

Outcome of over 1000 cases of Single Port Laparoscopic Cholecystectomy

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Introduction

* Relative Contraindications in SPLC

- Acute cholecystitis (wall thickening)
- Previous upper abdominal op Hx
- Obesity (BMI>25)

Introduction

* Difficulties in doing SPLC

- Limited ROM (fighting instruments)
- Poor visualization
- Weak retraction
- Not so effective flexible instrument

Introduction

* We should consider...

1) Pt's selection

- GB wall thickening (CT or USG)
- Prev. op scar (upper abdomen)
- BMI

2) Pt's position

Lithotomy vs Supine

Introduction

3) New instrument?

(1) Camera – 5mm rigid vs 10mm flexible

(2) Port – surgical glove vs commercial port

(3) Surgical instruments – rigid vs angulated

Introduction

- 4) How to reduce instrument's fighting
 - (1) Camera first, operator second
 - (2) One instrument (Not both hands)
 - (3) Cooperate with the assistant
 - (4) Slow, careful working of instrument

- Reverse direction of hand-grip



- Long-length instrument (60cm)

Advantageous?

J Laparoendosc Adv Surg Tech A. 2013 Oct;23(10):815-31. doi: 10.1089/lap.2013.0040.

Single-port versus conventional multiport laparoscopic cholecystectomy: a meta-analysis of randomized controlled trials and nonrandomized studies.

Qiu J¹, Yuan H, Chen S, He Z, Han P, Wu H.

+ Author information

Abstract

BACKGROUND: Although current guidelines recommend performing cholecystectomy via laparoscopy, consensus on the application of single-incision laparoscopic surgery for cholecystectomy is still lacking. The aim of the current study was to perform a meta-analysis of randomized controlled trials (RCTs) and nonrandomized comparative studies (NRCSs), comparing single-port laparoscopic cholecystectomy (SPLC) and conventional multiport laparoscopic cholecystectomy (CMLC) for benign gallbladder diseases.

SUBJECTS AND METHODS: A systematic review of the literature was performed to identify studies published between January 1997 and December 2012 comparing SPLC and CMLC. Operative outcomes, postoperative parameters, complications, cosmetic results, and quality of life were evaluated.

RESULTS: Forty studies were included in the analyses (16 RCTs, 24 NRCSs) that included 3711 patients (1865 SPLCs, 1846 CMLCs). SPLC had higher conversion rates (odds ratio [OR], 4.21; 95% confidence interval [CI], 2.71-6.56; $P < .001$), longer operating time (mean difference [MD], 16.1; 95% CI, 9.93-22.26 minutes; $P < .001$), and shorter hospital stay (MD, 0.16; 95% CI, -0.28 to -0.04 day; $P = .01$) than CMLC. There were no significant differences between the two procedures for early (MD, -0.1; 95% CI, -0.44 to 0.24; $P = .57$) or late (MD, -0.13; 95% CI, -0.45 to 0.19; $P = .42$) visual analog scale pain scores and overall complications (OR, 1.21; 95% CI, 0.92-1.61; $P = .18$). Cosmetic outcomes favored SILC at 2 weeks (MD, -1.39; 95% CI, -2.66 to -0.12; $P = .03$) and 1 month (MD, -0.13, 95% CI, -2.05 to 0.55; $P = .0007$) after surgery (index score, 0-10).

CONCLUSIONS: SPLC can be performed safely and effectively with better cosmetic results than with the CMLC technique for benign gallbladder diseases.

Disadvantageous?

[Surg Endosc.](#) 2016 Dec 30. doi: 10.1007/s00464-016-5381-0. [Epub ahead of print]

Single-incision laparoscopic cholecystectomy versus conventional four-port laparoscopic cholecystectomy: a systematic review and meta-analysis.

[Evers L](#)¹, [Bouvy N](#)², [Branje D](#)³, [Peeters A](#)⁴.

⊕ Author information

Abstract

BACKGROUND: Single-incision laparoscopic cholecystectomy (SILC) might maximize the advantages of laparoscopic cholecystectomy (LC) by reducing postoperative pain and improving cosmesis. However, the safety and feasibility of SILC has not yet been established. This study assesses safety, patient reported outcome measures and feasibility of SILC versus conventional LC.

METHODS: Literature search for RCT's comparing SILC with conventional LC in gallstone-related disease was performed in PubMed and Embase. The conventional LC was defined as two 10-mm and two 5-mm ports. Study selection was done according to predefined criteria. Two reviewers assessed the risk of bias. Pooled outcomes were calculated for adverse events, pain, cosmesis, quality of life and feasibility using fixed-effect and random-effects models.

RESULTS: Nine RCT's were included with total of 860 patients. No mortality was observed. More mild adverse events (RR 1.55; 95% CI 0.99-2.42) and significantly more serious adverse events (RR 3.00; 95% CI 1.05-8.58) occurred in the SILC group. Postoperative pain (MD -0.46; 95% CI -0.74 to -0.18) and cosmesis (SMD 2.38; 95% CI 1.50-3.26) showed significantly better results for the SILC group, but no differences were observed in quality of life. Operating time (MD 23.12; 95% CI 11.59-34.65) and the need for additional ports (RR 11.43; 95% CI 3.48-37.50) were significantly higher in the SILC group. No difference was observed in conversion to open cholecystectomy or hospital stay longer than 24 h.

CONCLUSIONS: SILC does not provide any clear advantages over conventional LC except for less postoperative pain and improved cosmesis. It is questionable whether these advantages outweigh the higher occurrence of adverse events and shortcomings in feasibility. Considering considerable heterogeneity and low methodological quality of the studies it is advisable to perform well-designed RCT's in the future to address the safety and clinical benefits of SILC.

Learning curve

J Korean Surg Soc 2011;80:119-124

DOI: 10.4174/jkss.2011.80.2.119

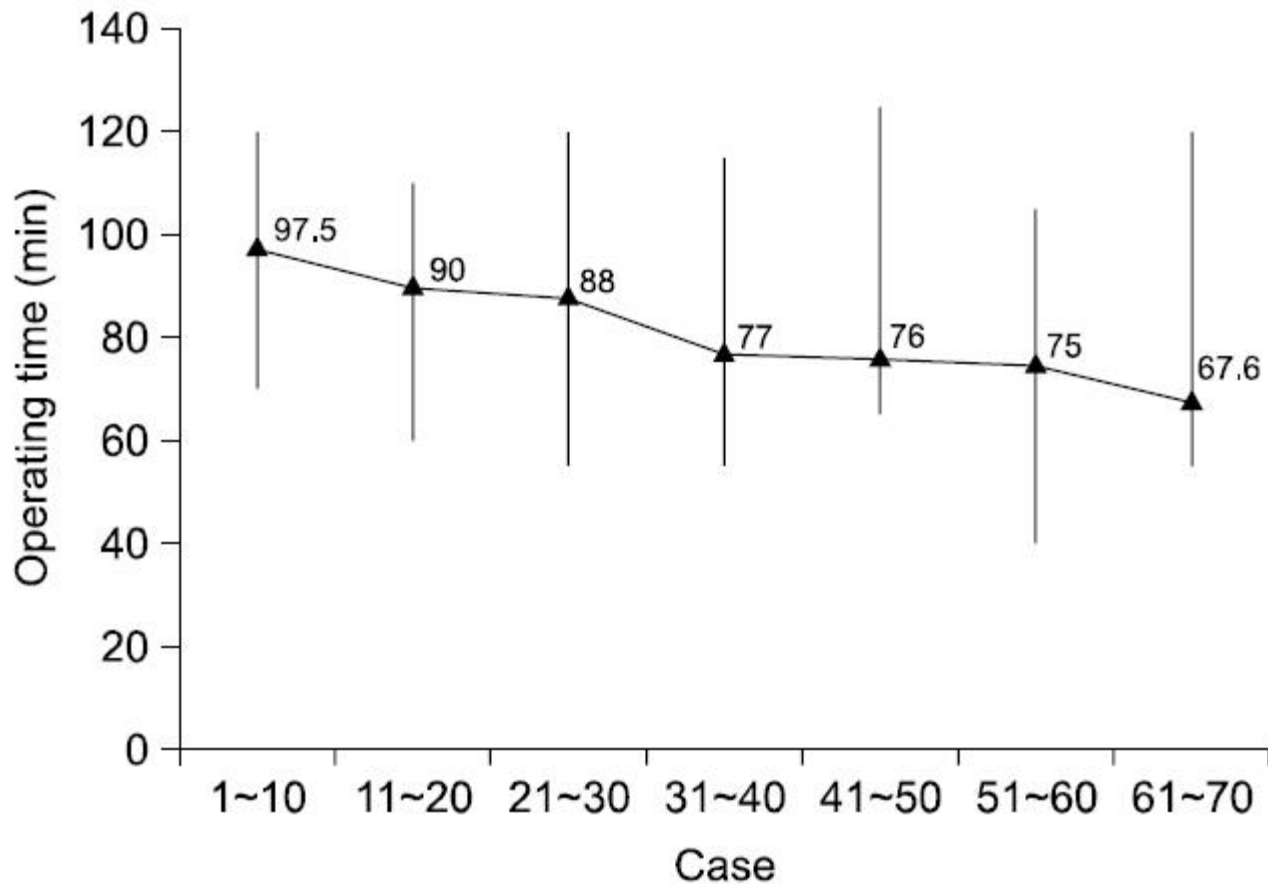
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The Learning Curve for Single-Port Laparoscopic Cholecystectomy by Experienced Laparoscopic Surgeon

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Learning curve



- Long-term outcomes and patient perspectives of single port laparoscopic cholecystectomy

Patient Assessment Questionnaire

Single port () / Three port ()

Social aspects

1. Are you satisfied with your *physical condition* after surgery?
2. Do you think this surgery give you a limit on your *nutrition*?
3. Do you think your *stamina* has decreased after surgery?
4. Do *postoperative pain* levels are acceptable?
5. Do you think this surgery and recovery process give you somewhat constrained *to return your social activities*?
6. Do you think this surgery is somewhat impaired your *social life* after surgery?
7. How do you think about the degree of *complications* of surgery you experienced?
8. What do you think about the *cost-effectiveness* of this surgery?

Cosmetic aspects

1. Do you think the surgical wounds(*scars*) *affect your outward charm*?
2. Are you *satisfied with* the appearance of your *scars*?
3. How many *points* if you give marks *to your scars*?
4. Have you had *problems* in everyday life *because of surgical wounds(scars)*?

Result

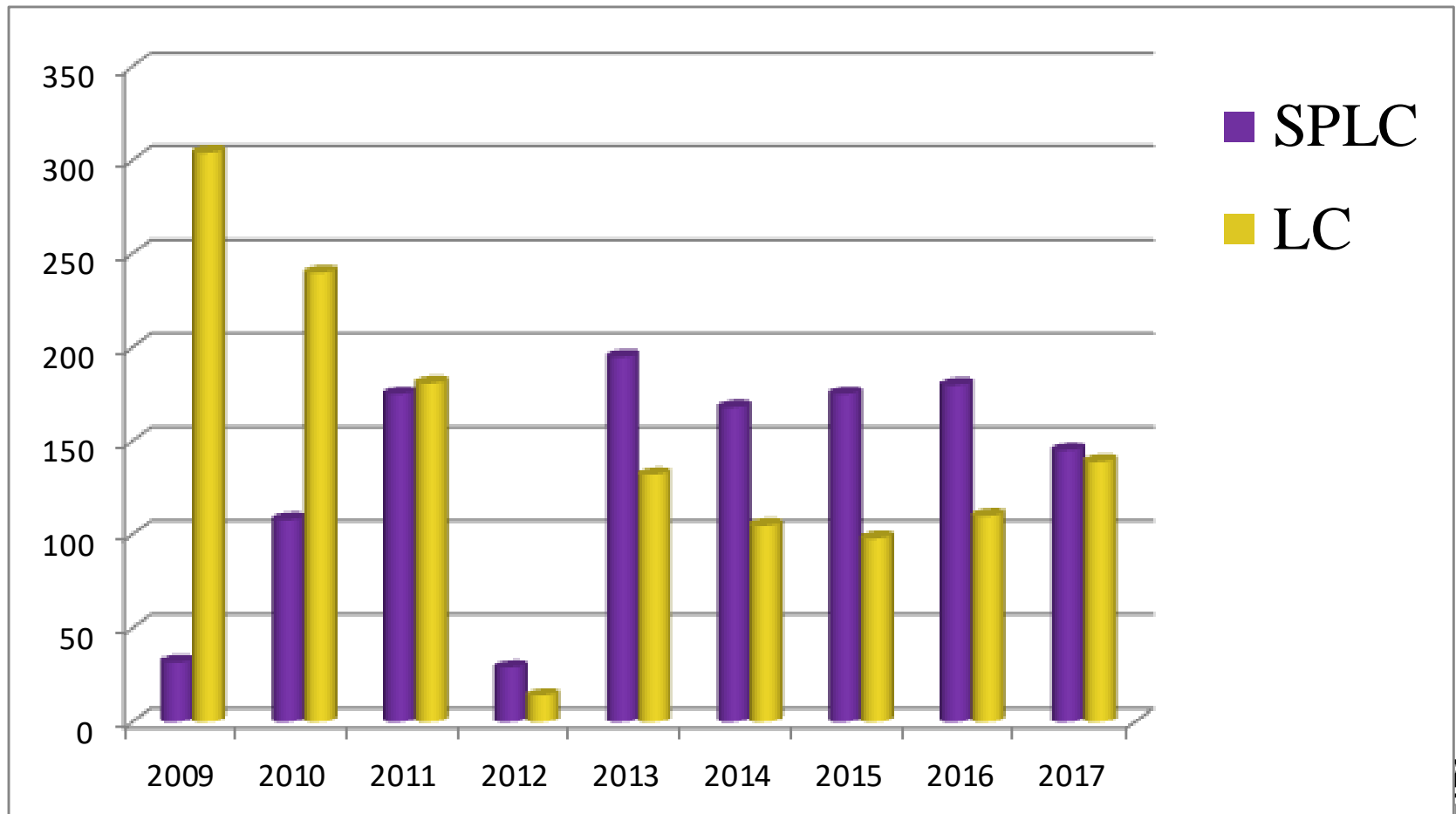
| Port number (total n=72) | 1 (n=42) | 3 (n=32) |
|-------------------------------------------|-------------|-------------|
| Male sex (%) | 18 (42.9) | 12 (37.5) |
| Age, years | 55.1±2.1 | 56.6±3.3 |
| Height (cm) | 161.2±2.8 | 164.2±1.7 |
| Weight (kg) | 61.9±1.9 | 62.2±1.9 |
| BMI | 26.5±3.5 | 23.0±0.5 |
| Diagnosis | | |
| GB polyp | 18 | 3 |
| GB stone | 19 | 9 |
| Acute cholecystitis | 4 | 16 |
| GB Empyema | 1 | 4 |
| Operation time (min) | 46.9±1.6 | 61.3±4.2 |
| Number of complications | 1 | 2 |
| Hospital days after operation (days) | 2.0±0.1 | 2.4±0.2 |
| Follow up interval after operation (days) | 361.2±1.8 | 364.8±2.7 |

| Items of questionnaire | Number of ports | 1 Port vs 3 ports | Risk of Complications* |
|------------------------------------|-----------------|-------------------|------------------------|
| Sex | .504 | .688 | |
| Age | .453 | .677 | |
| Height (cm) | .498 | .458 | |
| Weight (kg) | .779 | .917 | .035 |
| BMI | .683 | .451 | |
| Social 1 | .981 | .975 | |
| 2 | .765 | .820 | |
| 3 | .729 | .600 | |
| 4 | .528 | .629 | |
| 5 | .707 | .730 | |
| 6 | .970 | .670 | |
| 7 | .898 | .742 | |
| 8 | .146 | .690 | |
| Cosmetic 1 | <.001 | <.001 | |
| 2 | <.001 | .015 | |
| 3 | <.001 | <.001 | |
| 4 | .140 | .235 | |
| Operation time | .012 | .005 | |
| Complications | .693 | .358 | |
| Hospital days after operation | .035 | .050 | |
| Follow up interval after operation | .025 | .167 | |

analyzed by multivariate logistic regression

OP results - I

- Total : 1207 cases (from Mar. 09 ~ to Dec.17)



OP results - II

M : F = 552 : 655 (45.7% : 54.3%)

Mean age : 46.7 years (18~ 82)

Mean BMI : 23.93 (18.21~37.72)

Mean operation time : 41.9 min (23 ~ 130 mm)

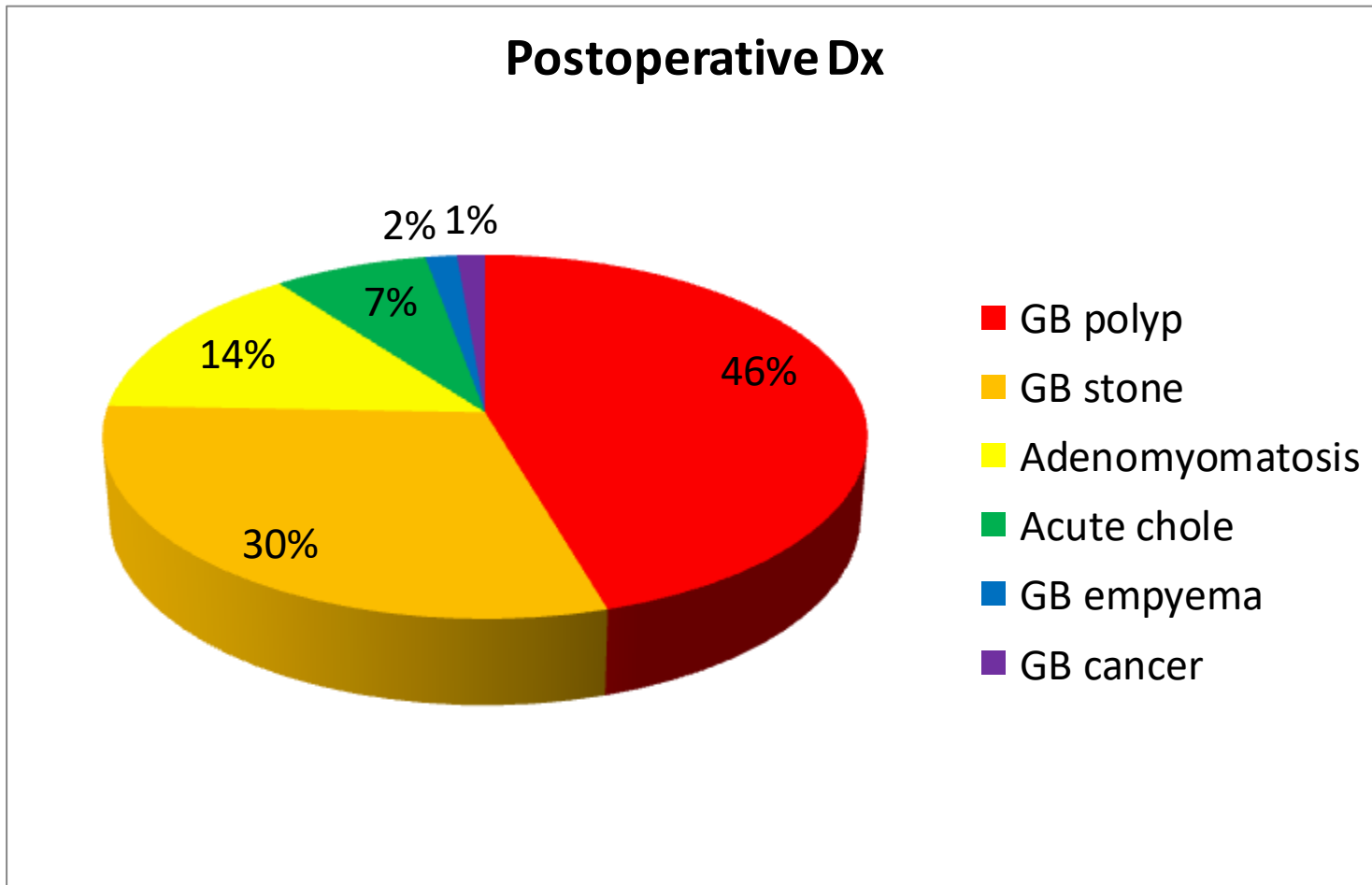
Additional port : 124 cases (10.3)

Bile spillage during operation : 98 cases (8.19%)

Admission date : 2.26 days

Open conversion – 5 cases (d/t bleeding, adhesion)

OP results - III



Postoperative Cx : 74 cases (6.13%)

- Major. (Clavien IIIa & IIIb) – 14 cases (1.16%)
Minor. – 60 cases (4.97%)
- Major Cx – Retained CBD stone : 3 (ERCP)
Cystic duct leakage : 2 (ERBD)
CBD injury : 2 (Re-operation)
Umbilical hernia : 7 (Herniorrhaphy)
- Minor Cx – Wound infection : 52
Transient cholangitis : 5
Paralytic ileus : 3

Academic results

- SCI papers – Published 8 papers
Submitted 2 papers
Preparing 1 paper, 1 case report
- Invited speaker
- Multi-center study in Korea

Conventional
laparoscopic
cholecystectomy

SPLC

A diagram consisting of two concentric circles. The outer circle is light purple and contains the text 'Conventional laparoscopic cholecystectomy'. The inner circle is a darker shade of purple and contains the text 'SPLC'. Five black arrows point from the inner circle towards the outer circle, indicating that SPLC is a component or subset of the conventional procedure.



Thank you
for your attention!