Mini-Cholecystectomy under Local Anesthesia for Symptomatic Gallstone Patients Unfit for General Anesthesia

استئصال المرارة المصغر تحت التخدير الموضعي عند المرضى المصابين بحصى المرارة من الذين لا يتحملون التخدير العام

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الخلاصة:

الخلفية: تؤكد التقارير التي تتحدث عن استئصال المرارة المفتوح (OC) أو تلك التي تبحث استئصالَ المرارة بالمنظار(LC) والذي يتم تحت التخدير العام (GA) فالعلاج الجراحي لأمراض المرارة التي تتم تحت التخدير الموضعي(LA) محدود جداً وخاصة بالنسبة للمرضى المُعَمّرين غير قادرين على تحمل التخدير العامGA.أظهرت نتائج الدراسة الحالية أن عملية استئصال المرارة المصغّر (MC) تحت التخدير الموضعي لأعراض مرض حصوة المرارة آمنة وفعّالة في المرضى المُعَمّرين الذين لا يتحملون التخدير العام.

الهدف : تحاول هذه الدراسة أن تُحَدِّدَ سلامة ونجاح عملية استئصال المرارة المصغّر تحت التخدير الموضعي لأعراض مرض حصوة المرارة في المرضى المعمرين الذين لا يتحملون التخدير العام GA.

المنهجية : تمّ وضع جدول زمني لإجراء عملية استئصال المرارة المصغر تحت التخدير الموضعي لتسعين مريضا يعانون من مرض حصى المرارة وتم اجراؤها في مستشفى اربيل التعليمي و مستشفى سَردَمْ الخاص.

وكان ثلاث وسبعين من المرضى من النساء اللواتي تتراوح أعمارهن بين 50 و 90 سنة، أي بمعدل 70 سنة. وكان لدى كل المرضى أدلة على التهاب المرارة الحاد و تم إجراء عملية استئصال المرارة المصغرةMC بواسطة تقنية موحدة وتحت مزيج من التخدير الموضعي (1%زيلوكاينبدونالأدرينالين) وإدارات الفنتانيل في الوريد بنسبة 0.001 – 0.002 ملغ / كلغ) وميدازولام (0.05 – 0.1 ملغ / كلغ) . وأنجزت التحاليل الإحصائية بواسطة برنامج مايكروسوفت اكسل 2007 .

النتائج :كان متوسط وقت العمل45 دقيقة (للمجموعة التي تتراوح أعمارهم بين 35 و 70). تم تحويل التخدير الموضعي في سبعة من المرضى الى التخدير العام بسبب الانزعاج الشديد الناجم عن تحلل للصقات الكثيفة حول المرارة، وبلغ نسبة النجاح فيها 95.5%.وقد تم استئصال المرارة بنجاح في 65 (72.22%) من المرضى، فيما تم استئصال المرارة عند 25 مريض والذين شكلوا نسبة (27.77) منهم بسبب التصاقات الشديدة التي جعلت من الصعب للغاية استئصال المرارة. كان متوسط بقاء المريض في المستشفى 2.6 يوما و تفاوت بين (2 و 7).

الاستنتاجات: تعتبر عملية استئصال المرارة المصغرة تحت التخدير الموضعي جراحيا إجراء فاعلاً للمرضى المعمرين الذين يعانون من المرارة المزمن والذين غير القادرين على تحمل تخديرا عاما.

التوصيات: إجراء الدراسة على عينة اكبر حجما ولمدة أطول لتقييم مضاعفات العملية على مدى البعيد.

المفردات الرئيسة: حجر المرارة و التخدير الموضعي و استئصال المرارة المصغر

ABSTRACT

Background:: Reports of open-Cholecystectomy (OC) or laparoscopic Cholecystectomy (LC) under general anesthesia (GA) in the surgical treatment of gallbladder disease are common, but those performed under local anesthesia (LA) are much more limited, especially for old aged patients unfit for GA.

Objectives: This study try to show that Mini-Cholecystectomy (MC) under LA for symptomatic gallstone disease is safe and effective in old aged patients, unfit for GA. This study tried to determine the safety and success of Mini-Cholecystectomy under local anesthesia for symptomatic gallstone disease in old aged patients unfit for GA.

Patients & Methods: ninety patients with gallstone disease scheduled for Mini-Cholecystectomy under local anesthesia were included in this prospective study in Erbil teaching hospital and sardam private hospital. Seventy-three patients were female, with a median age of 70 years (range, 50–90). All of the patients had evidence of acute cholecystitis. Mini-Cholecystectomy MC was performed by a standardized technique and under the combination of local anesthesia (1% zylocain without adrenaline) and intravenous administrations of fentanyl (0.001–0.002 mg/kg) and midazolam (0.05–0.1 mg/kg). Statistical analyses were performed using Microsoft Word Excel 2007.

Results: The median operative time was 45 minutes (range, 35–70). Local anesthesia was converted to general anaesthesia in seven patients owing to the severe discomfort caused by lysis of dense adhesions around the gallbladder, giving a success rate of 95.5%. Cholecystectomy was done successfully in 65(72.22%) patients, while cholecystostomy was performed in the remaining 25 (27.77%) patients because of the severe adhesions that rendered Cholecystectomy very difficult. The median hospital stay was 2.6 days (range, 2–7).

Conclusions: Mini-Cholecystectomy (MC) under Local anesthesia (LA) is an effective surgical procedure for old aged patients with acute calculus cholecystitis who are unfit for GA.

Recommendation: It is recommended to study a larger sample for long period to evaluate the late complications of the operation.
Keywords: gallstones, local anesthesia, mini-Cholecystectomy

INTRODUCTION

Mini-Cholecystectomy (MC) was first described more than two decades ago by Dubois and Berthelot,[1] and their favorable results were reported at the same time laparoscopic Cholecystectomy (LC) was introduced into the UK in 1990.[2–4] Subsequently, four randomized clinical trials have compared laparoscopic Cholecystectomy (LC) and Mini-Cholecystectomy (MC) in the elective treatment of gallbladder stones.[5–8] More recently, Mini-Cholecystectomy (MC) has been shown to be an effective surgical procedure for an inflamed gallbladder regardless of the degree and type of inflammation.[9]

Both Mini-Cholecystectomy (MC) and laparoscopic Cholecystectomy(LC) are usually performed under general anesthesia. However, it is likely that in suitable patients or in those who are unwilling to have general anesthesia or have severe contraindications to narcosis, the gallbladder can be excised under local anesthesia through a very small incision.[10] The aim of this study was to report our experience of Mini-Cholecystectomy (MC) under local anesthesia in old aged patients unfit for general anesthesia, and to propose our criteria for case selection.

PATIENTS AND METHODS

Ninety patients with symptomatic gallstone disease who were scheduled for Mini-Cholecystectomy (MC) under local anesthesia (LA) between April 2009 and October 2013 were included in this study.

Patients were scheduled for Mini-Cholecystectomy (MC) under local anesthesia if they fulfilled the following criteria: (1) high-risk for general anesthesia; (2) history of recurrent attacks of acute calculus cholecystitis; and (3) gave written informed consent.

Operation

All procedures were performed by a single surgeon and two assistants, anesthetic management involved the combination of intravenous administrations of fentanyl (0.001–0.002 mg/kg) and midazolam (0.05–0.1 mg/kg) and local anesthesia in the area of skin incision by means of infiltration and injection of 1% xylocaine without adrenaline, to include skin, subcutaneous tissue and rectus abdominal muscle.

The incision was started approximately 3 cm to the right of the midline and ran obliquely parallel to and 3 cm below the right costal margin. The length of the incision was

either 3 or 4 cm, mostly depending on the size of the patient. The rectus muscle was spitted without muscle cutting.

After entering the abdominal cavity, 1–2 mL of 1% xylocaine without adrenaline was injected into the tissue in the area of Callot's triangle in order to prevent any discomfort caused by traction of the gallbladder. All patients had retrograde or "cystic duct-first" Cholecystectomy, and the stumps of the cystic duct and cystic artery were ligated with non-absorbable suture material. The term "operative time" was defined as the period starting at "knife to skin" and finishing at "last stitch".

Cholecystostomy was performed in 18 patients because of the severe adhesions that rendered cholecystectomy very difficult & because of pain intolerance; the procedure consisted of evacuating the gallbladder from its contents including the stones through a small opening in the gallbladder, which is closed over a Foley catheter left for 2 weeks then removed.

RESULTS

There were 73 women, with a median age of 70 years (range, 50–90), and 17 men, with a median age of 66 years (range, 52– 86). The median operative time was 45 minutes (range, 35–70).

Local anesthesia was converted to general anesthesia in seven patients owing to the severe discomfort caused by lysis of dense adhesions around the gallbladder as shown in table(1). Cholecystectomy was done successfully in 65(72.23%) patients, while cholecystostomy was performed in the remaining 18 (27.77%) patients because of the difficulties present in performing Cholecystectomy as shown in table(2). The median hospital stay was 2.6 days (range, 2–7).

Mini-Cholecystectomy (MC) was performed successfully in most of patients without the need to extend the incision. However, general anesthesia was applied in seven patients because of the severe discomfort caused by lysis of dense adhesions around the gallbladder; hence the success rate of Mini-Cholecystectomy (MC) and cholecystostomy under local anesthesia was 96.5%. The median operative time was 45 minutes (range, 35–70), and median hospital stay was 2.6 days (range, 2–7).

Table (1): Percentage of patients according to age

Age of patients	No of patients	%
50------60 year	5	5.5%

61y-----70 year	25	27.7%
71y-----80 year	57	63.4%
81y------90 year	3	3.4%

Table 1 shows that 57 (63.4%) patients their age were ranged (71-80) year, 25 patients their age ranged (61-70) year, 5 patients their age ranged (50-60) year and 3 patients their age ranged (81-90) year.

Table (2) Types of operations in the studied patients

Type of Operation	Number of patients	Percent
Cholecystectomy under local anesthesia	65	72.22%
Cholecystostomy under local anesthesia	18	20%
Cholecystectomy under general anesthesia	7	7.78%

Table 2 shows that Sixty five patients (72.22%) were undergo cholecystectomy under local anesthesia, 18 patients (20%) were undergo cholecystostomy under local anesthesia and 7 patients (7.78%) were undergo cholecystectomy under general anesthesia.

Table (3) Risks for doing mini Cholecystectomy under local anesthesia

Types of disease	No of patients	Percentage
chronic obstructive airway disease	22	24.5%
severe heart failure	35	38.8%
uncontrolled hypertension	28	31.2%
uncontrolled or severe asthma	5	5.5%

Table 3 shows that the main reasons for being the patients at high-risk for general anesthesia were severe heart failure in 35 patients (38.8%), uncontrolled hypertension in 28 patients (31.2%), chronic obstructive airway disease in 22 patients (24.5%) & uncontrolled or severe asthma in 5 patients (5.5%) as shown in table(3)

An oral diet was started within 24 hours of operation in all but the seven patients with general anesthesia were routinely given intravenous pethidine after surgery and, on average; each patient was given 1.6 doses of intravenous pethidine. There was neither operative mortality nor surgery-related complications.

DISCUSSION

More than 2,000 cases of Mini-Cholecystectomy (MC) have been reported worldwide without any deaths or major common bile duct injuries since the first report in 1982.[1–3,5,7–12] Although three randomized controlled trials showed better results for Local anesthesia (LC) than Mini-Cholecystectomy (MC)with gallbladders that were not acutely inflamed, in terms of shorter hospital stay, reduced postoperative analgesic requirements or earlier return to normal activities,[5–7] a more recent study from andruos[1,8] and colleagues showed that Local anesthesia (LC) took longer to perform than Mini-Cholecystectomy (MC) and did not have significantly better recovery[.8] It is therefore reasonable to conclude that the two procedures have been accepted as effective minimally invasive surgical procedures for non-acute gallbladder disease. However, none of these reports involved surgery under local anesthesia. Considering that laparoscopic Cholecystectomy LC has to be done under general anesthesia, Mini-Cholecystectomy (MC) might be beneficial to patients who are unwilling to have general anesthesia or who have a contraindication to narcosis (e.g. chronic obstructive pulmonary disease), or who are at high risk for general anesthesia; if it can be done effectively under local anesthesia as shown in our series.

Although a transverse incision in the right upper quadrant is the most popular approach for Mini-Cholecystectomy (MC)[5,8,13,14] and is less painful than a vertical incision,[15,16] we prefer to use a small oblique incision without muscle cutting and less tissue dissection. According to our protocol, intravenous pethidine was routinely given to patients after Cholecystectomy. The average doses of pethidine for patients who underwent Mini-Cholecystectomy (MC) under local anesthesia and standard conventional open Cholecystectomy were 1.6 and 3.4.

The median operative time of 45 minutes for Mini-Cholecystectomy (MC) in the present study was in accordance with that in previous reports of 40–74 minutes, [5–8, 13, 17] but

postoperative stay was slightly longer. It should be pointed out that patients who reside in the rural areas prefer to remain in hospital until they feel that their symptoms, particularly those of pain, have disappeared or much improved. Therefore, the length of stay in this series did not truly reflect the necessity for hospitalization.

CONCLUSIONS:

(1) Mini-Cholecystectomy (MC) can be performed effectively under local anesthesia for symptomatic gallstone disease;

(2) a 4–5 cm right sub costal incision is the appropriate choice for Mini-Cholecystectomy (MC) under local anesthesia;

(3) Mini-Cholecystectomy (MC) can be done without the use of special instruments.

RECOMMENDATION:

It is recommended to study a larger sample for long period to evaluate the late complications of the operation.

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