



Eastern Association for the Surgery of Trauma

28th Annual Scientific Assembly

Sunrise Session 7

Complex Ventral Hernia Surgery for the Acute Care Surgeon

January 15, 2015

Disney's Contemporary Resort

Lake Buena Vista, Florida

Complex Ventral Hernia Surgery for the Acute Care
Surgeon
EAST Acute Care Surgery Ad Hoc Committee

Moderator: Ruby Skinner, MD

Panel Speakers:

Niels Martin, MD

Ronald Sing, MD

Randy Janczyk, MD



Disclosures

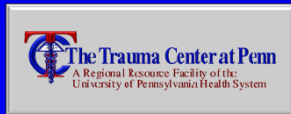
Surgical Consultant & Speaker
TEI BioSciences

EAST 2015: Sunrise Session Laparoscopic Ventral Hernia Repair



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Conflicts of Interest



- No pertinent relationships





800 beds, 61K ED visits

Goals and Objectives

- Indications
- Laparoscopic techniques
 - ♦ Hernia Repair
 - ♦ Mesh placement
 - ♦ Component separation
- Bio-Mechanical Options
 - ♦ Mesh (synthetic & biologic)
- Laparoscopic outcomes



Laparoscopic Indications

- Abdominal domain
- ~10cm (up to 15cm)*
- Grade

Grade 1 Low risk	Grade 2 Co-morbid	Grade 3 Potentially contaminated	Grade 4 Infected
Low risk of complications No history of wound infection	Smoker Obese Diabetic Immunosuppressed COPD	Previous wound infection Stoma present Violation of the gastrointestinal tract	Infected mesh Septic dehiscence



*Ferrari et al. *Hernia*. 2008 Dec; 12(6):571-6
#Grevious et al. *Medscape* Oct 15, 2014



Laparoscopic vs Open Incisional Hernia Repair

A Randomized Clinical Trial

Hassan H. Eker, MD; Bili M. E. Hansson, MD, PhD; Mark Baunton, MD; Ignace M. C. Janssen, MD, PhD;
Robert E. G. J. M. Pierik, MD, PhD; Wim C. Hop, MSc, PhD; H. Jaap Bonjer, MD, PhD;
Johannes Jechel, MD, PhD; Johan F. Lange, MD, PhD

Importance: Incisional hernia is the most frequent surgical complication after laparotomy. Up to 30% of all patients undergoing laparotomy develop an incisional hernia.

Objective: To compare laparoscopic vs open ventral incisional hernia repair with regard to postoperative pain and nausea, operative results, perioperative and postoperative complications, hospital admission, and recurrence rate.

Design: Multicenter randomized controlled trial between May 1999 and December 2006 with a mean follow-up period of 35 months.

complications, operative time, postoperative nausea, length of hospital stay, recurrence, morbidity, and mortality.

Results: Median blood loss during the operation was significantly less (10 mL vs 50 mL; $P = .05$) as well as the number of patients receiving a wound drain (3% vs 45%; $P < .001$) in the laparoscopic group. Operative time for the laparoscopic group was longer (100 minutes vs 76 minutes; $P = .001$). Postoperative complications were significantly higher after laparoscopy (9% vs 2%). Visual analog scale scores for pain and nausea, completed before sur-

JAMA Surg. 2013;148(3):259-263

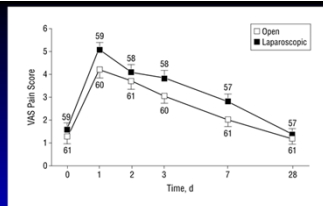


Table 3. Intraoperative and Postoperative Complications

	No. of Patients (No. of Complications)		P Value
	Open (n = 100)	Laparoscopic (n = 94)	
Intraoperative complications	2 (2)	9 (9)	.049
Serosal bowel injury	0	1 (1)	
Enterotomy	1 (1)	5 (5)	
Urinary bladder perforation	0	1 (1)	
Other	1 (1)	2 (2)	
Postoperative complications	26 (26)	35 (37)	.13
Wound infection	5 (5)	4 (4)	
Wound dehiscence	3 (3)	0	
Fascia dehiscence	1 (1)	0	
Hematoma	11 (11)	10 (11)	
Seroma	4 (4)	7 (7)	
Severe pain	0	12 (13)	
Airway infection	3 (3)	3 (3)	
Urinary tract infection	1 (1)	4 (4)	
Phlebitis	2 (2)	0	
Ileus	0	2 (2)	
Postoperative bleeding	1 (1)	2 (2)	
Relaparotomy	1 (1)	2 (2)	
Other	3 (3)	5 (5)	

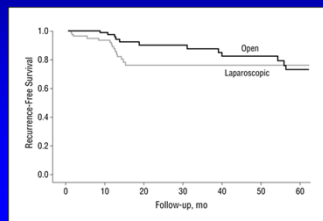
JAMA Surg. 2013;148(3):259-263





JAMA Surg. 2013;148(3):259-263

Pain Score



Recurrence Rate



Why is the Data so Contentious?

Too many variables

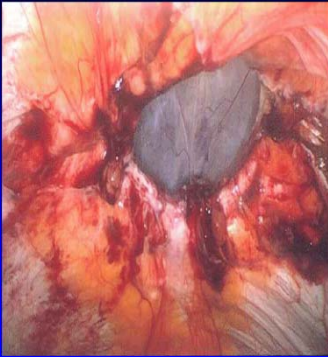
- ♦ Types of mesh
- ♦ Placement of mesh
- ♦ Different outcomes
- ♦ Subjective outcomes



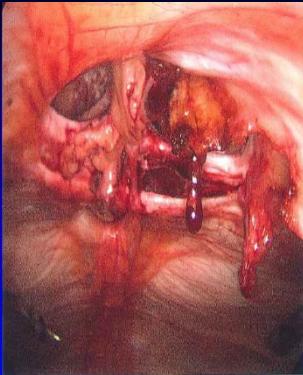
Technique



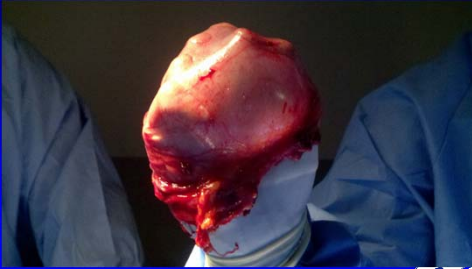
Reduce the Hernia Contents



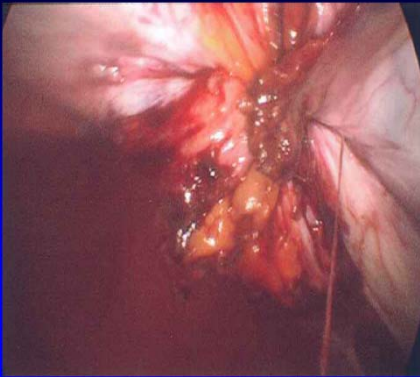
“Swiss cheese”



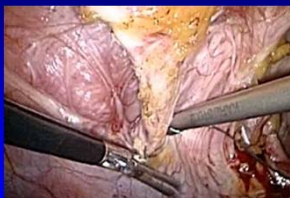
Excise the Hernia Sac



Close the Defect



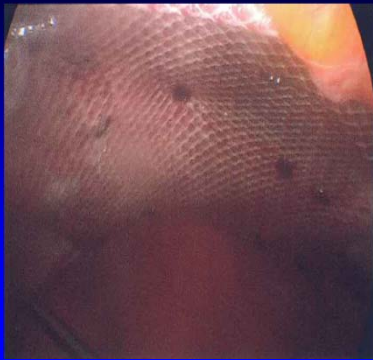
Suture Closure



Mesh Preparation



Mesh Deployment



Bio-mechanical Options

- Tackers
 - ♦ Permanent
 - ♦ Absorbable



Long-Term Durability and Comfort of Laparoscopic Ventral Hernia Repair

Kent C. Sasse, MD, MPH, Dionne C. L. Lim, MPH, BA, Jared Brandt, PA-C

ABSTRACT

Background: Repair of ventral hernias, including primary ventral hernias and incisional ventral hernias, is performed in the United States 90,000 times per year. Open or traditional ventral hernia repairs involve the significant morbidity and expense of a laparotomy and a significant risk of recurrent herniation. Laparoscopic ventral hernia repair (LVHR) may offer a less-invasive alternative with shorter length of hospital stay, fewer cardiopulmonary complications, and low recurrence rates.

Methods: 225 patients underwent laparoscopic ventral hernia repairs in which carbosynmethacrylate-sodium hyaluronate coating (Sepramesh, Davol, Providence, RI) was used primarily. All cases were included prospectively from the study period of 2002 through 2009. Patient characteristics were recorded, and follow-up analysis was performed over a period of 42 mo following surgery. Recurrence, reoperations, and all complications were recorded.

clude use of at least one transfascial suture and the avoidance of metal tacks for fixation.

Key Words: Incisional hernia, Laparoscopic ventral hernia repair, Laparoscopic surgery, Mesh, Polypropylene, SEPRAMESH, Ventral hernia.

INTRODUCTION

Many ventral hernia repair methods have been described. Repair of ventral hernias is performed in the United States with a reported frequency of 90,000 procedures per year, including primary ventral hernias and incisional ventral hernias. Incisional ventral hernias occur after 3% to 20% of all laparotomies.¹⁻³ A traditional repair involved a laparotomy with primary closure of the fascial defect. Recurrence rates after open primary closures are high, ranging from

225 cases: 2 bowel perforations from metal tacks
Changed their practice to absorbable

JSL (2012) 16:380-386



Bio-mechanical Options

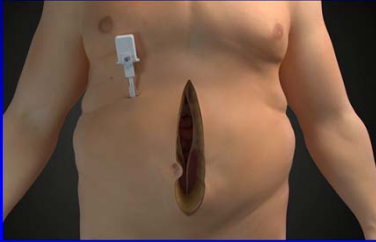
- Mesh
 - ♦ Synthetic vs. Biologic
 - ♦ Absorbable vs. Permanent
 - ♦ Single Layer vs. Dual layer
 - ♦ Flexibility vs. Rigidity



Endoscopic Component Separation



Endoscopic Component Separation



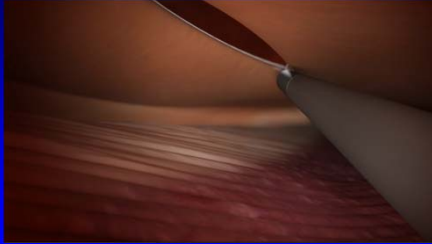
Endoscopic Component Separation



Endoscopic Component Separation



Endoscopic Component Separation



Endoscopic Component Separation



Endoscopic Component Separation




The Component Separation Technique for Hernia Repair: A Comparison of Open and Endoscopic Techniques

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The open components separation technique (CST) for hernia repair allows for autologous tissue repair with approximation of the midline fascia in patients with complex hernias. CST requires creation of large undermining skin flaps, whereas the endoscopic component separation technique (ECST) is performed without division of the epigastric perforating vessels and may minimize wound morbidity. A review of patient demographics and outcome measures of patients undergoing CST and ECST between November 2008 and February 2010 was performed. Twenty-five patients were identified who underwent either CST (14 patients) or ECST (11 patients). There were no differences in body mass index (CST 34.8 kg/m², ECST 37.5 kg/m², $P = 0.45$), operating room times (CST 268 minutes, ECST 252 minutes, $P = 0.54$), or hospital length of stay (CST 5 days, ECST 5.8 days, $P = 0.78$). Wound complications occurred less with ECST (0 vs 57%, $P = 0.03$). The time to resolution of wound complications in ECST was reduced *1 vs 4 months). No recurrences were seen in either group with a mean follow-up of 4 months (range, 1 to 12 months). ECST and CST require similar operative times and hospital lengths of stay. ECST is associated with reduced wound complications compared with CST. Short-term recurrence rates with CST and ECST are comparable.

• Equal success, reduced complications

American Surgeon, 2011



The endoscopic component separation technique for hernia repair results in reduced morbidity compared to the open component separation technique

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© Springer-Verlag 2011

Abstract
Purpose: The component separation technique for hernia repair results in significant wound morbidity due to the need for large undermining skin flaps. The endoscopic component separation technique allows for advancement of the abdominal wall while preserving the blood supply originating from the epigastric vessels. This study compares the outcomes following hernia repair utilizing these techniques.
Methods: A retrospective review of patients undergoing component separation or endoscopic component separation hernia repair from 2008 to 2010. Patients underwent open component separation or endoscopic component separation with closure of the linea alba and reinforcement with mesh.
Results: Thirty-five patients that underwent a component separation [14 open component separation (CST) and 21 that underwent endoscopic component separation (ECST)] were identified. There was no difference in hospital length of stay (CST 5.0 ± 3.0 days vs ECST 6.3 ± 3.6 days, $P = 0.28$) or operating room times (CST: 268 ± 62 min vs ECST: 229 ± 37 min, $P = 0.07$). Wound complications occurred in 57% of CST and 19% of ECST, $P = 0.03$. One recurrent hernia was identified in the ECST group with a mean follow up of 8 months (range 1–21 months). No recurrences were seen in the CST group.
Conclusions: ECST is associated with comparable hospital length of stay and operative times and reduced wound complications compared to CST.

Keywords Component separation technique · Abdominal wall · Hernia repair

Introduction
Abdominal wall hernia repair and abdominal wall reconstruction are challenging surgical entities with numerous

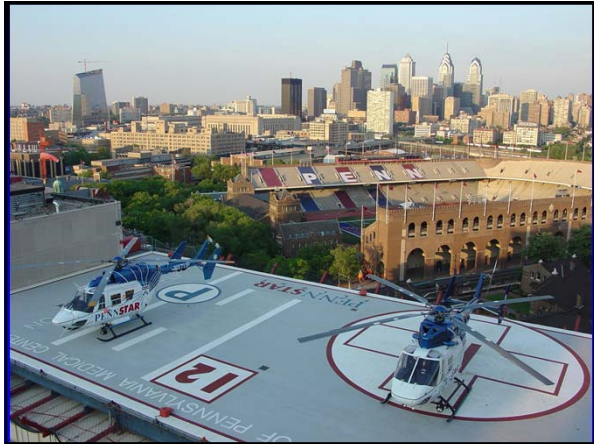
Hernia, 2011



Final Impressions

- Laparoscopy is a viable option
- 10cm transversely is industry standard
- Same tenants of repair as open surgery
- Need a global understanding of the available bio-mechanicals
- Component separation is a viable option
 - ♦ Endoscopic only releases the fascia







- American Hernia Society Quality Collaborative
- Hernia Quality Collaborative Group
 - Private Practice and Academic Practice
 - National outcomes database go live July 2013
 - First collaborative meeting at AHS 2014



Value

Quality (outcomes that matter to patients)
Cost per patient



We Live in Interesting Times

- Health care costs = 18% GDP
- People are living longer and consuming more
- Finite pool of resources to treat patients
- Treatments that will fail
 - High cost + harmful/no benefit
- Treatments that will succeed
 - Manageable cost + beneficial

Our
Target



How Much Variation in VHR?

- 4 spaces to place mesh
 - 100 choices of mesh
- 5 types of fixation
 - 2 ways of handling defect
- 4 options for myofascial release

$$4 \times 100 \times 5 \times 2 \times 4 =$$

16,000 WAYS TO PERFORM VHR!!!



What is the Mission of the AHSQC?

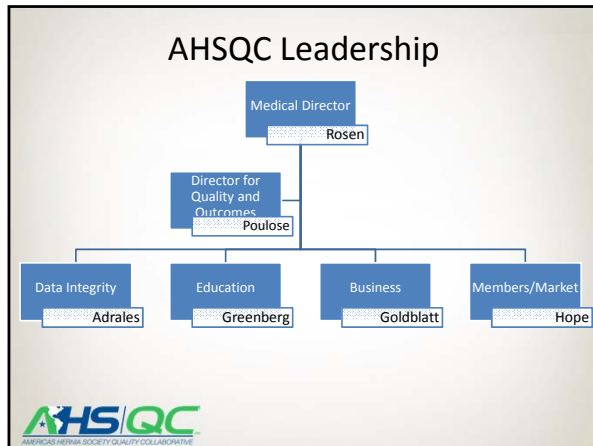
“To provide health care professionals real-time information for maximizing value in hernia care.”



10 Objectives

- Identifying factors that contribute to **recurrence**
- Assessing **quality of life** after hernia repair
- Reducing surgical site **complications**
- Evaluating potential advantages of laparoscopic repairs
- Exploring mechanisms of hernia recurrence
- Identifying factors contributing to **mesh infection**
- Minimizing perioperative **pain**
- Evaluating how hernia characteristics impact outcomes
- Determining optimal methods for **mesh fixation**
- Validating an accepted **hernia classification system**







- ### AHSQC Foundation
- 501 (c)3 entity
 - AHSQC Foundation Partners
- AHSQC**
AMERICAN HERITAGE SOCIETY OF QUALITY COLLABORATION

AHSQC Foundation Partners



AHSQC – Current Focus

- Incisional or parastomal hernias
- Age \geq 18 years
- Non-acute hernias
 - Exclude: open abdomens, acutely created hernias
- Elective or emergent repair of ‘chronic’ hernias



AHSQC – Registry

- Prospectively collected data with standard definitions
- Demographics
- Preoperative Information
- Operative details (surgeon entry only)
- 30 day follow up
- Additional follow up



AHSQC – Registry

- Patient Centered Data
 - Patient engagement via email
- Baseline
 - Pain scale, HerQLes
- 30 Days
 - Pain scale, HerQLes
- 6 months and yearly
 - Pain scale, HerQLes, recurrence



AHSQC – CQI

- Four Collaborative Meetings per Year
 - AHS
 - ACS
 - Two Web based meetings



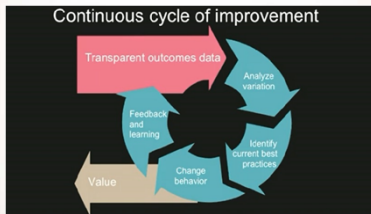
How Do We Use This Information Nationally?

- Find high performance sites
- Identify best practices
- Learn best practices
- Re-assess



This is NOT simply a Registry

- Comprehensive QI Effort for hernia



*From Stefan Larsson (TED Talk)

Some Thoughts

- We can no longer practice Surgery in a vacuum
- We need to take ownership of our operative space
- Each patient's experience should be used to improve outcomes for everyone



Numbers to Date

- 811 patients entered over 6 months
- 135 patients per month
- Operations completed: 77.3%
- 30 day follow up completed: 91.9%
- Longitudinal follow up: 39.7%
- Email patient response rate: 34%



What do you have to do to get involved?

- Step 1. AHSQC.org- Join Now
- Step 2. Obtain sign off from contracts office from your hospital for PHI.
- Step 3. Input patients



Why should I do this?????

TOP 10



1. We all want to get better

- You came here to add value to your practice
- How many meetings have you gone to and really improved or changed your practice?
- We need a new way to learn from each other and get better.
- Control your own destiny via collaboration.
 - You will be measured
 - Control the scale, provide the data



2. Answer to key questions

- What mesh should I use?
- What layer should I put it?
- What's the best technique to fix hernias?
- These are simple questions that we just do not have answers for.
- Single center/ RCT's are not sustainable



3. Maintenance of Certification

- Participating in this collaborative qualifies for **MOC Part 4**
- Possible PQRS reporting in future



4. How much does this cost me?

- **NOTHING IT'S FREE**
- FOR ALL MEMEBERS OF AMERICAN HERNIA SOCIETY
- Possible stipend in future
- Generous support through unrestricted grants
 - Bard/Davol
 - LifeCell



5. I already submit my cases to ACS surgery log/ NSQIP

- This provides quality improvement
- Disease specific
- Real time analytics
- Interactive patient portal
- Beyond 30 day follow up
- Abstracted data of surgical reports
- \$80,000 for NSQIP



6. Justify resource utilization

- Your hospital can evaluate results based on real outcomes
- Can justify utilization of various medical devices with actual data
- Can control resource utilization



7. Can this be used against me?

- NO
- There is no reward for being great!!
- There is no punishment for being a low performer!!!
- This is about all of us getting better and improving value in hernia repair



8. This is another Center of Excellence that will hurt us!

- COE model is dead!
- Fundamentally different concept
- About getting better NOT telling someone I'm better than you



9. I am too busy and don't have time to do this!

- 5 minutes maximum for patient entry
- 30 seconds for follow up data
- Direct patient portal follow up for long term follow up which requires no time for you.
- How much have we as surgeons gotten out of saying we are too busy to do anything?



10. It's the right thing to do to move our field forward

- This will take some effort
- If we don't, we can't complain when others tell us what to do and when
- We need to add value