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Prospective, International Comparison of Quality of Life after Laparoscopic vs Open Ventral Hernia Repair

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Conflicts of Interest

FOUNDATION for SURGICAL FELLOWSHIPS

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  - No conflicts of interest.
- Drs. Colavita and Heniford have the following disclosures:
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Burden of Disease

- Ventral Hernia Repairs
  - 350,000/yr in USA
  - 300,000/yr in Europe
- 22% of major abdominal surgeries develop incisional hernia
  - >2 million laparotomies/year

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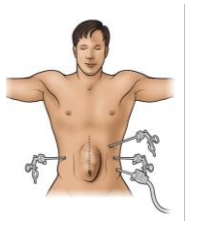
Laparoscopic vs Open Approach

- LVHR first described in 1993
  - ~30% of VHR performed laparoscopically
  - eTEP and MILOS
- LVHR with less wound infections
  - Other outcomes less definitive
    - recurrence, complications, and LOS
- LVHR is as safe and comparable to OVHR



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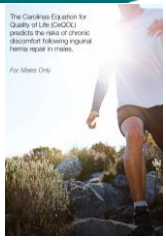
Measuring Success in Ventral Hernia Repair

- Traditional Measure—recurrence
  - Secondary measures: infection, LOS, seroma, hematoma…
- Principle clinical outcomes improved
  - Mesh reinforcement
  - Technical advances
  - Improved scientific understanding of hernias
- Quality of Life (QOL)



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ANNALS OF SURGERY

Prospective, Long-Term Comparison of Quality of Life in Laparoscopic Versus Open Ventral Hernia Repair

Paul D. Colavita, MD, Victor B. Tsirline, MD, Igor Belyansky, MD, Amanda L. Walters, MS, Amy E. Lincourt, PhD, Ronald F. Sing, DO, and B. Todd Heniford, MD

- Largest prospective study to compare QOL p LVHR vs OVHR
  - N=710 → 308 LVHR vs 402 OVHR
- At 1mo postop, LVHR experienced poorer QOL
  - Increased pain and activity limitations (p<0.001)

TABLE 6. Adjusted QOL Outcomes for LVHR Versus OVHR

Symptomatic	1 Month	6 Months	12 Months
Pain	1.9 (1.2–3.1)*	0.9 (0.5–1.6)	1.5 (0.8–2.7)
Activity limitation	1.6 (1.0–2.7)*	1.0 (0.6–1.8)	0.8 (0.4–1.5)
Mesh sensation	1.3 (0.7–2.2)	0.7 (0.4–1.2)	1.0 (0.6–1.9)
Overall	1.6 (1.0–2.6)*	1.0 (0.6–1.6)	1.2 (0.7–2.1)

Outcomes are adjusted for age, gender, country, BMI, defect area, device weight, incidence of preoperative pain and/or movement, incidence of abdominal wall complications, and recurrence.
*$P < 0.05$.

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Purpose

- Aim: Compare clinical and QOL outcomes between LVHR vs OVHR by means of both short- and long-term follow-up
  - Increased patient volume
  - Increased follow-up

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Methods

- International Hernia Mesh Registry (IHMR)
  - 23 centers on 5 continents
  - 2007—2017
- All ventral-incisional hernias queried
  - Laparoscopic vs Open
- Outcomes
  - Surgical
  - QOL—Carolinas Comfort Scale
    - Preoperatively & 1, 6, 12, 24 months
    - Surveys anonymously collected
- Multivariate Analysis


Carolinas Comfort Scale ™

Carolinas Medical Center

Carolinas Comfort Scale (CCS)

- Activities
  1. Lying down
  2. Bending over
  3. Sitting up
  4. Activities of daily living
  5. Coughing or deep breathing
  6. Walking
  7. Going up stairs
  8. Exercising
- Symptoms
  1. Pain
  2. Activity limitations
  3. Mesh sensation
- Overall QOL

Asymptomatic	0 = No Symptoms 1 = Mild none bothersome symptoms
Symptomatic	2 = Mild and bothersome symptoms 3 = Moderate and or daily symptoms 4 = Severe symptoms 5 = Disabling symptoms

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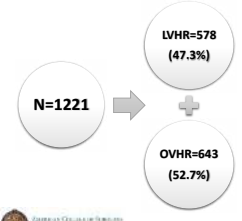
Results



Hernia Type	Frequency	Percentage
Incisional-Ventral	1156	94.7%
Epigastric/Umbilical	58	4.7%
Spigelian	7	0.57%

QOL Survey Response Rate	Frequency	Percentage
1mo postop	890	72.9%
6mo postop	936	76.6%
1yr postop	747	61.2%
2yr postop	687	56.7%

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Demographics & Comorbidities

	Total	LVHR	OVHR	p-value
Age, year [median (IQR)]	58 (49-66)	57 (47-66)	59 (49-67)	0.0903
Female	52.4%	57.2%	48.1%	0.0020
Caucasian	88.9%	83.7%	93.6%	<0.0001
Location				<0.0001
North America	47.9%	59.1%	37.8%	
Europe	41.0%	29.8%	51.0%	
Australia	4.0%	0.4%	7.3%	
South Africa	7.1%	10.7%	3.9%	
Asia				
COPD	6.6%	6.4%	6.7%	0.8477
Diabetes	15.2%	15.8%	14.8%	0.6892
Current Smoking	17.1%	18.8%	15.4%	0.2879
Steroids	2.5%	2.1%	2.8%	0.4210

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Hernia Details

	Total	LVHR	OVHR	p-value
Defect area, cm^2 [median (IQR)]	31.3 (7.9-94.2)	28.3 (10.6-77)	31.4 (7.1-113.1)	0.7808
Multiple defects	30.1%	33.0%	27.4%	0.0316
Other previous VHR	30.0%	27.0%	32.8%	0.0275
Recurrent VHR	23.0%	20.6%	25.2%	0.0562
Number of Recurrences				0.1339
1	60.4%	64.1%	57.8%	
2	25.2%	18.8%	29.8%	
≥3	14.4%	17.1%	12.4%	
Hernia characteristics				<0.0001
None	74.5%	69.4%	79.0%	
Incarcerated	24.2%	29.2%	19.6%	
Strangulated	0.6%	0.0%	1.2%	
Obstructed	0.7%	1.4%	0.2%	

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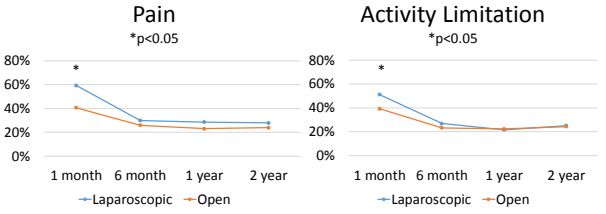
Postoperative Characteristics

	Total	LVHR	OVHR	p-value
Follow-up, mo. [median (IQR)]	23.3 (10.7-25.1)	23.1 (10.5-25.1)	23.3 (11.0-25.1)	0.7485
LOS, days [median (IQR)]	3 (1-5)	2 (1-4)	4 (1-6)	<0.0001
Seroma	11.9%	16.1%	8.1%	<0.0001
Hematoma	2.4%	1.3%	3.5%	0.0141
Surgical Site Infection	2.3%	0.4%	4.1%	<0.0001
DVT	0.4%	0.4%	0.5%	1.0000
Ileus	2.5%	2.7%	2.3%	0.6767
Urinary	2.0%	2.1%	1.8%	0.6789
Cardiac	0.7%	0.9%	0.5%	0.4070
Pneumonia	0.9%	0.5%	1.2%	0.2550
Fistula	0.1%	0.2%	0.0%	0.4790
Recurrence	6.5%	5.7%	7.2%	0.3056

Quality of Life After LVHR vs OVHR



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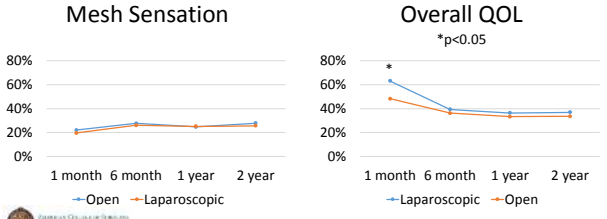
Quality of Life After LVHR vs OVHR



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Multivariate Analysis

Age, Sex, Country, BMI, Defect size, Mesh weight, Recurrence, Wound Complications, Preop QOL

Adjusted QOL Outcomes for LVHR vs OVHR				
	1 Month	6 Month	1 Year	2 Years
Pain	**2.0 (1.3-2.9)**	1.1 (0.7-1.7)	**1.6 (1.0-2.6)**	1.3 (0.8-2.1)
Activity Limitation	**1.6 (1.1-2.4)**	1.2 (0.8-1.9)	1.0 (0.6-1.6)	1.4 (0.8-2.3)
Mesh Sensation	1.1 (0.7-1.7)	1.0 (0.6-1.5)	1.2 (0.8-2.0)	1.5 (0.9-2.4)
Overall QOL	**1.7 (1.1-2.5)**	1.1 (0.7-1.6)	1.3 (0.9-2.1)	1.6 (0.9-2.4)

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Clinical and QOL Outcomes in Ventral Hernia Repair

- Laparoscopic VHR
  - Decreased wound infections
  - Shorter hospitalization
- Recurrence rate similar (6.5%)
- Quality of life
  - LVHR w/poorer short-term QOL
  - Increased pain within 1yr postop
  - No difference at 2yrs

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THANK YOU

Questions…

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