellent surgical method for the treatment of chronic and uncomplicated gallbladder disease, but it cannot replace the traditional technique, which is still indicated especially in complicated condition, in patients with high risk cardiac problems or associated intraabdominal pathology and those who refuse LC.

Selections is exist because of scientific, technical and legal points, its decrease the intra and post operative complication and increase the success rate of LC, and its the surgeon responsibility to chose the most appropriate operation for each patient.

References

1-Schefer M; Kraberbish L; Farhadi J; Bucher MW. , The Umsch. ,1998 ,55,2, 110.
2-Dhow ME; Chombers CV,Arch-Fam-Med. 1997 , 6,2, 188.

3-Mouger T; Fahike J; Pross M;Koble F; Lippert H. , Zentrld Chir. 1999; 124,12, 1121.

4-Decesure A; Bannoni M; Allela F; Augilini M. , Minerra Chir. 1995, 50,7-8, 623.

5-Wallace DH; Odwger PGr. Br. J. Surg. 1997, 84,12, 168.

6-Halpern NB., Semin-Laparosc-Surg. 1998 ,5,2, 92.

7-Johnson AB; Fink AS. , Semin-Laparosc- Surg. 1998; 5(2),115.

8-Salky BA; Edye MB. Semin-Laparosc-Surg. 1998,5,2, 107.

9-Irbins G; Schroder H. , Zentrable- Chir. 1998,123 Sapple 2,19.

10-Spenser SJ; Warnosk GL. J-Laparosc-ADV-Surg-Tech-A. 1997, 7,6, 369.

11-Eherspacher H; Immenroth M Zentrable- Chir., 1999, 124,10, 895.

12-Sharma AK; Rangen HK; Chousbeyl RP. Aust-N-Z-J-Surg., 1998, 68,11, 774.

13-Greenwald JA; McMuller HF; Coppa GF; Newman RM. Ann-Surg. ,2000, 231,3, 34.

14-Elder S; Sabo E; Nash E; Abrahamson J; Matter I. , Surg-Laparosc- Endosc., 1998, 8,3, 200.

15-Assaf Y; Mater I; Sabo E; Mogilner JG; Nash E; Abrahamson J; Elder S., Eur- J- Surg ,1998, 46,6, 425.

- 16-Hamarv DA; Kashgari RH; AL-Harbi MA. ,East-Afr-Med-J.;1998, 75,5, 270.
- 17-Karaachi N; Kamii N; Kazai K; Sagi Y. , Surg-Today., 1998, 28,7, 714.
- 18-Tocchi A; Costa G; Lepre L; Liott G; Mazzani G; Miccini M. , G-Chir.,1999 , 20,11-12, 47.
- 19-Eeon S; Eilom A; Bicke LA; Sabo E; Cohen A; Cohen A;Abrahamson J, Am.J.Surg., 1999, 1,7,4,363.
- 20-Willscher PC; Sanabrin JR; Gallinger S; Ross L; Strusberg S. , J.Gastrointst-Surg., 1999 , 3,1, 50.
- 21-Buanis T. ,Surg-Endosc. 1998 Jun; 12(6): 852.
- 22-Bittner R; Leibi B; Kaft K; Butters M; Nick G; Ulrich M. , Chirurg., 1997, 86,3, 237.
- 23- Sheha JA; Berlin JA; Bachwich DR; Storoscit RN; Malet PE; Mcgackin M; Schwartez J. Ann-Surg. 1998 Mar, 227,3, 343.
- 24-Sashmuth HH; Gulrny RD; Darielsen S., Tid-Ssskr-Nor-Longerformer., 1998 , 28,118,6, 876.
- 25-Schrenk P; Woistschlayer R; Riegen R; Wayow WU. ,Surg-Endosc.,1998 , 12,2, 148.
- 26-Garber CM; Karman J; Corgrore JM; Cohen JP. , Surg-Endosc., 1997, 11,4, 347.
- 27-Muzahim K AL-Khayatt; Hisham A Al-Atrukchi; Layth Q AL-Harbawi., Ann. Coll. Med. Mosul., 2002, 28 (I), 31.
- 28-Darachuh SS; Saman F; Abo-Khalaf M. ,Warld-J-Surg., 1998, , 2,1,75.
- 29-Enelgonors I; Fedenkov U; Levite EM; Panfelove SA. ,Surg-Endosc., 1998 , 12,10,1229.
- 30-Daprow Ski; Ouonowska M. , Wiad-Lek., 1999,52,4-12,547.
- 31-Red DN; Nourse P. ,J-Laparosc-Adv-Surg-Tech-A., 1998,8,2, 104.
- 32-Popker F; Kochle R; Heintz A; Jungirger T. , Chirurg., 1998, 69,1,61.
- 33-Sato K; Kawamura T; Wakasawa R. , Anesth-Analog., 2000 , 90,5,1198.
- 34-Gobborot H; Bantz A; Ross M; Loose D; Waif H; Schaube H. , Surg Endosc. 1997 , 11,8, 864.
- 35-Malek H; Knor J; Kurzora A; Laponrova M. ,Rozhl-Chir. 1999 , 78,6, 286.
- 36-Hein HA; Joshi GP; Ramzy MA. , J-Clin-Anesth. 1997 , 9,4, 261.
- 37-Laycock WC; Siewrs AE; Birkmyer CM; Wennberg DE. , Arch-Surg., 2000 , 135,4, 457.
- 38-Diez J; Delboro R; Ferrares A. ,Hp.b-Surg., 1998,10,6,353.
- 39- Kumar SS., Am-Surg., 1998 , 64,11, 1044.
- 40-Gal I; Sziros J; Joheransari MI; Szabo Z. ,Surg-Endosc., 1998 , 12,6,835.
- 41-Lo SM; Lin CL; Fan ST; Lai EC; Wong J. , Ann-Surg., 1998, 227,4,461.
- 42-Irqaw I; Faldu GI. , Del-Med-J., 2000 , 77,1,13.
- 43-Petrel R; Herzy U; Schuppisser GP; Ackerman C. , J-Laparosc-ADV-Surg-Tech-A.,2000 , 10,1,13.
- 44-Bergyrer U; Arvidsson D; Haglued U. ,Eur-j-Surg, 1998 , 164,4,287.
- 45-Voyles CR; Boyd KB. , J-SLS. ,1999 , 3,4, 315.
- 46-Boutelier P. M., Bull-Acad-Nall-Med. ,1998,182,3, 617.
- 47-Law A; Decker D; Kania U; Him A. , Chirurg., 1997 ,68,4, 345.
- 48-Kern KA. ,Arch-Surg ,1997 ,132,4, 302.
- 49-Mynuson TH; Rotner LE; Zenilman ME; Bender JS. , Am.Surg. ,1997, 63,1, 91.
- 50-Hegested AC; Podman F; Bock G; Klafsad PC. , Tidsshr -No-Loegformer. 1998 , 118,11,1686.
- 51-Samir AL-Saffar.,Ann. Coll. Med. Mosul., 2002, 28 ,I, 58.