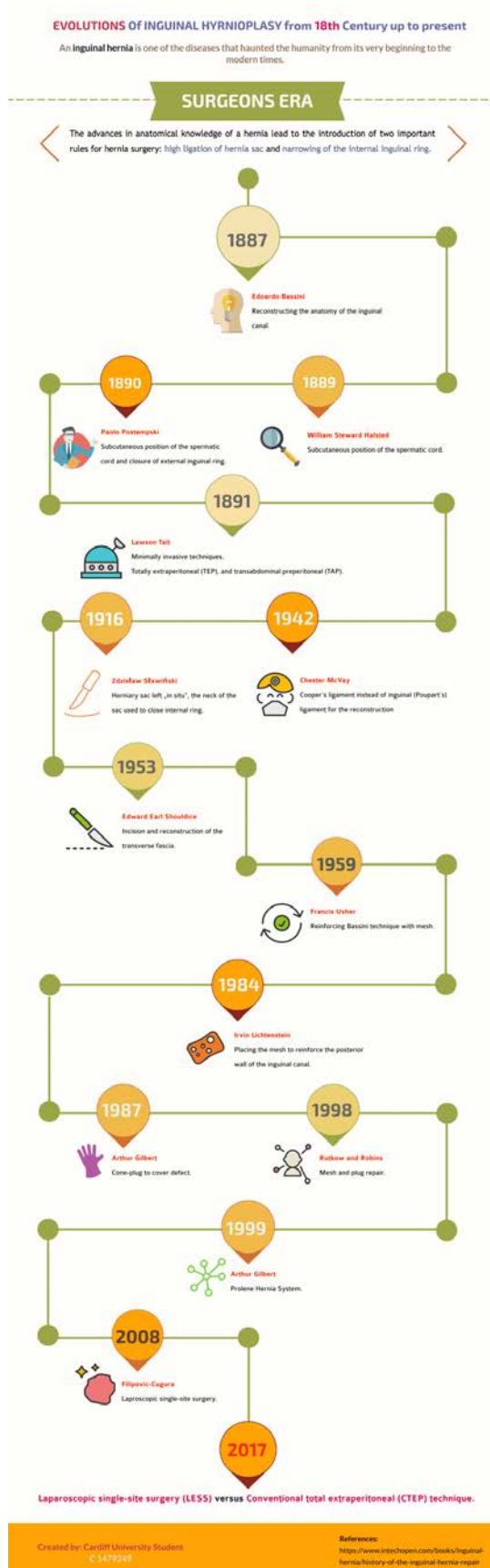


Appendices

Appendix (A): Infographic of inguinal hernioplasty evolution from 18th century up to present.



Appendix (B): Results and keywords used for search in Pubmed, Scopus, and CINAHL.

<u>Searched terms</u>	<u>Database Searched</u>		
	<i>Pubmed</i>	<i>Scopus</i>	<i>CINAHL</i>
<i>"Inguinal hernia repair".</i>	6,205	7,580	889
<i>"Inguinal herniorrhaphy".</i>	2,838	3,595	99
<i>"Inguinal hernioplasty".</i>	3,614	4,554	73
<i>"Single-port".</i>	1,863	3,318	465
<i>"Single-incision".</i>	2,595	3,136	742
<i>"Conventional total extraperitoneal".</i>	66	74	1
<i>"Multi-port".</i>	148	2,614	19
<i>"Multi-incision".</i>	43	45	13
<i>"Inguinal hernia repair" AND "Single-port" AND "Multi-port".</i>	14	228	7
<i>"Inguinal hernia repair" AND "Single-port" AND "Multi-port" AND "Postoperative pain".</i>	7	78	3
<i>"Inguinal hernia repair" AND "Single-port" AND "Multi-port" AND "Complications".</i>	19	160	6
<i>"Inguinal hernia repair" AND "Single-port" AND "Multi-port" AND "Cosmetics"</i>	10	73	1
<i>"Inguinal hernia repair" AND "Single-port" AND "Multi-port" AND "Postoperative pain" AND "Complications" AND "Cosmetics"</i>	4	27	1
<u>TOTAL ARTICLES FOUNDED</u>	<u>32 ARTICLES</u>		

Appendix (C): Pubmed database search

History		Download history Clear history		
Search	Add to builder	Query	Items found	Time
#10	Add	Search (((((inguinal hernia repair) AND single-port) AND conventional) AND complications) AND cosmetic) AND postoperative pain	4	05:59:51
#9	Add	Search (((inguinal hernia repair) AND single-port) AND conventional) AND cosmetic	10	05:59:36
#8	Add	Search (((inguinal hernia repair) AND single-port) AND conventional) AND complications	19	05:59:28
#7	Add	Search (((inguinal hernia repair) AND single-port) AND conventional) AND postoperative pain	7	05:59:19
#6	Add	Search postoperative pain	83090	05:59:11
#5	Add	Search cosmetic	86452	05:59:03
#4	Add	Search complications	2678868	05:58:58
#3	Add	Search conventional	386224	05:58:51
#2	Add	Search single-port	1866	05:58:45
#1	Add	Search inguinal hernia repair	6215	05:58:39

Appendix (D): Scopus database search

Scopus [Search](#) [Sources](#) [Alerts](#) [Lists](#) [Help](#) [Register](#) [Login](#)

Document search results

inguinal AND hernia AND repair AND single-port AND conventional AND postoperative AND pain AND complications AND cosmetic [Edit](#) [Save](#) [Set alert](#) [Set feed](#)

27 document results Sort on: [Date](#) [Cited by](#) [Relevance](#)

Search within results... [All](#) [Export](#) [Download](#) [View citation overview](#) [View Cited by](#) [Add to List](#) [More...](#) [Show all abstracts](#)

Refine

[Limit to](#) [Exclude](#)

Year

- 2017 (1)
- 2016 (1)
- 2015 (4)
- 2014 (8)
- 2013 (3)

Author Name

- Tran, K. (4)
- Zajkowska, M. (4)
- Hawthorne, W. (3)
- Lam, V. (3)
- Tran, H. (3)

Subject Area

- Medicine (27)

Document Type

- Article (25)
- Review (2)

<input type="checkbox"/> Clinical outcomes of single incision laparoscopic surgery and conventional laparoscopic transabdominal preperitoneal inguinal hernia repair	Ece, I., Yilmaz, H., Yormaz, S., Sahin, M.	2017	Journal of Minimal Access Surgery	0	Open Access
<input type="checkbox"/> Single-port versus conventional three-port laparoscopic totally extraperitoneal inguinal hernia repair: a randomized controlled trial	Choi, B.J., Jeong, W.J., Lee, I.K., Lee, S.C.	2016	Hernia	1	
<input type="checkbox"/> Single-incision laparoscopic inguinal herniorrhaphy with telescopic extraperitoneal dissection: technical aspects and potential benefits	Tran, H., Tran, K., Turingan, I., (...), Lam, V., Hawthorne, W.	2015	Hernia	0	
<input type="checkbox"/> Single-port onlay mesh repair of recurrent inguinal hernias after failed anterior and laparoscopic repairs	Tran, H., Tran, K., Zajkowska, M., Lam, V., Hawthorne, W.J.	2015	Journal of the Society of Laparoendoscopic Surgeons	0	Open Access
<input type="checkbox"/> Needleoscopic surgery versus single-port laparoscopy for inguinal hernia	Chan, Y.-W., Hollinsky, C.	2015	Journal of the Society of Laparoendoscopic Surgeons	0	Open Access

Appendix (E): CINAHL database search

Search History/Alerts

[Print Search History](#) | [Retrieve Searches](#) | [Retrieve Alerts](#) | [Save Searches / Alerts](#)

<input type="checkbox"/> Select / deselect all <input type="button" value="Search with AND"/> <input type="button" value="Search with OR"/> <input type="button" value="Delete Searches"/> <input type="button" value="Refresh Search Results"/>			
Search ID#	Search Terms	Search Options	Actions
<input type="checkbox"/> S5	inguinal hernia repair AND single-port AND conventional AND postoperative pain AND complications AND cosmetic	Search modes - Boolean/Phrase	View Results (1) View Details Edit
<input type="checkbox"/> S4	inguinal hernia repair AND single-port AND conventional AND cosmetic	Search modes - Boolean/Phrase	View Results (1) View Details Edit
<input type="checkbox"/> S3	inguinal hernia repair AND single-port AND conventional AND complications	Search modes - Boolean/Phrase	View Results (6) View Details Edit
<input type="checkbox"/> S2	inguinal hernia repair AND single-port AND conventional AND postoperative pain	Search modes - Boolean/Phrase	View Results (3) View Details Edit
<input type="checkbox"/> S1	inguinal hernia repair AND single-port AND conventional	Search modes - Boolean/Phrase	View Results (7) View Details Edit

Refine Results

Current Search

Boolean/Phrase:
 inguinal hernia repair AND single-port AND conventional AND posto...

Limit To

Full Text

Search Results: 1 - 1 of 1

Relevance ▾ Page Options ▾ [Share](#) ▾

- Single-port versus conventional three-port laparoscopic totally extraperitoneal inguinal hernia repair: a randomized controlled trial.**

(includes abstract) Choi, B.; Jeong, W.; Lee, I.; Lee, S.; Choi, B J; Jeong, W J; Lee, I K; Lee, S C; *Hernia*, Dec2016; 20(6): 789-795. (7p) (journal article) ISSN: 1265-4906 PMID: 27142209 AN: 119384842

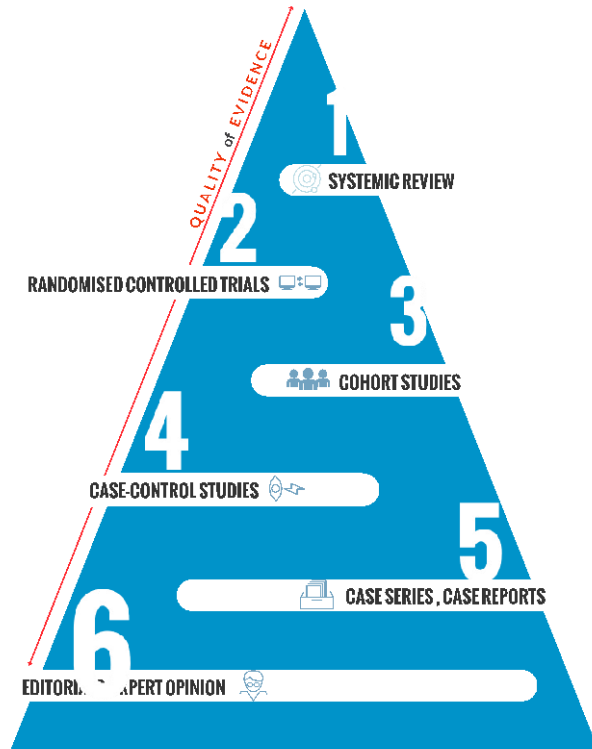
Abstract: **Background:** Single-port laparoscopic surgery (SPLS) has been introduced for totally extraperitoneal (TEP) inguinal hernia repair. Clinically, however, the benefits of single-port TEP (SP TEP) are unclear. This study aimed to compare short-term surgical outcomes between SP TEP and conventional laparoscopic TEP(CL TEP) inguinal hernia repair. **Methods:** Between January 2013 and February 2015, 99 men with primary unilateral inguinal hernia were randomized to the single-port or conventional 3-port TEP procedures. The primary end point was postoperative pain. Secondary end points were complications, postoperative hospital stay, days to return to daily normal activities, cosmesis, and quality of life (QOL). **Results:** We randomized 50 patients to SP TEP and 49 to CL TEP repair. The SP TEP group patients had significantly lower pain scores (visual analog scale) 7 days postoperation ($p = 0.017$). However, there were no significant differences between the two groups in

Appendix (F): Articles chosen for review

- Buckley FP, Vassaur H, Monsivais S, et al. Comparison of outcomes for single-incision laparoscopic inguinal herniorrhaphy and traditional three-port laparoscopic herniorrhaphy at a single institution. *Surg Endosc.* 2014;28(1):30–35.
- Choi BJ, Jeong WJ, Lee IK, et al. Single-port versus conventional three-port laparoscopic totally extraperitoneal inguinal hernia repair: a randomized controlled trial. *Hernia.* 2016;20(6):789–95.
- Tran H, Turingan I, Tran K, et al. Potential benefits of single-port compared to multiport laparoscopic inguinal herniorrhaphy: a prospective randomized controlled study. *Hernia.* 2014;18(5):731–744.
- Tsai YC, Ho CH, Tai HC, et al. Laparoendoscopic single-site versus conventional laparoscopic total extraperitoneal hernia repair: a prospective randomized clinical trial. *Surg Endosc.* 2013;27(12):4684–4692.
- Wakasugi M, Masuzawa T, Tei M, et al. Single-incision totally extraperitoneal inguinal hernia repair: our initial 100 cases and comparison with conventional three-port laparoscopic totally extraperitoneal inguinal hernia repair. *Surgery Today.* 2015;45(5):606–610.
- Wijerathne S, Agarwal N, Ramzy A, et al. A prospective randomized controlled trial to compare single-port endo-laparoscopic surgery versus conventional TEP inguinal hernia repair. *Surg Endosc.* 2014;28(11):3053–3058.
- Wijerathne S, Agarwal N, Ramzi A, et al. Single-port versus conventional laparoscopic total extraperitoneal inguinal hernia repair: a prospective, randomized, controlled clinical trial. *Surgical Endoscopy.* 2016;30(4):1356–1363.

Appendix (G): Evidence-Based Practice Pyramid

Evidence-Based Practice Pyramid.



»»» SYSTEMIC REVIEW:

A type of literature review that collects and critically analyzes multiple research studies or papers.

»»» RANDOMISED CONTROLLED TRIAL:

A study in which people are allocated at random (by chance alone) to receive one of the several clinical interventions.

»»» COHORT STUDIES:

A particular form of longitudinal study (panel study) that sample a cohort (a group of people who share a defining characteristic, typically who experienced a common event in a selected period, such as birth or graduation), performing a cross-section at intervals through time.

»»» CASE-CONTROL STUDIES:

A type of observational study in which two existing groups differing in outcome are identified and compared on the basis of some supposed causal attribute.

»»» CASE SERIES, CASE REPORTS:

Case series: may be consecutive or non-consecutive, depending on whether all cases presenting to the reporting authors over a period.

Case reports: Unusual or novel occurrence.

»»» EDITORIALS, EXPERT OPINION:

Editorials is an often-unsigned opinion piece written by the senior editorial staff or publisher of a newspaper, magazine, or any other written document.

Expert opinion is a belief or judgment about something given by an expert on the subject.

Appendix (H): The Critical Appraisal Skills Programme (CASP 2017)



11 questions to help you make sense of a trial

How to use this appraisal tool

Three broad issues need to be considered when appraising the report of a randomised controlled trial:

- Are the results of the trial valid? (Section A)
- What are the results? (Section B)
- Will the results help locally? (Section C)

The 11 questions on the following pages are designed to help you think about these issues systematically.

The first two questions are screening questions and can be answered quickly. If the answer to both is **yes**, it is worth proceeding with the remaining questions.

There is some degree of overlap between the questions, you are asked to record a **yes, no or can't tell** to most of the questions. A number of prompts are given after each question. These are designed to remind you why the question is important. Record your reasons for your answers in the spaces provided.

There will not be time in the small groups to answer them all in detail!

These checklists were designed to be used as educational tools as part of a workshop

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(A) Are the results of the trial valid?

Screening Questions

1. Did the trial address a clearly focused issue? Yes Can't tell No

Consider: An issue can be 'focused' in terms of

- The population studied
- The intervention given
- The comparator given
- The outcomes considered

2. Was the assignment of patients to treatments randomised? Yes Can't tell No

Consider:

- How was this carried out, some methods may produce broken allocation concealment
- Was the allocation concealed from researchers?

Is it worth continuing?



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Detailed questions

3. Were patients, health workers and study personnel blinded? Yes Can't tell No

Consider:

- Health workers could be; clinicians, nurses etc
- Study personnel – especially outcome assessors

4. Were the groups similar at the start of the trial? Yes Can't tell No

Consider: Look at

- Other factors that might affect the outcome such as age, sex, social class, these may be called baseline characteristics

5. Aside from the experimental intervention, were the groups treated equally? Yes Can't tell No

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6. Were all of the patients who entered the trial properly accounted for at its conclusion?

Yes Can't tell No

Consider:

- Was the trial stopped early?
- Were patients analysed in the groups to which they were randomised?

(B) What are the results?

7. How large was the treatment effect?

Consider:

- What outcomes were measured?
- Is the primary outcome clearly specified?
- What results were found for each outcome?
- Is there evidence of selective reporting of outcomes?

8. How precise was the estimate of the treatment effect?

Consider:

- What are the confidence limits?
- Were they statistically significant?

(C) Will the results help locally?

9. Can the results be applied in your context (or to the local population)?

Yes Can't tell No

Consider:

- Do you have reason to believe that your population of interest is different to that in the trial?
- If so, in what way?

10. Were all clinically important outcomes considered?

Yes Can't tell No

Consider:

- Is there other information you would like to have seen?
- Was the need for this trial clearly described?

11. Are the benefits worth the harms and costs?

Yes Can't tell No

Consider:

- Even if this is not addressed by the trial, what do you think?

Appendix (I): The Patient and Observer Scar Assessment Scale (POSAS).Adopted from:
<http://www.posas.org/the-posas/the-scale/>.

POSAS Patient scale

The Patient and Observer Scar Assessment Scale v2.0 / EN

Date of examination: _____

Observer: _____

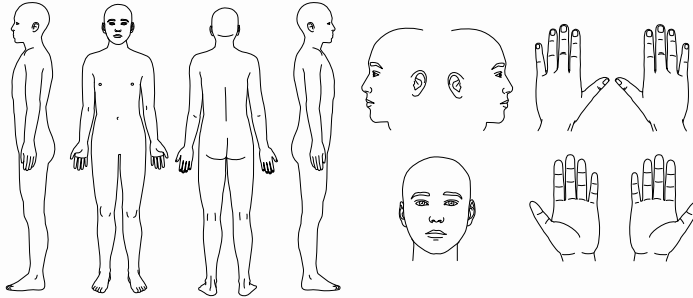
Location: _____

Research / study: _____

Name of patient: _____

Date of birth: _____

Identification number: _____



1 = no, not at all yes, very much = 10

1 2 3 4 5 6 7 8 9 10

HAS THE SCAR BEEN PAINFUL THE PAST FEW WEEKS?

HAS THE SCAR BEEN ITCHING THE PAST FEW WEEKS?

1 = no, as normal skin yes, very different = 10

IS THE SCAR COLOR DIFFERENT FROM THE COLOR OF YOUR NORMAL SKIN AT PRESENT?

IS THE STIFFNESS OF THE SCAR DIFFERENT FROM YOUR NORMAL SKIN AT PRESENT?

IS THE THICKNESS OF THE SCAR DIFFERENT FROM YOUR NORMAL SKIN AT PRESENT?

IS THE SCAR MORE IRREGULAR THAN YOUR NORMAL SKIN AT PRESENT?

1 = as normal skin very different = 10

1 2 3 4 5 6 7 8 9 10

WHAT IS YOUR OVERALL OPINION OF THE SCAR COMPARED TO NORMAL SKIN?

POSAS Observer scale

The Patient and Observer Scar Assessment Scale v2.0 / EN

Date of examination: _____

Name of patient: _____

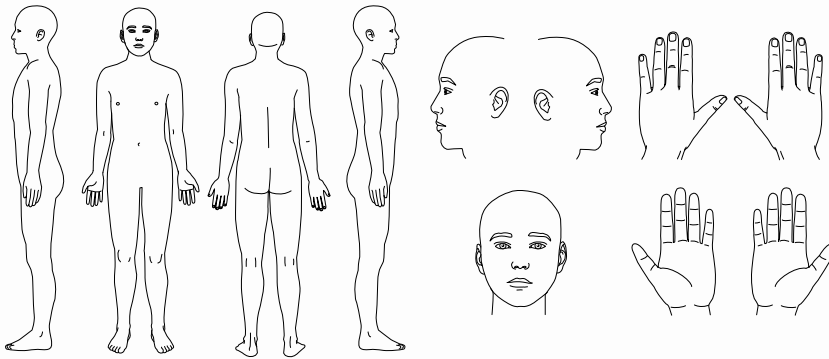
Observer: _____

Date of birth: _____

Location: _____

Identification number: _____

Research / study: _____



	1 = normal skin worst scar imaginable = 10										
PARAMETER	1	2	3	4	5	6	7	8	9	10	CATEGORY
VASCULARITY	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	PALE PINK RED PURPLE MIX
PIGMENTATION	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	HYPO HYPER MIX
THICKNESS	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	THICKER THINNER
RELIEF	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	MORE LESS MIX
PLIABILITY	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	SUPPLE STIFF MIX
SURFACE AREA	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	EXPANSION CONTRACTION MIX
OVERALL OPINION	<input type="radio"/>										

Explanation

The observer scale of the POSAS consists of six items (vascularity, pigmentation, thickness, relief, pliability and surface area). All items are scored on a scale ranging from 1 ('like normal skin') to 10 ('worst scar imaginable'). The sum of the six items results in a total score of the POSAS observer scale. Categories boxes are added for each item. Furthermore, an overall opinion is scored on a scale ranging from 1 to 10. All parameters should preferably be compared to normal skin on a comparable anatomic location.

Explanatory notes on the items:

- **VASCULARITY** Presence of vessels in scar tissue assessed by the amount of redness, tested by the amount of blood return after blanching with a piece of Plexiglas
- **PIGMENTATION** Brownish coloration of the scar by pigment (melanin); apply Plexiglas to the skin with moderate pressure to eliminate the effect of vascularity
- **THICKNESS** Average distance between the subcutical-dermal border and the epidermal surface of the scar
- **RELIEF** The extent to which surface irregularities are present (preferably compared with adjacent normal skin)
- **PLIABILITY** Suppleness of the scar tested by wrinkling the scar between the thumb and index finger
- **SURFACE AREA** Surface area of the scar in relation to the original wound area