

A Modern Comparison of Suture Repair with Mesh Repair for Incisional Hernia: A Multicenter RCT

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2023 RESIDENT & FELLOW RESEARCH GRANT



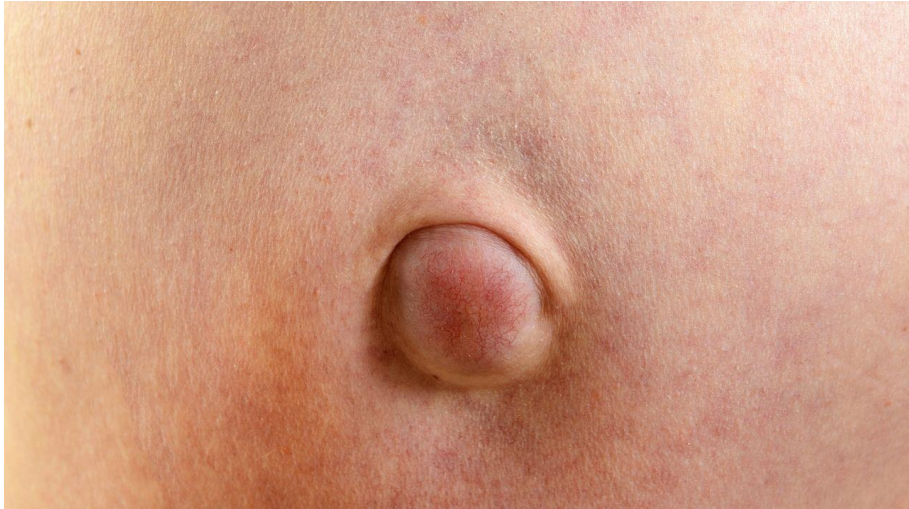
Disclosures

- Sara Maskal-
 - ACHQC Resident Research Grant
- Ajita Prabhu-
 - Advisory board for Surgimatix and CMR Surgical
 - Consultant CMR Surgical and Verb Surgical
- Clayton Petro –
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Background

Suture



Mesh



**A COMPARISON OF SUTURE REPAIR WITH MESH REPAIR
FOR INCISIONAL HERNIA**

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- 200 patients (154 primary incisional, 27 recurrent incisional)
- Hernias \leq 6cm
- 3-year recurrence
 - Primary: suture 43% and mesh 24% (p-0.02)
 - Recurrent: suture 58% and mesh 20% (p-0.10)

Lingering questions

1. Unclear mesh placement
2. Tension effects of posterior rectus sheath release
3. Small bite technique for hernias



Hypothesis

Primary suture repair is non-inferior to mesh repair for incisional hernias 2-6cm with respect to quality of life using the HerQLes summary score at one year postoperatively.



METHODS



Inclusion/Exclusion Criteria

Inclusion

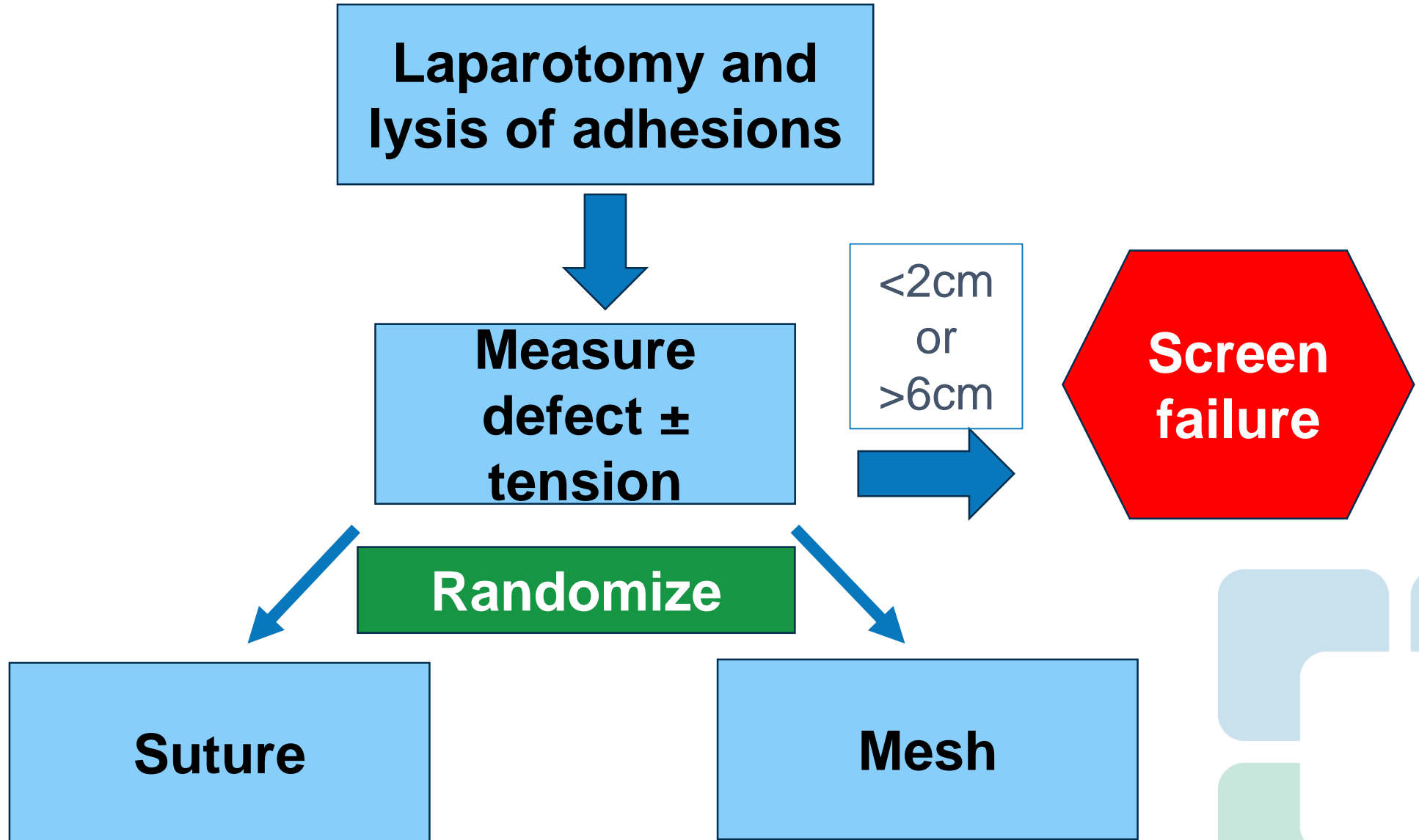
- ≥ 18 yo Consenting
- Incisional hernia
- 2-6cm in width
- Non-emergent case
- CDC class I
- M1-M5

Exclusion

- Primary hernia
- Emergent cases
- Patients who are pregnant
- Mesh in place at site



Operative Technique



Suture Technique

**Posterior rectus sheath
release**



Close anterior sheath

- **0-Prolene**
- **Running**
- **5mm bite/5mm travel**
- **4:1 ratio**



Mesh Technique

**Posterior rectus sheath
release ± dissection**



**Mesh placement
(retromuscular or
preperitoneal)**



Close anterior sheath

- **0-Prolene**
- **Running**
- **5mm bite/5mm travel**
- **4:1 ratio**



Outcome Timeline

	Baseline	POD#30	1-year	2-year	5-year
Promis 3a Pain Intensity	x	x	x	x	x
HerQLes	x	x	x	x	x
EQ5D with VAS	x	x	x	x	x
Hernia Recurrence Inventory		x	x	x	x
CT A/P			x	x	x
Wound morbidity (SSO, SSI, SSOPI)		x	x	x	x

- Power Calculation–
 - Median HerQLes score @ 1 year
 - Median HerQLes scores at one year was 80 and 78 for mesh-based repairs and suture repairs respectively (15 point margin)
 - $\alpha=0.05$ $\beta=90\%$
 - w/ 25% loss to follow-up $n=112$ -> $n=154$

Outcome Measurements

Outcome	Measurement	Scale
Pain	Promis 3a Pain Intensity	30.7-71.8
Abdominal Core Health QoL	HerQLes	0-100
Overall QoL	EQ5D with VAS	0-100
Wound complications	SSO, SSI, SSOPI	
Cost effectiveness analysis		

RESULTS



Enrollment Progress

	Total
Consented	67
Randomized	42
Completed 30-day f/u	40
Complete 1-year f/u	
PRO	14
Imaging	8



Blinded DMSB Analysis

Characteristic	Group A (n-13)	Group B (n-13)
Age (years)	61 ±13	62 ±15
Female, %(n)	69% (9)	92% (12)
BMI (kg/m ²)	30.7 ± 6.2	28.2 ± 7.3
ASA Class 3, %(n)	92% (12)	77% (10)
Hernia length (cm)	10.1 ± 4.9	10.6 ± 6.8
Hernia width (cm)	4.96 ±2.33	4.38 ±0.77

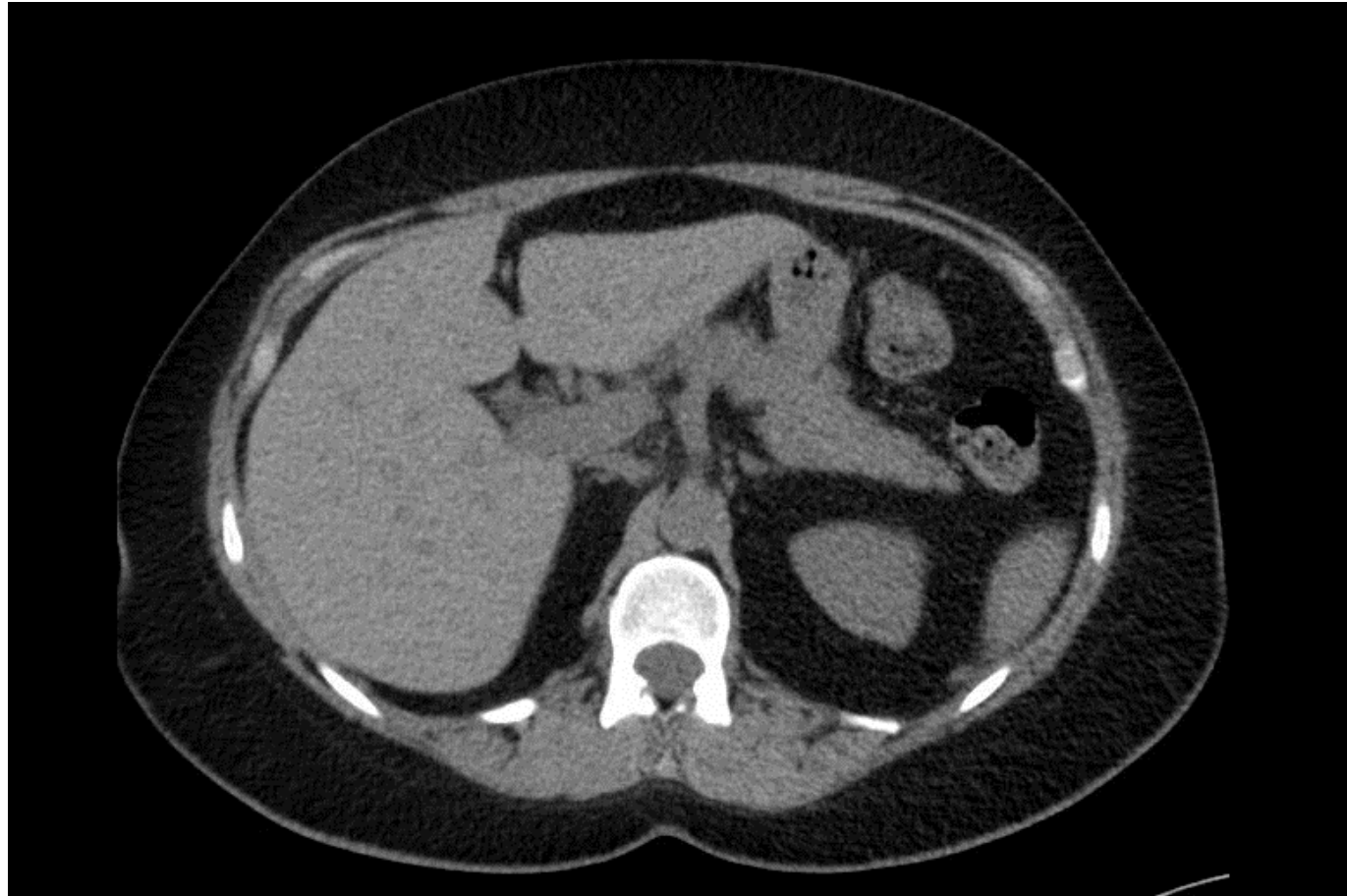
Blinded DMSB Analysis

Characteristic	Group A (n-13)	Group B (n-13)
Length of stay (days)	1.62 ±1.45	1.08 ±0.76
Readmission	1	0
Reoperation	1	0
SSO	0	5
SSI	0	0
SSOPI	0	0
Medical complications	0	0

Preop



Postop- 1 year



Summary

- Ongoing enrollment (NCT05599750)
- Multicenter
 - Vanderbilt, Novant Health, University of Florida, OSU
- Interim analysis planned at 52 patients enrolled



Thank you!



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