



ELSEVIER

Available online at www.sciencedirect.com

ScienceDirect

The Surgeon, Journal of the Royal Colleges
of Surgeons of Edinburgh and Irelandwww.thesurgeon.net

Review

Single incision versus standard multiport laparoscopic cholecystectomy: Up-dated systematic review and meta-analysis of randomized trials



Mate Milas, Sabina Devedija, Vladimir Trkulja*

Zagreb University School of Medicine, Zagreb, Croatia

ARTICLE INFO

Article history:

Received 21 October 2013

Received in revised form

14 January 2014

Accepted 16 January 2014

Available online 12 February 2014

Keywords:

Laparoscopic cholecystectomy

Single incision

Multiport

Meta-analysis

ABSTRACT

Background and purpose: We aimed to compare single incision laparoscopic cholecystectomy (SILC) to the standard multiport technique (MLC) for clinically relevant outcomes in adults.

Methods: Systematic review and random-effects meta-analysis of randomized trials.

Results: We identified 30 trials (SILC $N = 1209$, MLC $N = 1202$) mostly of moderate to low quality. Operating time (30 trials): longer with SILC (WMD = 12.4 min, 95% CI 9.3, 15.5; $p < 0.001$), but difference reduced with experience – in 10 large trials (1321 patients) WMD = 5.9 (–1.3, 13.1; $p = 0.105$). Intra-operative blood loss (12 trials, 1201 patients): greater with SILC, but difference practically irrelevant (WMD = 1.29 mL, 0.24–2.35; $p = 0.017$). Procedure failure (27 trials, 2277 patients): more common with SILC (OR = 13.9, 4.34–44.7; $p < 0.001$), but overall infrequent (SILC pooled incidence 4.39%) and almost exclusively addition of a trocar. Post-operative pain (29 trials) and hospital stay (22 trials): no difference. Complications (30 trials): infrequent (SILC pooled incidence 5.35%) with no overall SILC vs. MLC difference. Incisional hernia (19 trials, 1676 patients): very rare (15 vs. 4 cases), but odds significantly higher with SILC (OR = 4.94, 1.26–19.4; $p = 0.025$). Cosmetic satisfaction (16 trials, 11 with data at 1–3 months): in 5 trials with non-blinded patients ($N = 513$) in favour of SILC (SMD = 1.83, 0.13, 3.52; $p = 0.037$), but in 6 trials with blinded patients ($N = 719$) difference small and insignificant (SMD = 0.42, –1.12, 1.96; $p = 0.548$).

Discussion: SILC outcomes largely depend on surgeon's skill, but regardless of it, when compared to MLC, SILC requires somewhat longer operating time, risk of incisional hernia is higher (but overall very low) and early cosmetic benefit is modest.

Conclusion: From the (in)convenience and safety standpoint, SILC is an acceptable alternative to MLC with a modest cosmetic benefit.

© 2014 Royal College of Surgeons of Edinburgh (Scottish charity number SC005317) and Royal College of Surgeons in Ireland. Published by Elsevier Ltd. All rights reserved.

* Corresponding author. Zagreb University School of Medicine, Šalata 11, 10000 Zagreb, Croatia. Tel.: +385 1 45 66 830, +385 98 325 307 (mobile); fax: +385 1 49 200 49.

E-mail address: vtrkulja@mef.hr (V. Trkulja).

1479-666X/\$ – see front matter © 2014 Royal College of Surgeons of Edinburgh (Scottish charity number SC005317) and Royal College of Surgeons in Ireland. Published by Elsevier Ltd. All rights reserved.

<http://dx.doi.org/10.1016/j.surge.2014.01.009>

Introduction

Laparoscopic cholecystectomy is a widely accepted standard in treatment of benign gallbladder diseases.¹ Shortly after Mühe² had performed the first laparoscopic cholecystectomy in 1985 using a modified laparoscope, Mouret³ performed the first video-assisted laparoscopic cholecystectomy in 1987. The procedure gained wide acceptance due to advantages of a smaller incision, less post-operative pain, shorter hospital stay and faster return to everyday living as compared to the traditional open approach.⁴ To further enhance these benefits, even more minimally invasive techniques have been developed. These include needlelesopic cholecystectomy, natural orifice transluminal endoscopic surgery (NOTES) cholecystectomy and single incision laparoscopic cholecystectomy (SILC). The latter technique was first described in 1995.⁵ Although it might not have enjoyed widespread use, it has gained a fair share of popularity: we were able to identify 16 meta-analyses of randomized controlled trials (RCTs) comparing SILC to the standard multiport laparoscopic cholecystectomy (MLC) published by the mid 2013 (Table 1). The two largest reviews referred to 16¹³ and 24⁹ RCTs in adults (Table 1). Since further RCTs have been conducted in the meantime, we found it plausible to conduct an up-dated literature search and a systematic review of RCTs comparing SILC to MLC.

Table 1 – Main characteristics of published meta-analyses (by author) of clinical studies comparing single incision laparoscopic cholecystectomy and multiport laparoscopic cholecystectomy identified through December 9, 2013.

Author, year	Country	Included studies (N)	Included patients (N)
Arezzo 2013 ⁵	Italy	12 RCTs	996
Bingener 2013 ⁷	USA	5 RCTs	502
Garg 2012 ⁸	India	9 RCTs	659
Geng 2013 ⁹	China	25 RCTs (1 paediatric)	1841
Hao 2012 ¹⁰	China	15 RCTs	1113
Markar 2011 ¹¹	United Kingdom	7 RCTs	375
Pisanu 2012 ¹²	Italy	12 RCT	892
Qiu 2013 ¹³	China	40 studies, 16 RCTs, 24 non-randomized	3711
Sajid 2012 ¹⁴	United Kingdom	11	858
Trastulli 2012 ¹⁵	Italy	13	923
Wang 2012 ^{16,a}	China	9	–
Wang 2012 ¹⁷	China	5	264
Wu 2012 ¹⁸	China	9	755
Zehetner 2013 ¹⁹	USA	9	695
Zhang 2013 ²⁰	China	11	859
Zhong 2012 ²¹	China	7	611

RCTs, randomized controlled trials.

^a Abstract form, number of subjects not declared.

Materials and methods

This study followed methodological recommendations for systematic reviews as given in the PRIMSA statement²² and Cochrane Handbook for Systematic Reviews.²³

Literature search

Electronic databases [Pubmed MEDLINE, Ovid MEDLINE, EBM Reviews (all Cochrane Library), Scopus – Health Sciences, ISI Web of Knowledge, EBSCO (Academic Search Complete, CINAHL and ERIC) and Google Scholar] were searched till December 9, 2013. The strategy was designed to be sensitive, not specific: the search terms “laparoscopic”, “cholecystectomy”, “single port”, “single site”, “single incision”, “transumbilical”, “laparo-endoscopic”, “SILS” and “SILC” were used in combination with Boolean operators AND and OR (“all fields”). No limits, filters or restrictions were set. Reference lists of identified reviews/articles were also searched (Fig. 1).

Study selection and abstracting

Study inclusion criteria were: a) RCT, irrespective of language, country of origin, blinding or publication status; b) compared SILC to MLC for a benign gallbladder disease. We defined SILC as a laparoscopic cholecystectomy through a single skin incision either using multiport devices specifically designed for SILC or using conventional trocars introduced through separate fascial incisions. MLC was defined as a laparoscopic cholecystectomy through three or four skin incisions regardless of their length and position; c) included adults ≥ 18 years of age; d) did not report duplicate data; e) provided data on at least one of the pre-defined outcomes. Exclusion of duplicate publications was computer-assisted (Reference Manager version 12, Thomson Reuters) (Fig. 1). Study selection and abstracting were performed by two independent authors. Discrepancies were resolved through a consensus of all authors.

Study quality assessment

Two authors independently evaluated study quality using the Cochrane Collaboration recommended tool²³ that critically assesses selection, performance, detection, attrition, reporting and other potential biases. It categorizes risks (of bias) as “low” (explicit evidence of measures to minimize the bias), “high” (explicit evidence of no measures to control the bias) and “uncertain”. In the category of “other biases” we assessed the risk of differential expertise bias, i.e., a bias due to discrepancy in investigators’ (in)experience with SILC relative to MLC. Different views have been expressed about the SILC learning curve – 5,²⁴ 10²⁵ or 20–25²⁶ surgeries have been suggested as needed to reach the plateau. We chose the learning curve of 10 cases as a cut-off: when there was explicit evidence that before the trial investigators had performed < 10 SILC procedures, the risk was assessed as “high”; when at least 10 procedures had been performed, the risk was assessed as “low”; otherwise the risk was assessed as “uncertain”.

Download English Version:

<https://daneshyari.com/en/article/3178670>

Download Persian Version:

<https://daneshyari.com/article/3178670>

[Daneshyari.com](https://daneshyari.com)