The Hernia Center:

What does it mean and what does it do for our patients and our region?

Chris Schneider, MD, FACS
General, Acute Care, Minimally Invasive and Robotic Surgery
Co-Director – Kettering Hernia Center at Soin Hospital

Goals

- Create a better understanding of the term “Hernia Center”
  - What it means and why it is important
  - What is “complex” and what is “straight forward” and why that is important
    - Recognizing the importance of clinical pathways for complex hernia
- Illustrate the benefits of a “Hernia” quaternary referral center
    - Patients, Network, and involved providers
- Define how the Hernia Center model addresses changes in care and reimbursement paradigms
- Generate a model for other disease processes

Defining the Problem

- >500,000 hernia repairs yearly in the US alone
- 15-55% occurrence after primary laparotomy AND laparoscopy AND robotic surgery
- Complications (recurrence, other injuries, mesh infections, other infections) related to hernia repair surgery account for **>15 Billion** dollars per year of healthcare cost
  - not including lost wages and quality of life
  - only partially including the definitive repair

Defining the Problem

- Recurrent Hernia repairs have higher rates of failure with each recurrence

  - Singhal, et. Al. Ventral Hernia Repair … JSLS. 2012

- QOL and SF-36 satisfaction scores decrease with each subsequent repair

- Cost from complications skyrockets

- Sir Cecil Wakely - “A Surgeon can do more for the community by operating on hernia cases and seeing that his recurrence rate is low than he can by operating on cases of malignant disease”

Defining the Problem

- Why are these statistics important?
- Is it just about recurrence?
- Is it just about morbidity?
- Can we sustain repeated failures with hernia repair?

Non-Sustainable Economically

- Ventral and Incisional Hernia: The Cost of Comorbidities and Complications
  - Surg Endosc 2016
  - University of Kentucky
  - $18,000 for hernia repair
  - Increases to >$80,000 for complications requiring hospitalization, continues to increase with each procedure required - WITHIN THE FIRST YEAR

Non-Sustainable Economically

- Profit is gone and operating at a loss when:
  - LOS > 5 days
  - Placement of Biologic Mesh
  - Re-operation is necessary (both complications as well as repeat hernia repair)
  - Re-admission

Rosen – JACS 2013


Bridging
The Gap
Healthcare
2015
Fee For
Service
Healthcare
2017
Fee For
Value

Triple Aim

- Improve Quality
  - Clinical Outcomes
  - Preventive Screenings
  - Health Status
  - Member Satisfaction

- Enhance Member Experience
  - Access to PCPs & Specialists
  - After hours care
  - Call Center Triage
  - Electronic Communication

- Reduce Cost
  - Aligned Financial Incentives
  - Shared Savings with Quality Gates
  - Medical, Prescription Drug and Behavioral Health in scope
  - Medical Home

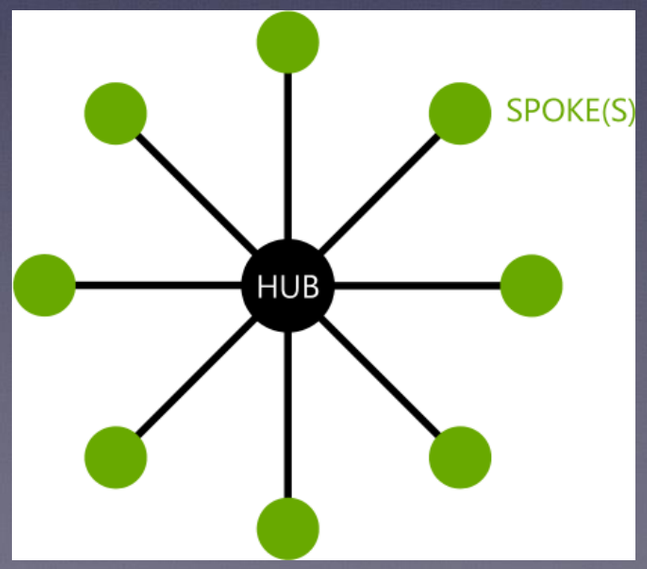
Where Does the idea of a “Hernia Center” fit in?

Where does a "Hernia Center" come in?

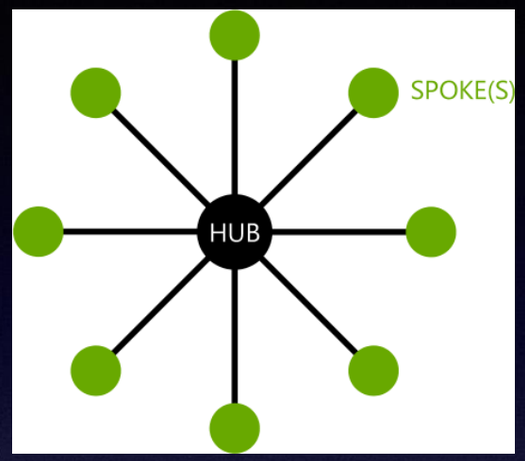
- Centralization of the most complex cases
    - With goal to reduce complications, hospital stay, costs (including recurrences) and improve patient satisfaction and outcomes
- Distribution of up to date and pertinent information regarding less complex hernia repair (and the complex as well)
- Creates local database for patient and outcome tracking
- Permits disease specific **quality** tracking
- Reduce cost of care for disease and globally

Definition of a Hernia Center

- 2 Parts -
  - 1) “Access Point” for all “non complex” hernia care throughout the region
  - 2) Complex abdominal wall reconstruction center (center of excellence)
  - “Hub and Spokes” model



Hernia Surgeons –Access Point



- At all hospitals within the network and in the region
- Allows for local care at local hospitals with surgeons who:
  - See new patient consults within 1 week
  - Are members of the Americas Hernia Society
  - Have a dedicated interest in hernia repair
  - Complete yearly CME for hernia specifically
  - Participate in Data Collection for local and national databases
  - Follow the hernia grading guidelines in order to steer the more complex hernia cases to the appropriate setting
  - Agree to participate in Quality monitoring and comply with evidence based care pathways.

Hernia Surgeons

- Dr Gary Anderson
- Dr Linda Bailey
- Dr Carey Brown
- Dr Greg Carpenter
- Dr David Deutsch
- Dr Michael Keller
- Dr Damian Lebamoff
- Dr Chris Madison
- Dr Warren Muth
- Dr Paul O’Brien
- Dr Brian Ondulick
- Dr Doug Paul
- Dr Girish Nagasetty
- Dr Carol Sawmiller
- Dr Chris Schneider
- Dr David Schumacher

Complexity Grading System

- European Guidelines
  - location based
- Ventral Hernia Working Group
  - Comorbidity based
- “Cancer stage” staging system
  - Designing a Ventral Hernia Staging System - Petro, et al. Hernia 2016

Hernia Center at Soin - Grading System

Inguinal Hernia:

- Grade 1 – first repair/primary repair
- Grade 2 – Recurrent hernia after anterior repair
- Grade 3 – Multiply recurrent after anterior repair, recurrent after posterior repair, recurrent with chronic inguinodynia

Ventral Hernia:

- Grade 1 – First time/primary repair
- Grade 2 – recurrent after suture repair, onlay, or inlay mesh repair, first time parastomal or difficult location (subxiphoid, suprapubic)
- Grade 3 – Recurrent after intraperitoneal mesh repair, Complex anatomical location (lumbar, subcostal), recurrence of difficult locations (recurrent parastomal, subxiphoid, or suprapubic), mesh infection/extrusion, entreocutaneous fistula, loss of abdominal domain

Hernia Center – Grading and Keeping Care Local

- Grade 1 – all surgeons approach these hernias independently but enter data to database or provide information to program coordinator to enter

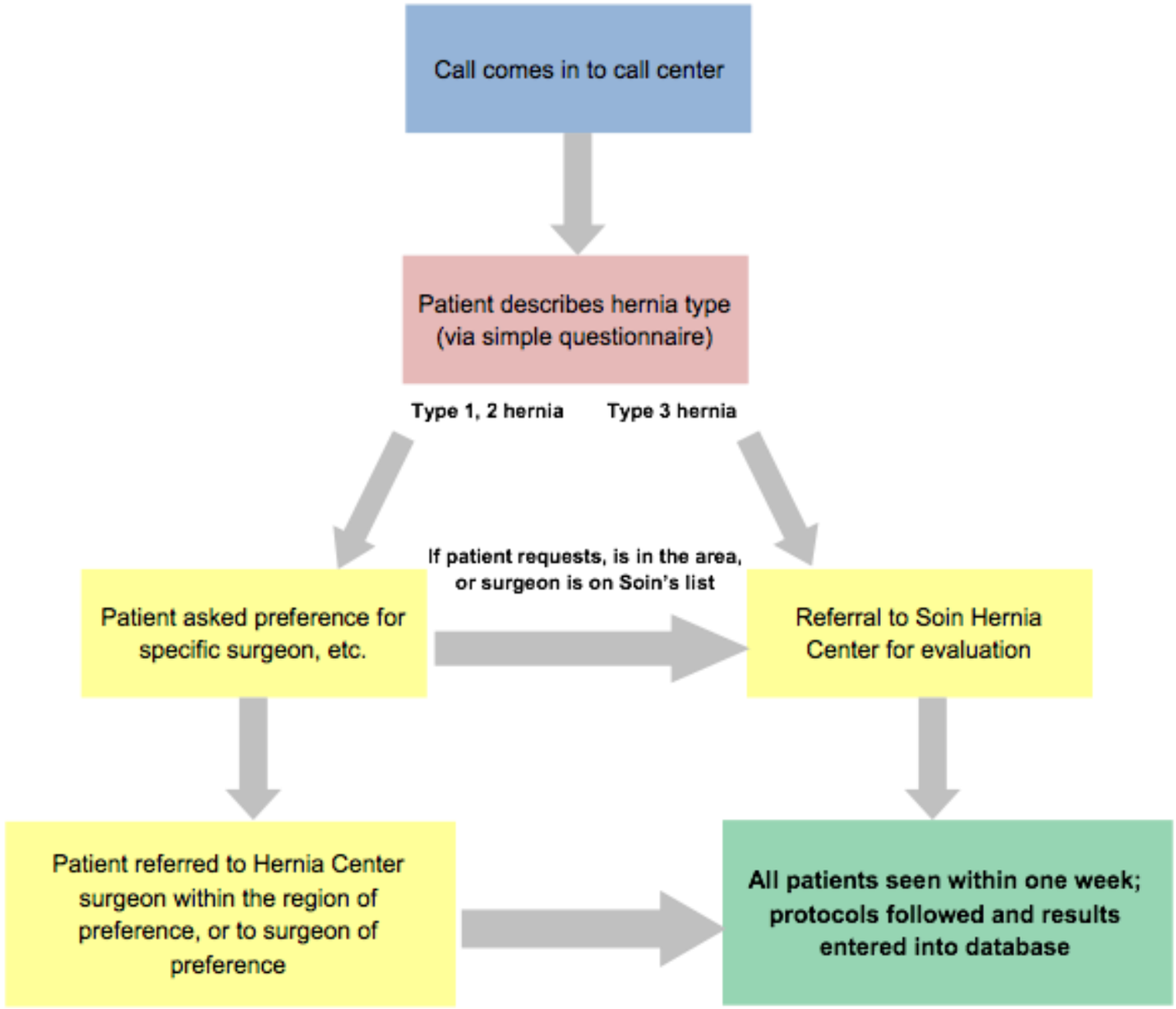
- Grade 2 – Collaborative approach between hernia center director and participating surgeon is strongly recommended to attempt to maintain consistent repair technique

- Grade 3 – managed at main hernia center hospital. Any surgeon may co-scrub these cases as desired.

Appendix C

Kettering Hernia Center

Call Process



Web-Based Questionnaire

1) Where on your body is your hernia located or do you know what "type" of hernia you have? (If known, please skip to question 3.)
2) Have you ever had a repair of a hernia within that location?

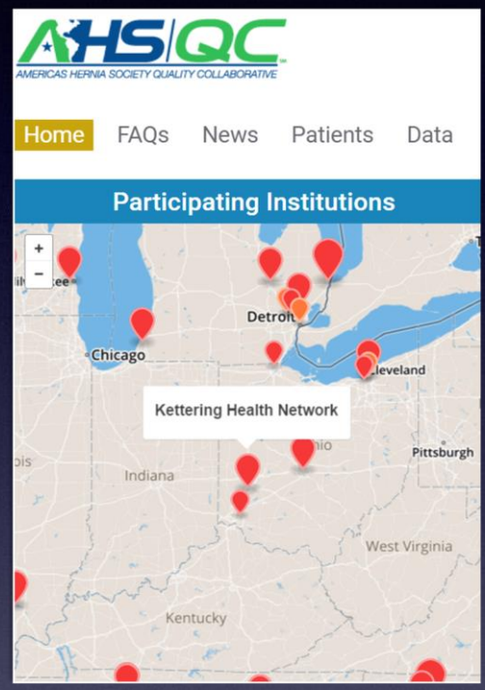
   -How many repairs? (If unknown, patient will be transferred to coordinator for scheduling options.)

3) Do you have a specific surgeon or hospital you would like to be seen at?
4) Where do you live?
5) Checklist— patient then goes to next surgeon in the rotation of the area of interest

Complex Abdominal Wall Reconstruction Center

Complex Abdominal Wall Reconstruction Center

- Complex abdominal wall repair program at Soin
  - Open Repair AND robotic options (including complex)
    - Quaternary referral center
- Patient centered, multi-specialty approach to hernia repair
- American Hernia Society Quality Collaborative (AHSQC national database)
- Center of Excellence Dedication (Pending completion)
- Chris Schneider, MD and Brian Ondulick, DO - Co Directors



Complex Abdominal Wall Reconstruction Center

- Only Existing Location in Dayton
  - Only prospective “Center of Excellence” in region
- No need to leave the region/city for these repairs
  - (Previously had to go to Columbus or Cleveland)
  - Members of National/International Research collaborative
  - Offers Robotics and complex reconstructions

Complex Abdominal Wall Reconstruction Center

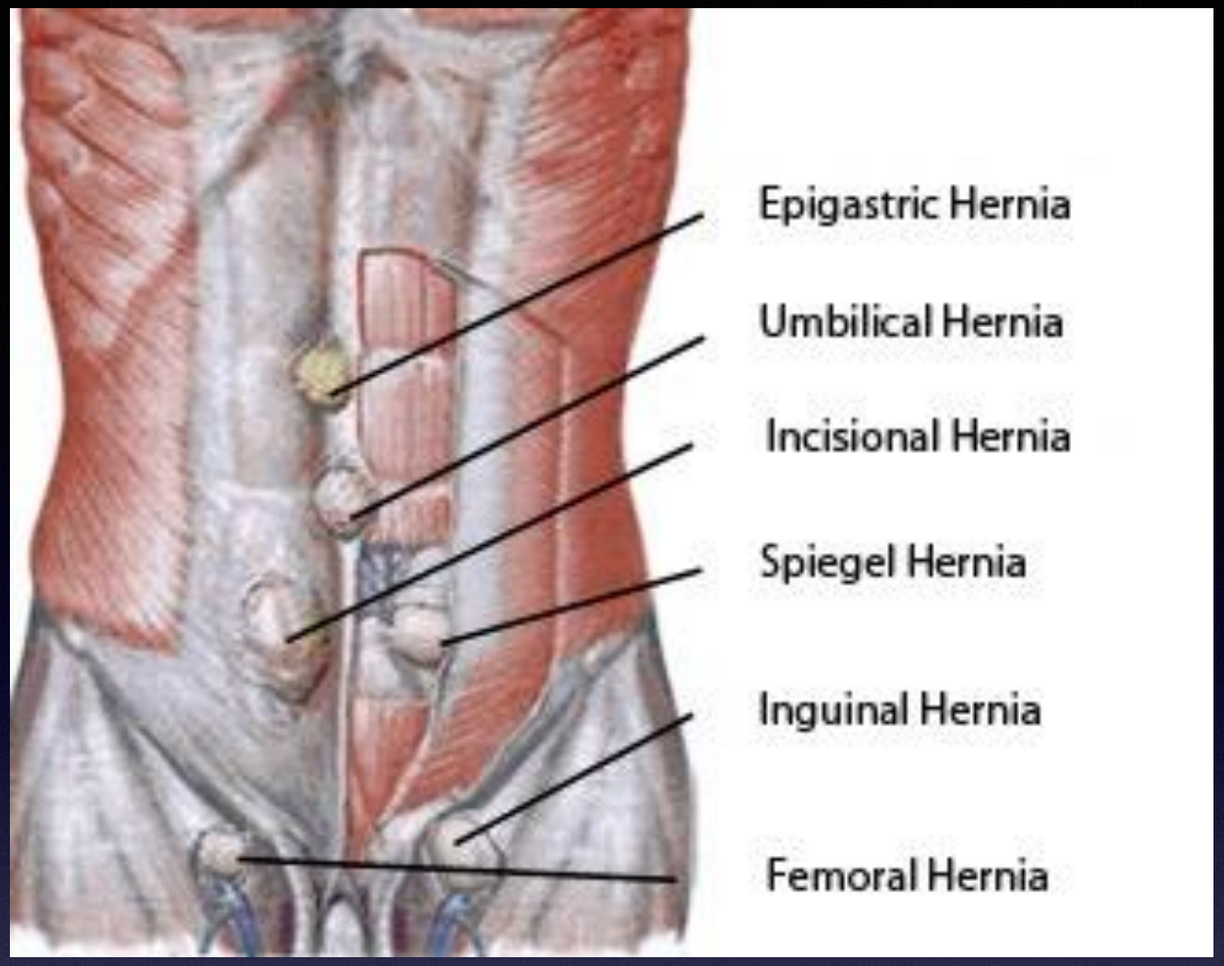
- Multi- disciplinary
- Anesthesia - TAPP blocks, epidurals, pain mgmt
- Cardiology, IM, Pulmonary Medicine - patient optimization pre - op, smoking cessation, diabetes control
- Nutrition, PT, OT - both pre and post op
    - Carbohydrate loading, post op mobilization

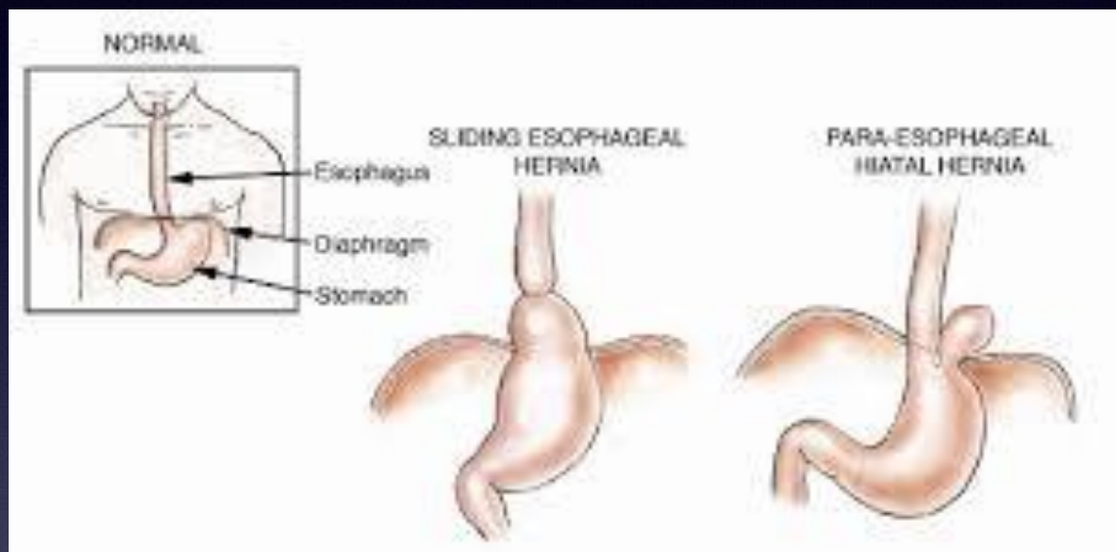
Complex Abdominal Wall Reconstruction Center

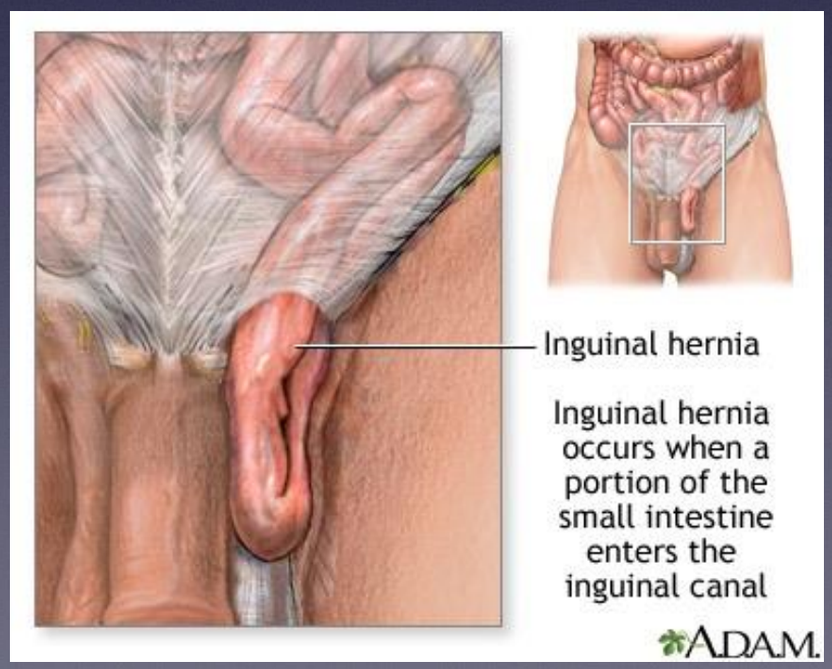
- **Care Coordinator (Lauren Sweet) and MA's (Ami Robinson, Jen Ahrens) - assure protocols followed, maintain point of contact with patients [shown to improve outcomes and satisfaction]**
  - **Ramshaw et. al - 2015**

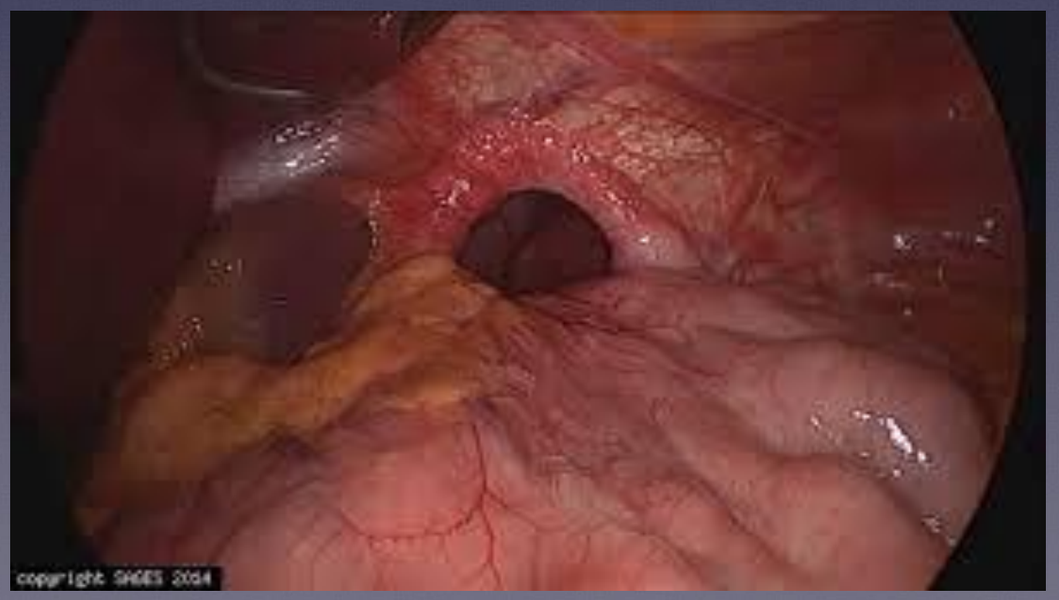
Complex Abdominal Wall Reconstruction Center

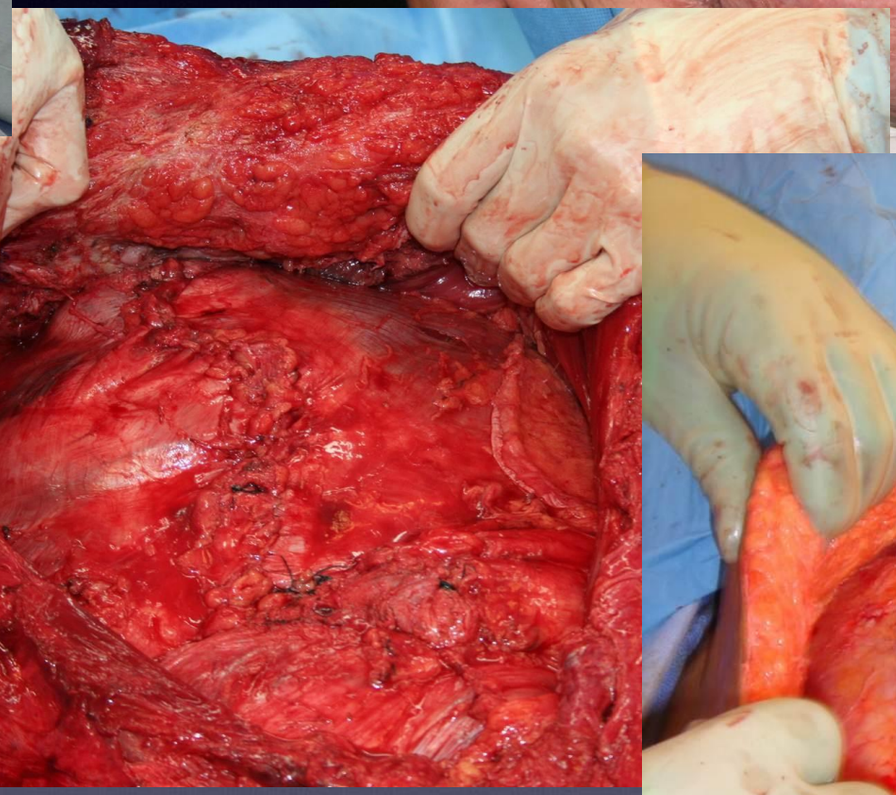
- Complex tissue reconstructions
    - Even if the word “hernia” doesn’t come up, if the abdominal wall, groin, flank, etc. looks “bad”, we take care of it
- Flank, stomal, **hiatal, paraesophageal**, diaphragmatic, incisional, ventral, fistulas of the abdominal wall, chronic infections,
    - Staged Repairs - when necessary


Epigastric Hernia
Umbilical Hernia
Incisional Hernia
Spiegel Hernia
Inguinal Hernia
Femoral Hernia


NORMAL
Esophagus
Diaphragm
Stomach
SLIDING ESOPHAGEAL HERNIA
PARA-ESOPHAGEAL HIATAL HERNIA


Inguinal hernia
Inguinal hernia occurs when a portion of the small intestine enters the inguinal canal
A.D.A.M.


copyright SAGES 2004

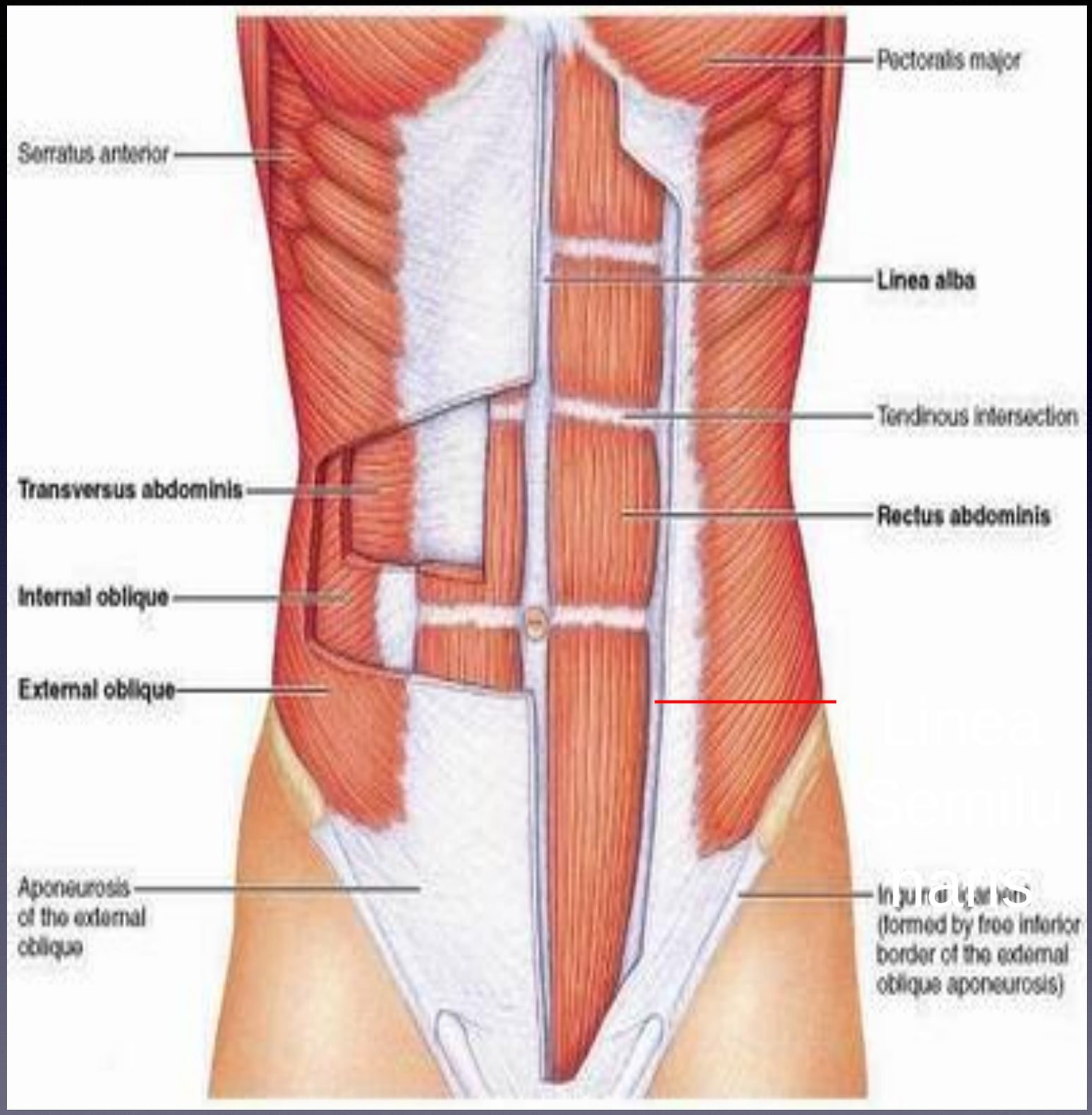


Pre-operative Preparation

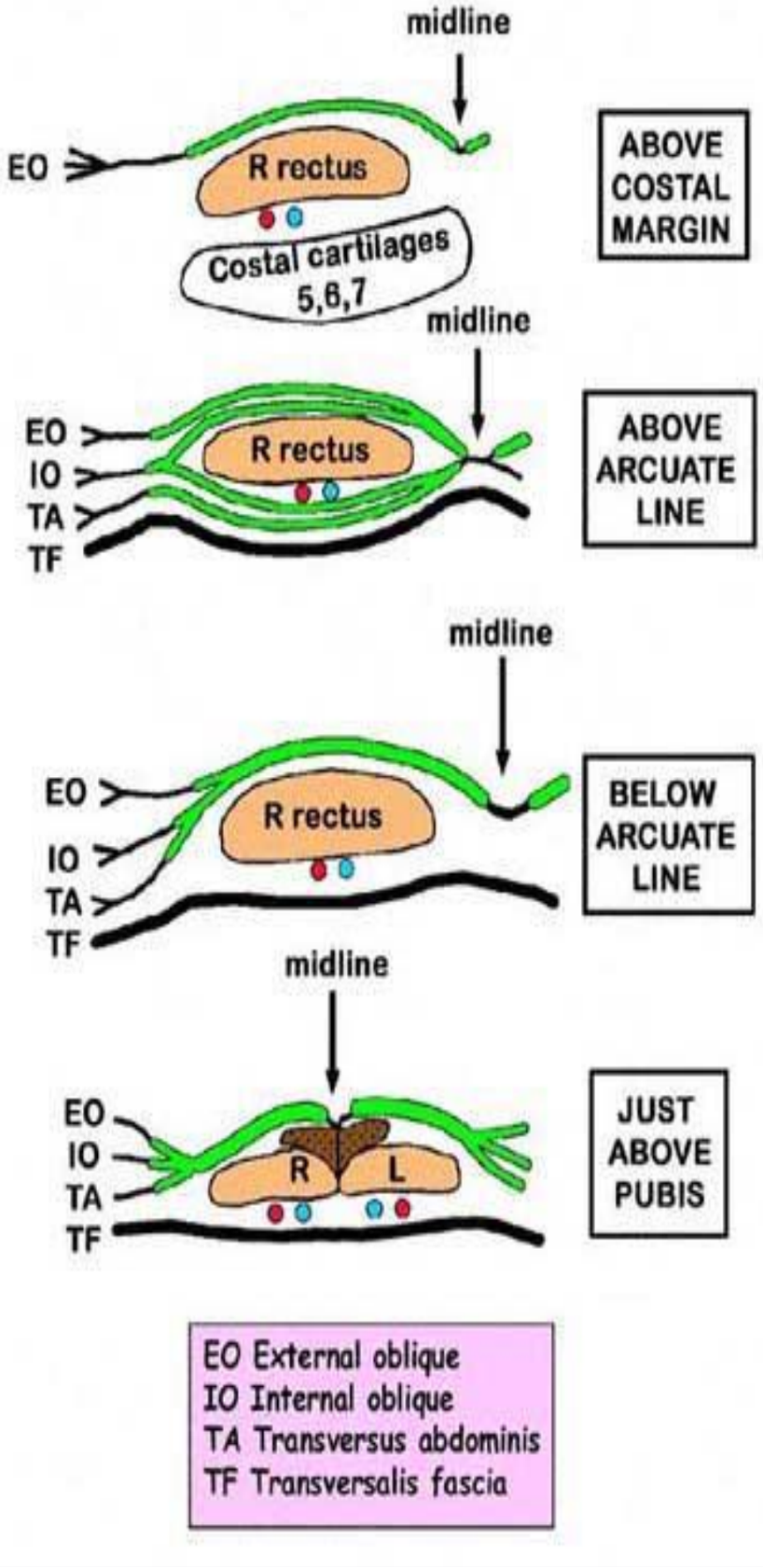
- 1) 1 month of smoking cessation - blood testing
- 2) Weight loss to BMI <40
- 3) Diabetes Control to A1C < 8
- 4) 1 week Mupirocin to mucous membranes
- 5) 1 week Hibiclens showers
- 6) 48 hours of carbohydrate loading
- 7) 48 hours of acetaminophen loading
- 8) Pre incisional Transversus Abdominus Plane (TAP) blocks

Cobb - JACS 2015

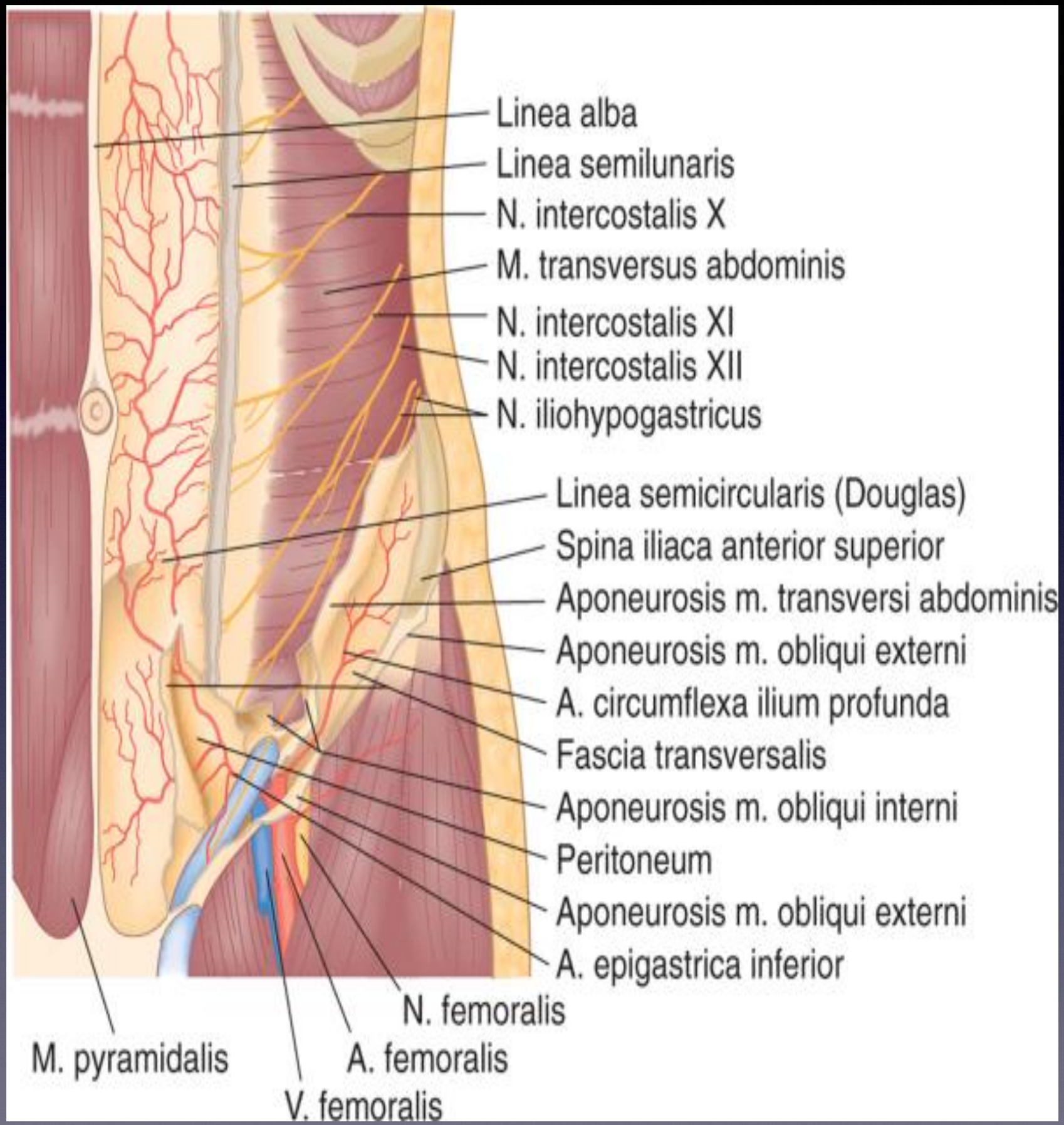
Techniques for Repair

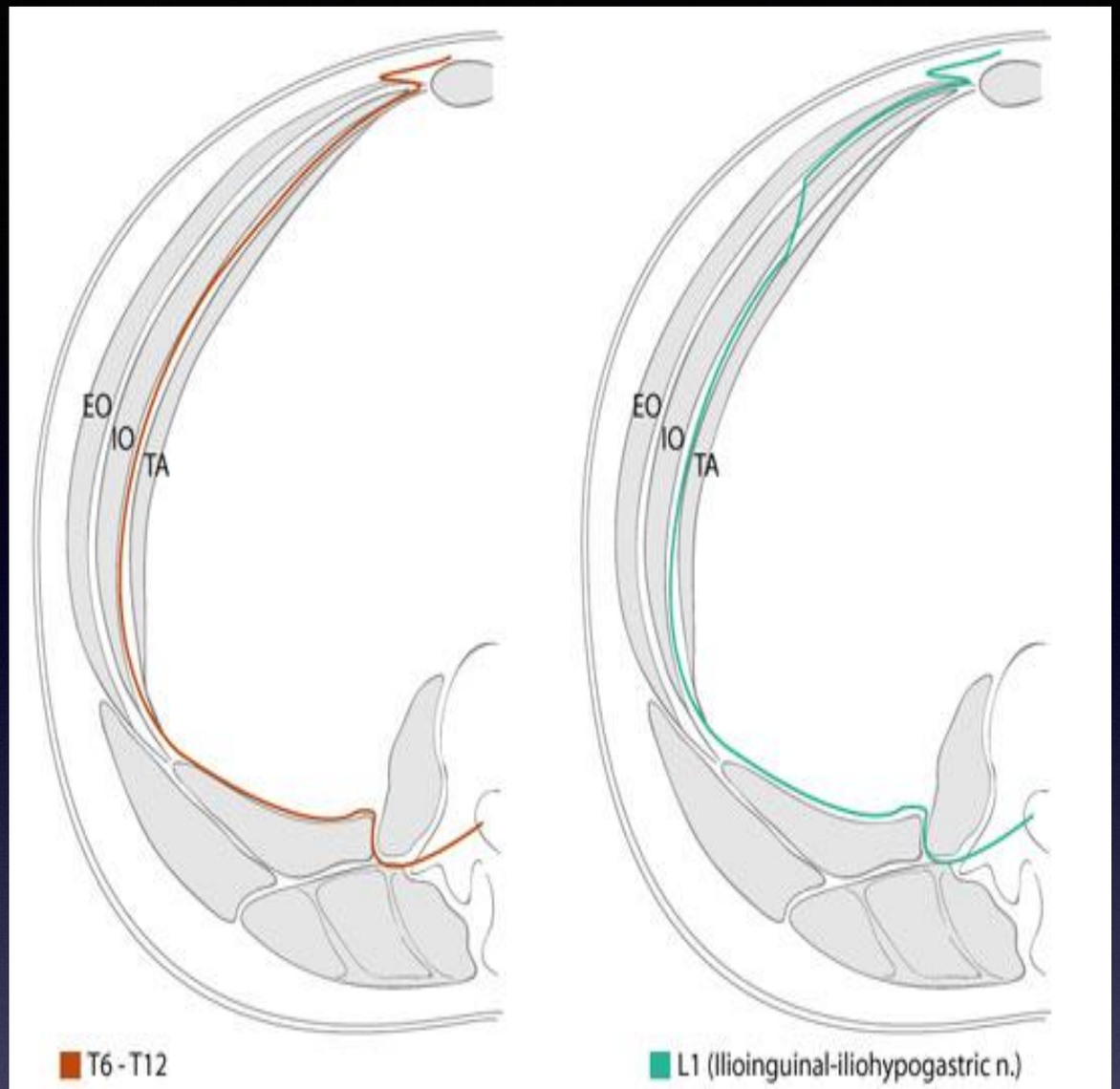

Pectoralis major
Serratus anterior
Linea alba
Tendinous intersection
Transversus abdominis
Rectus abdominis
Internal oblique
External oblique
Aponeurosis of the external oblique
(formed by free inferior border of the external oblique aponeurosis)

ABDOMINAL WALL MUSCLES
RECTUS SHEATH



EO External oblique
IO Internal oblique
TA Transversus abdominis
TF Transversalis fascia


Linea alba
Linea semilunaris
N. intercostalis X
M. transversus abdominis
N. intercostalis XI
N. intercostalis XII
N. iliohypogastricus
Linea semicircularis (Douglas)
Spina iliaca anterior superior
Aponeurosis m. transversi abdominis
Aponeurosis m. obliqui externi
A. circumflexa ilium profunda
Fascia transversalis
Aponeurosis m. obliqui interni
Peritoneum
Aponeurosis m. obliqui externi
A. epigastrica inferior
N. femoralis
M. pyramidalis
A. femoralis
V. femoralis


EO
IO
TA
EO
IO
TA
T6 - T12
L1 (Ilioinguinal-iliohypogastric n.)

First Questions with Complex Repairs

Basic Questions with Complex Hernia Repair

- 1st : What are the patient goals?
  - i.e. do you even need to do the repair?
- 2nd : Does the patient desire a “functional abdominal wall”
- 3rd : What is a “functional abdominal wall”
- 4th: Can you get the midline closed
  - And does this matter even?
- 5th: How do I get the midline closed when it isn’t easy
  - And is the payoff/reward worth the effort/risk
- 6th : Is there anything I can do before the operation?

Tenets of Repair

Overall Tenets of Repair

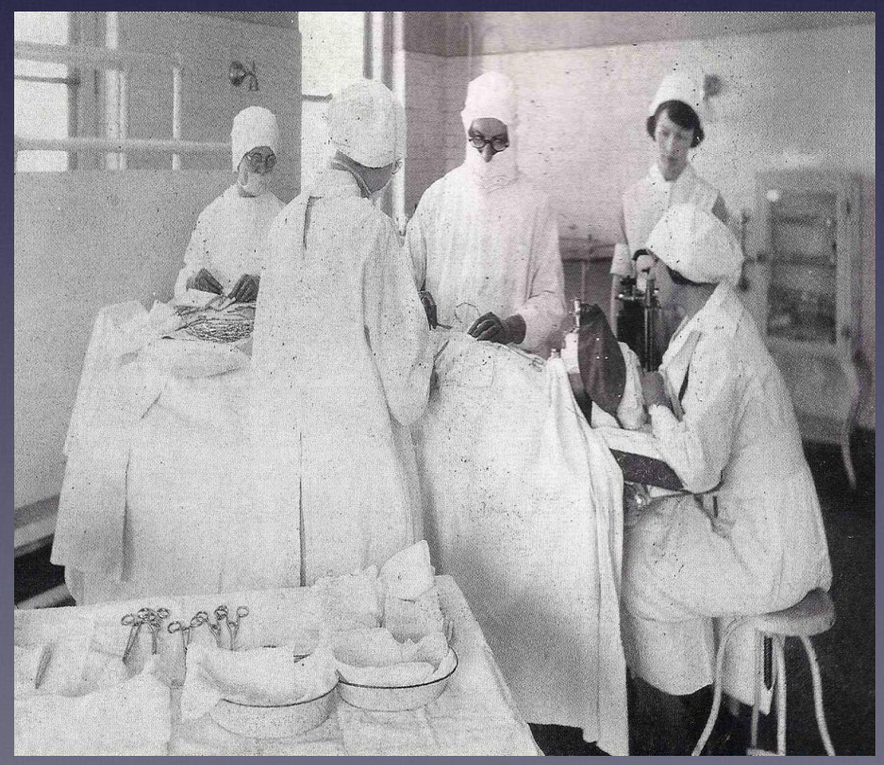
- Achieve the goals pre-operatively decided with the patient
- Low Recurrence rate
- Cost Efficient?
- Provides Quality of Life

Repair Options and Techniques

The “Open” repair …

Suture Repair

- Vest over pants
- Mayo Duplication
- “Simple” Suture repair
- “Smead-Jones”



Suture Repair

- Why to do it (technically there ARE reasons)
  - ?????
  - Mission field
    - During another procedure…
    - Small defects (<2 cm?, <3 cm?)
- Why not to do it
  - >50% recurrence
  - Availability of mesh

Cochrane Database Syst Rev. 2008 Jul 16;(3)

Hernias > 10 cm^2

- 10 yr cumulative recurrence
  - Suture 67%
  - Mesh 17% (p=0.003)

- So if it is first repair and bigger than 3x3 cm it needs mesh

Ann Surg 2004 240(4)

The “More Complex” hernias


YOU DON'T
KNOW ME
FEDERAL WITNESS
PROTECTION PROGRAM

Goal: Abdominal closure WITH "physiologic" tension

The biology of hernias and the abdominal wall

Michael G. Franz

- Too much tension and the wall will pull, creating ischemia and recurrence
- Too little tension you get poor collagen deposition and loss of strength

QOL and function? – Midline fascial closure

- When compared to bridging, core muscle hypertrophy occurs when midline recreated both with components separation, TAR, and primary closure [1]
- Closing fascia and returning muscles to midline recreates morphometric body characteristics and restores fascial area [2]

1. De Silva GS, et al. **Comparative Radiographic Analysis of Changes in the Abdominal Wall Musculature Morphology…** *J Am Coll Surg*. 2014 Mar 218(3):353-7

2. Lisiecki J, et al. **Abdominal Wall Dynamics After Component Separation Hernia Repair**. *J Surg Res.* 2014 Aug: 743-4.

Midline Closure - conclusion

- Closing fascia in the midline should be the goal for all ventral hernias in which a “functional abdominal wall” is desired

- Tension on the midline wound must be appropriate, too loose and too tight are both negative

- Quality of life is at least “as good” but likely “better” when you get the fascia closed without bridging

- Now how do you get there…

Complex ventral reconstruction

When it just won’t come together…

Loss of Abdominal Domain

Even with advanced reconstruction, it doesn’t appear we will be able to get these closed.

Pre-operative management

- Loss of domain
  - Cannot fit everything back inside due to complexity/chronicity of disease
  - > 1/3 of the abdominal contents outside of the abdominal fascia
    - Cannot just “shove” it all back in
    - Must be cautious of pre-operative conditioning
      - COPD – worsened by pressure on the diaphragm when bowel returned to abdomen
      - Weak from immobility
      - Post operative compartment syndrome – monitor peak airway pressures at closing

Progressive Pre-operative Pneumoperitoneum

Progressive Pre-operative Pneumoperitoneum

- Exactly what it says it is. Blow air into the abdomen before definitive surgery
- Staged approach
  - Laparoscopy with insertion of Peritoneal Dialysis catheter
  - Placement of IVC filter (IVC compression leads to significant risk for DVT/PE)
  - Daily insufflation with medical grade air until intolerable
  - 7-10 days, then operate, remove catheter, hernia repair

Progressive Preoperative Pneumoperitoneum for Hernias with Loss of Domain

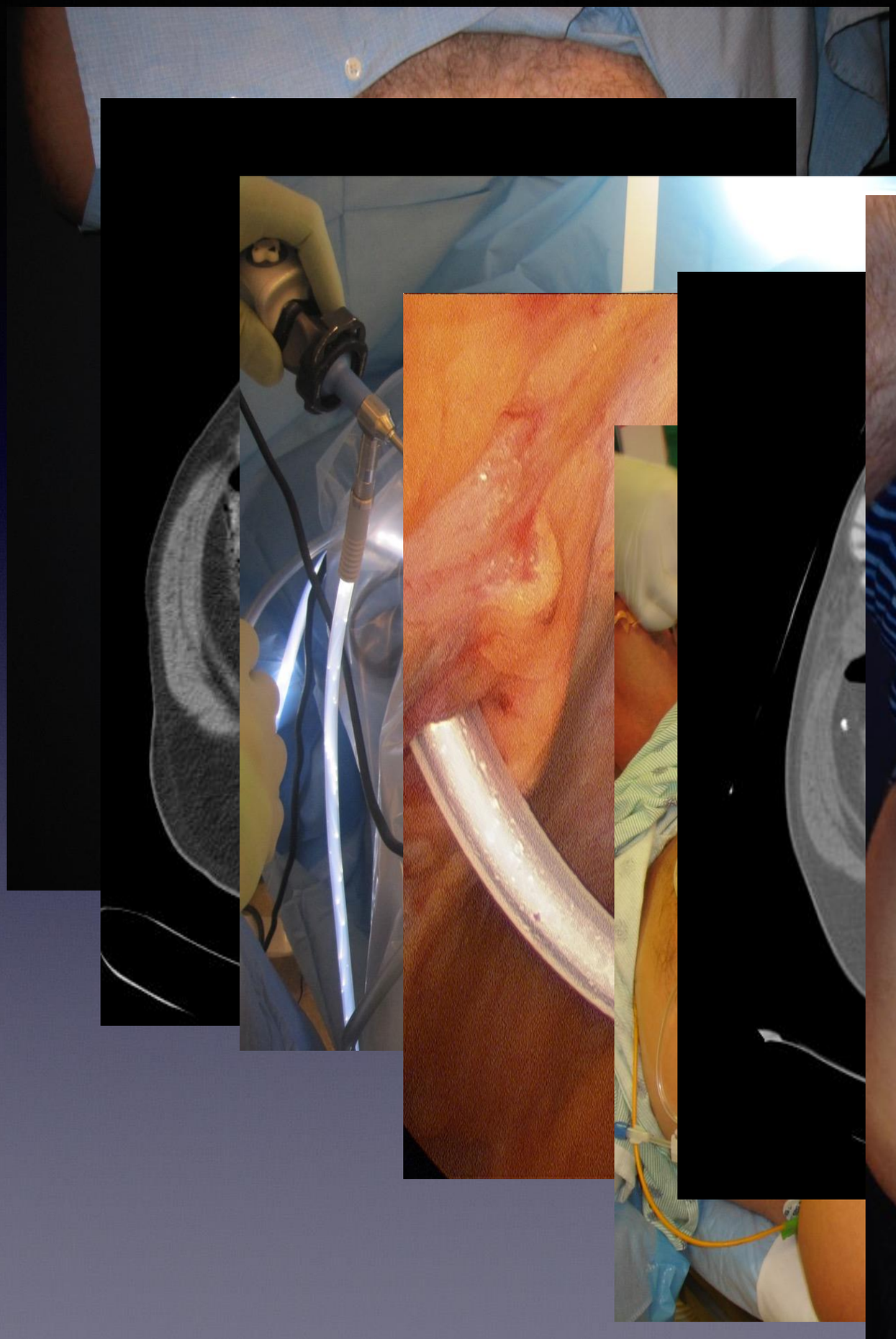
R. STEPHEN MCADORY, M.D., WILLIAM S. COBB, M.D., ALFREDO M. CARBONELL, D.O.

From the Hernia Center, Department of Surgery, Greenville Hospital System University Medical Center, Greenville, South Carolina

- What it does:
- 1) Increases the size of the fascia via persistent “stretching”
- 2) Allows for pulmonary conditioning
- 3) Decision on whether to proceed to repair
- 4) Stretches hernia sac and some of the adhesions

Dumont F, et al. **Progressive Pneumoperitoneum Increases the Length of Abdominal Muscles**. *Hernia*. 2009 Apr; 13(2): 183-7.

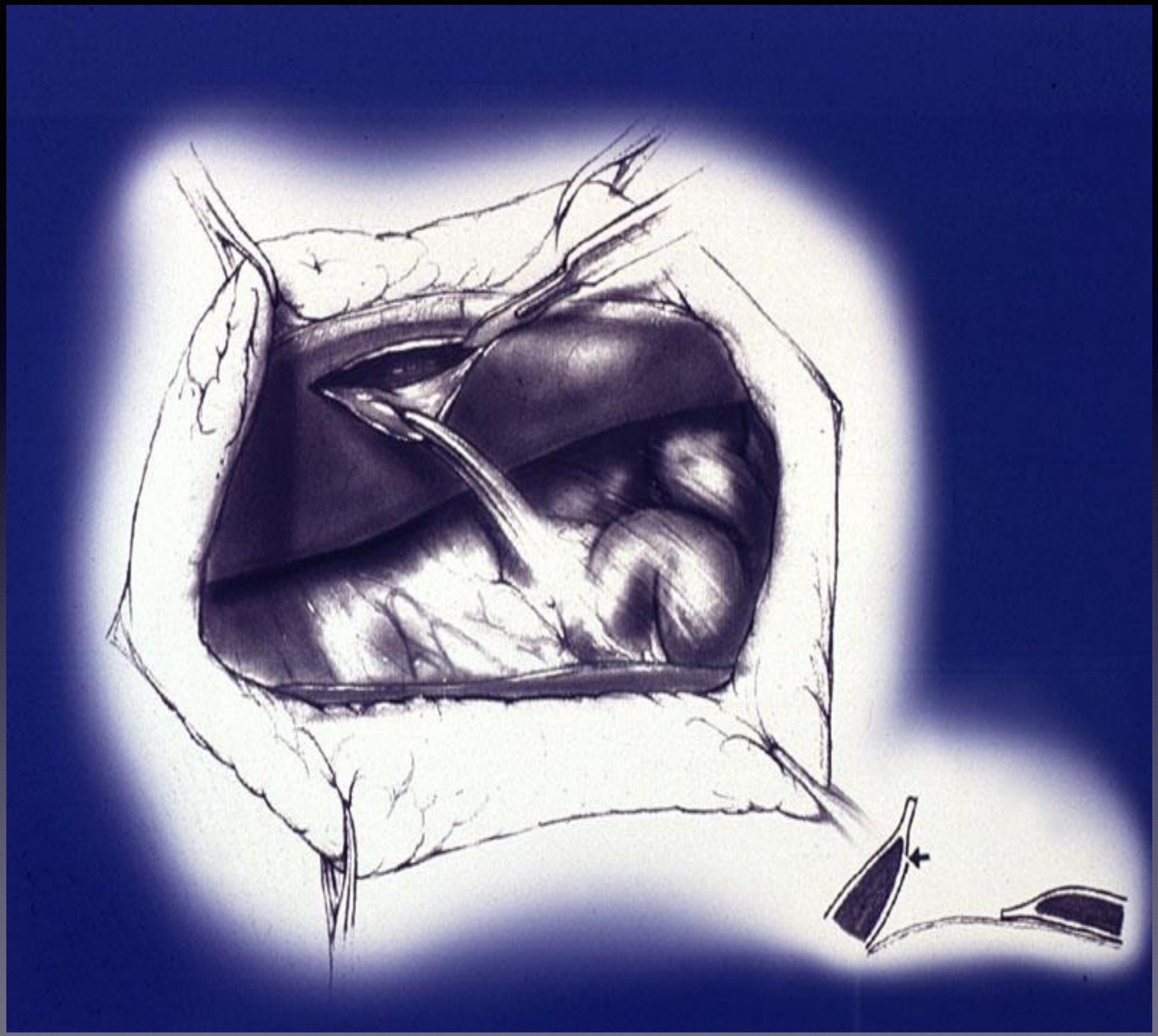
Moreno IG. **Chronic Eventrations and Large Hernia: Pre Operative Treatment by Progressive Preoperative Pneumoperitoneum: Original Procedure**. *Surgery* 22:945-53



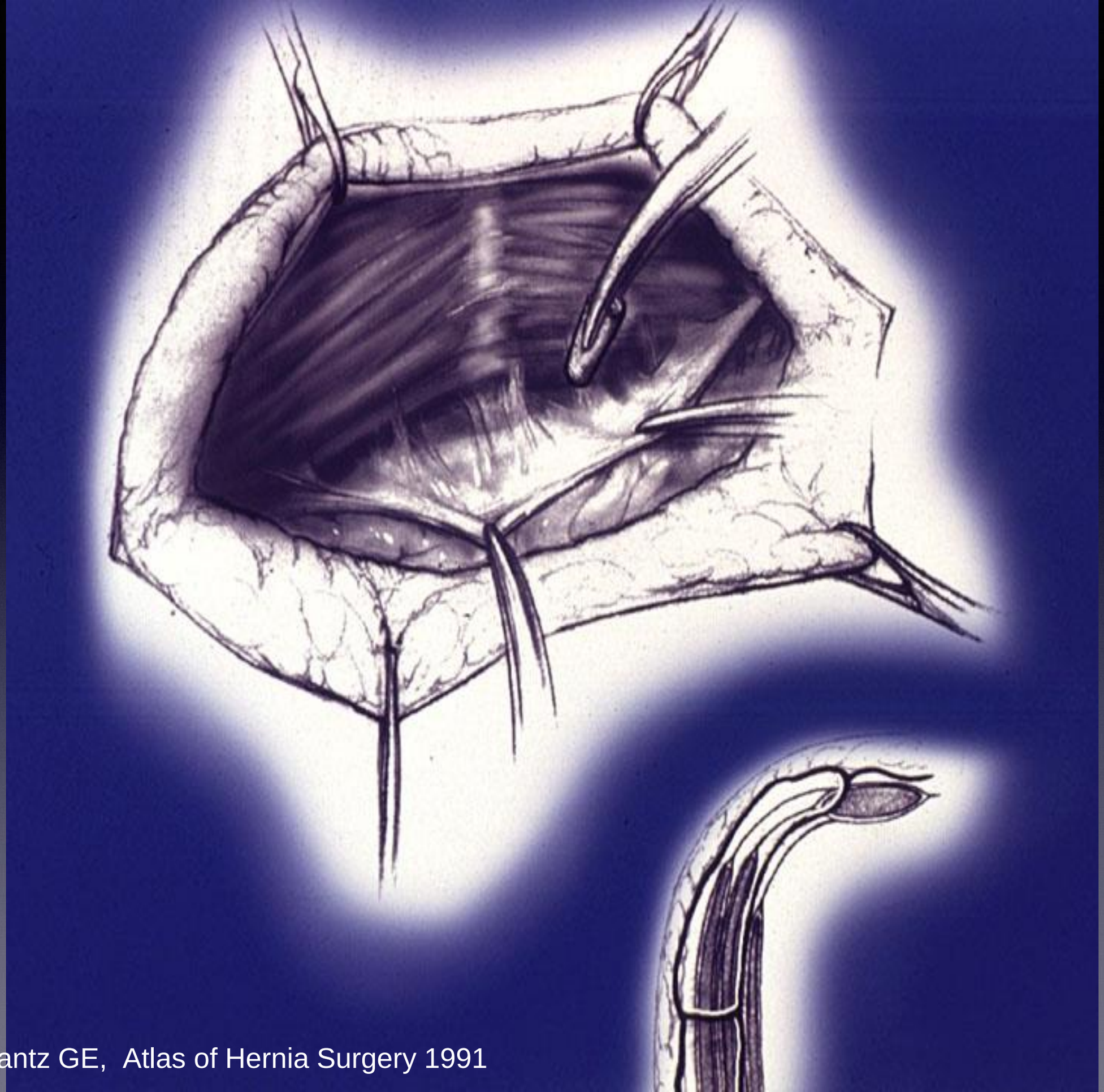
Techniques for Repair

The Gold Standard

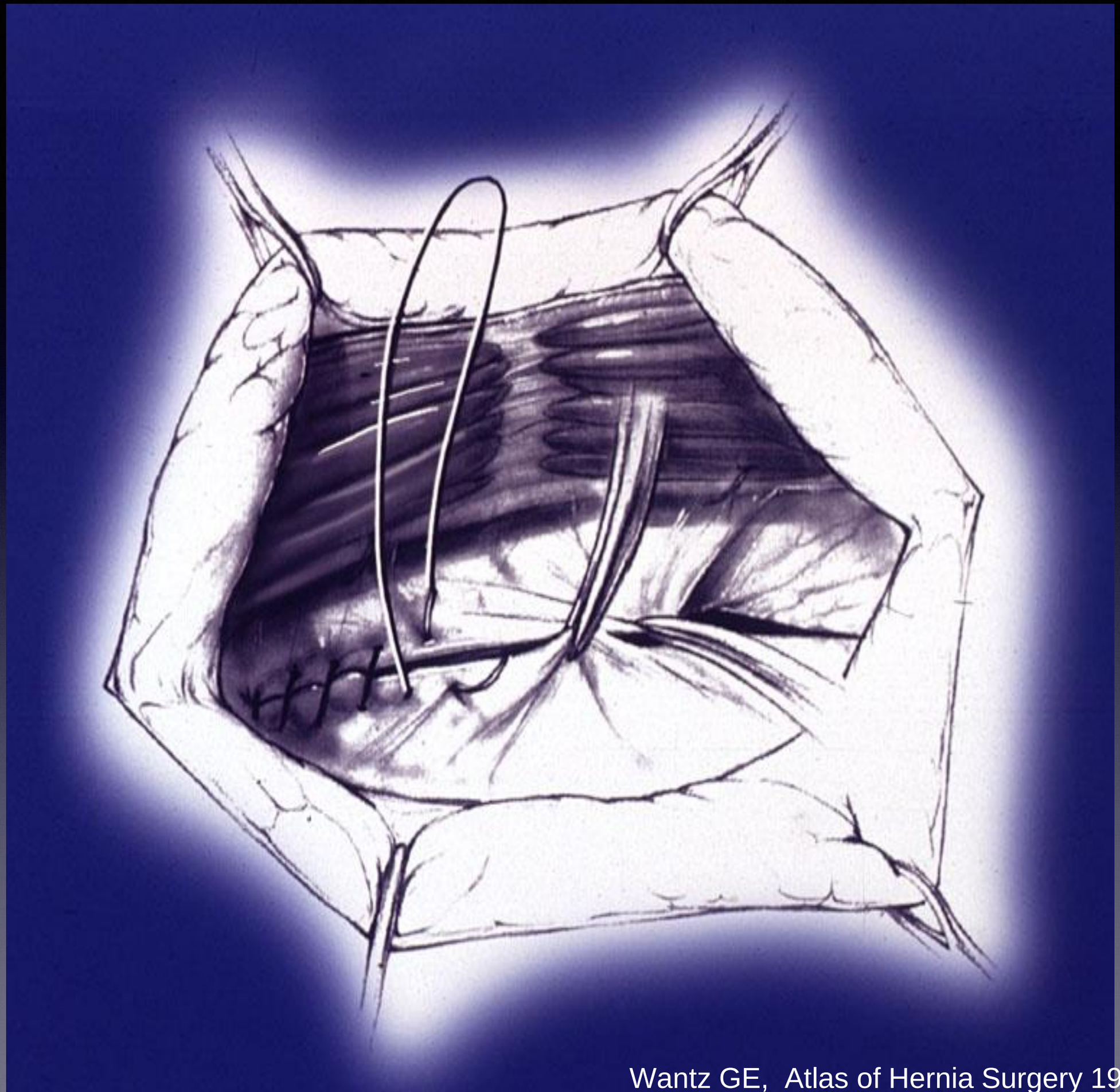
Rives Stoppa Wantz Repair



Wantz GE, Atlas of Hernia Surgery 1991

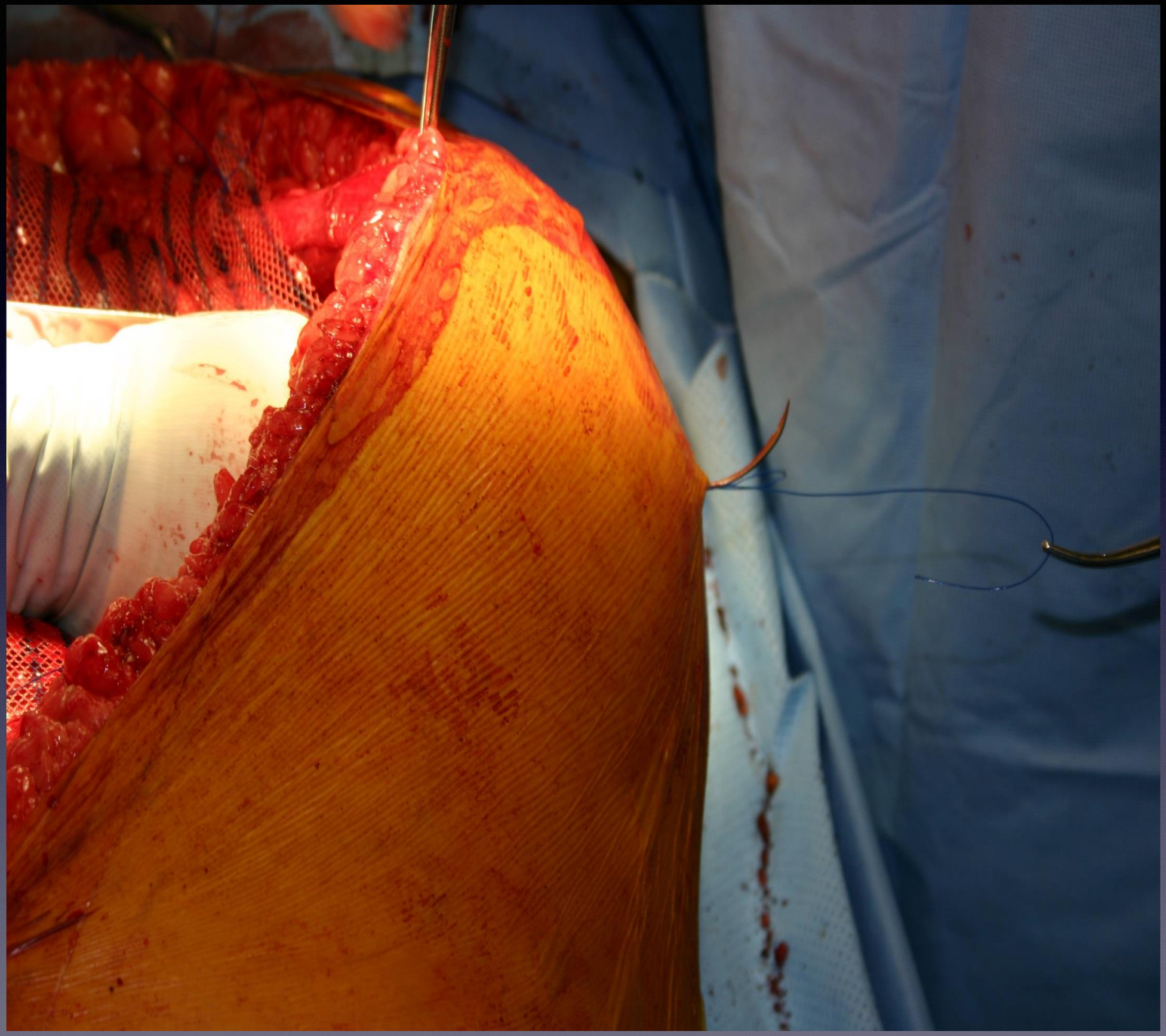


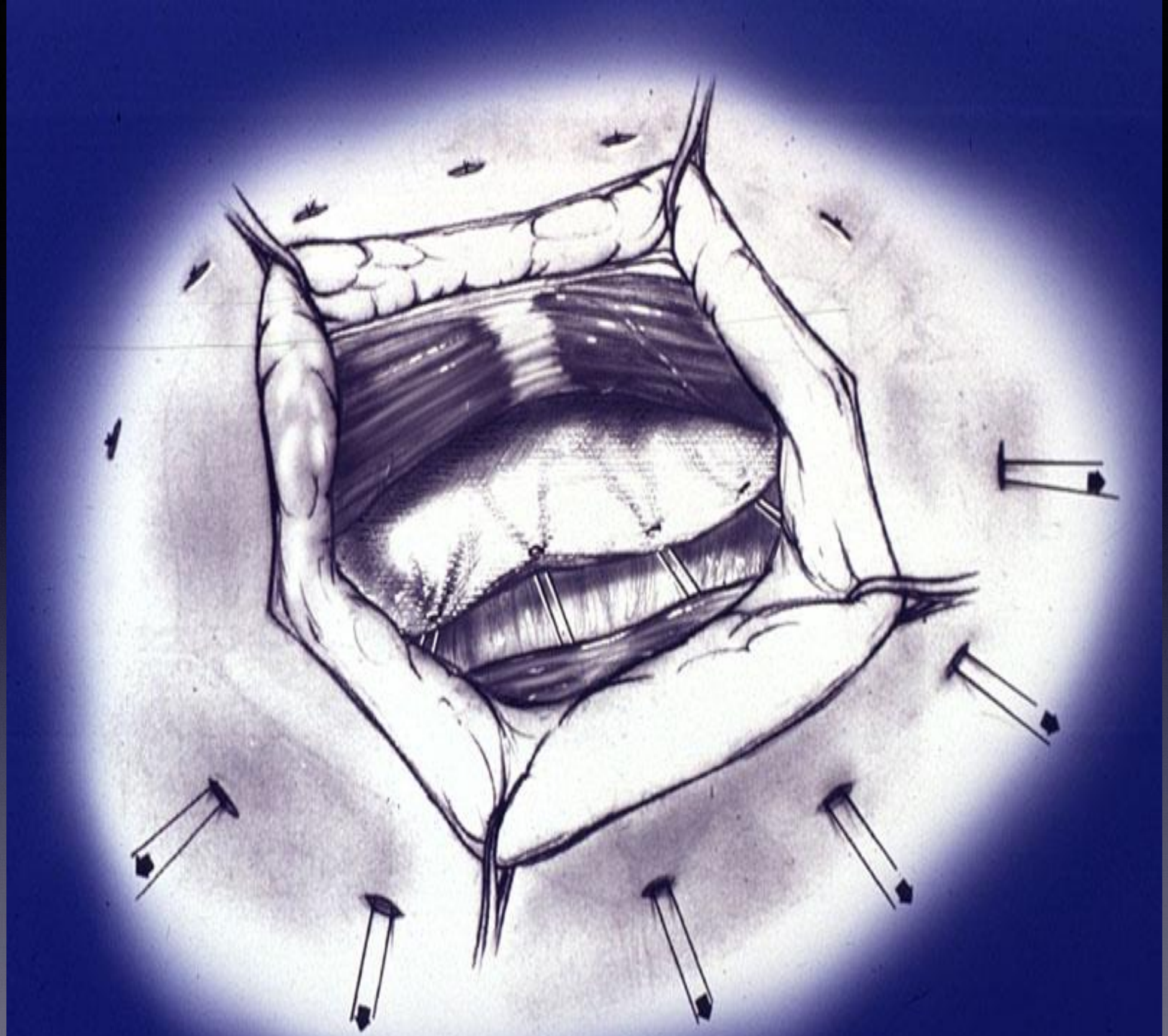
Wantz GE, Atlas of Hernia Surgery 1991



Wantz GE, Atlas of Hernia Surgery 1991

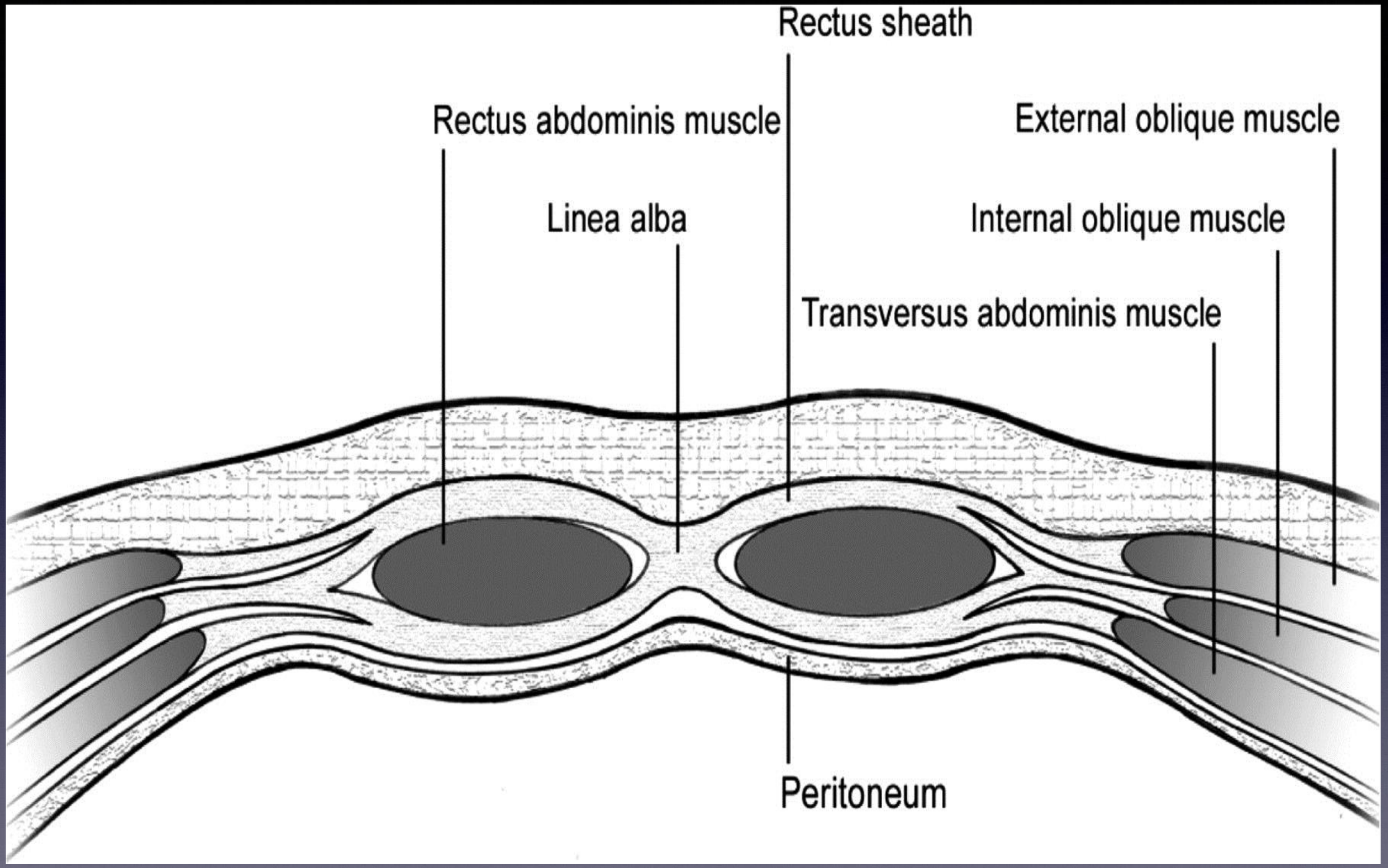
Wantz GE, Atlas of Hernia Surgery 1991





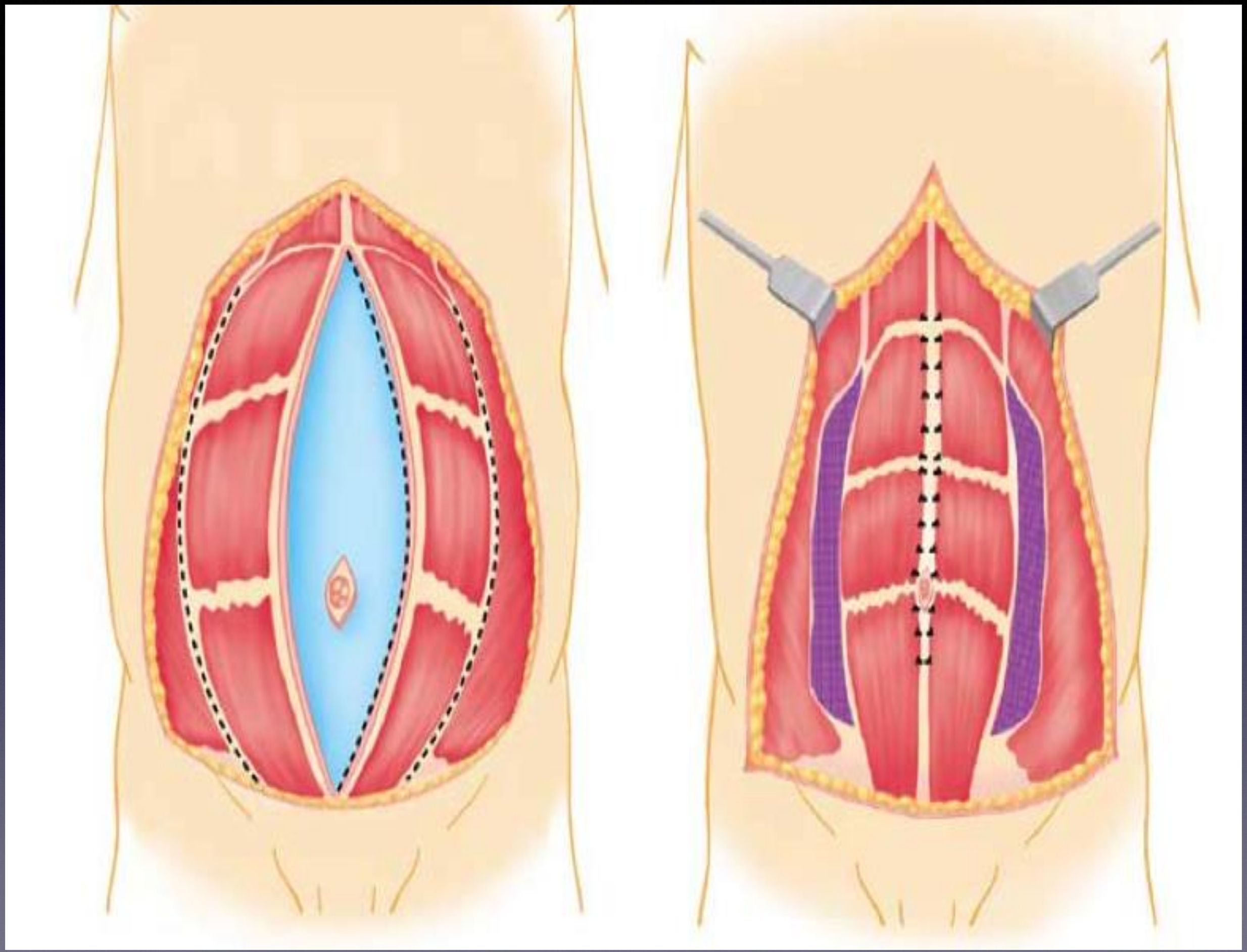
Wantz GE, Atlas of Hernia Surgery 1991

Components Separation and Transversus Abdominis Release (TAR)

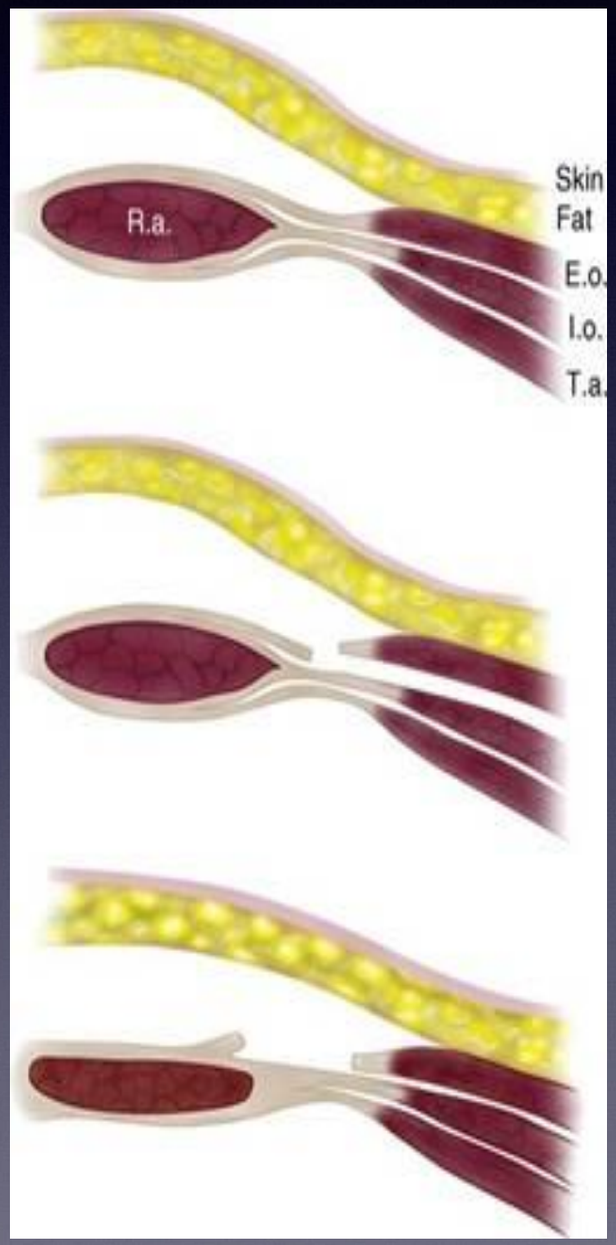

Rectus sheath
Rectus abdominis muscle
External oblique muscle
Linea alba
Internal oblique muscle
Transversus abdominis muscle
Peritoneum

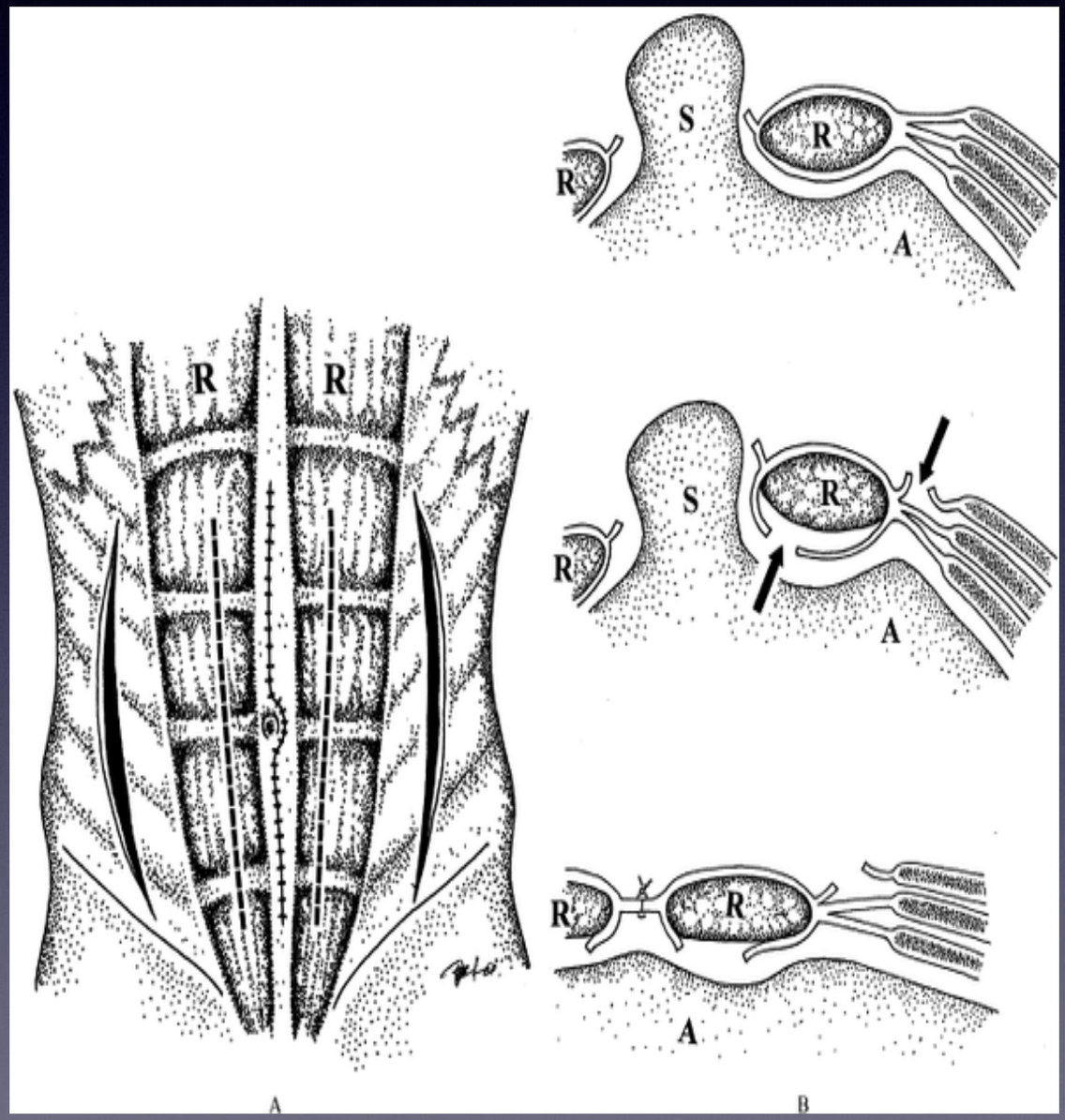
Anterior Components Separation

- Utilizes the mobility provided by separation of external oblique fibers at their medial most point.
  - 5-8 cm medial mobility per side separated
- Can also add incision of posterior rectus sheath to gain length
  - Adds 1.5-2 cm of medial mobility per side separated
  - Total of up to ~20 cm advancement possible

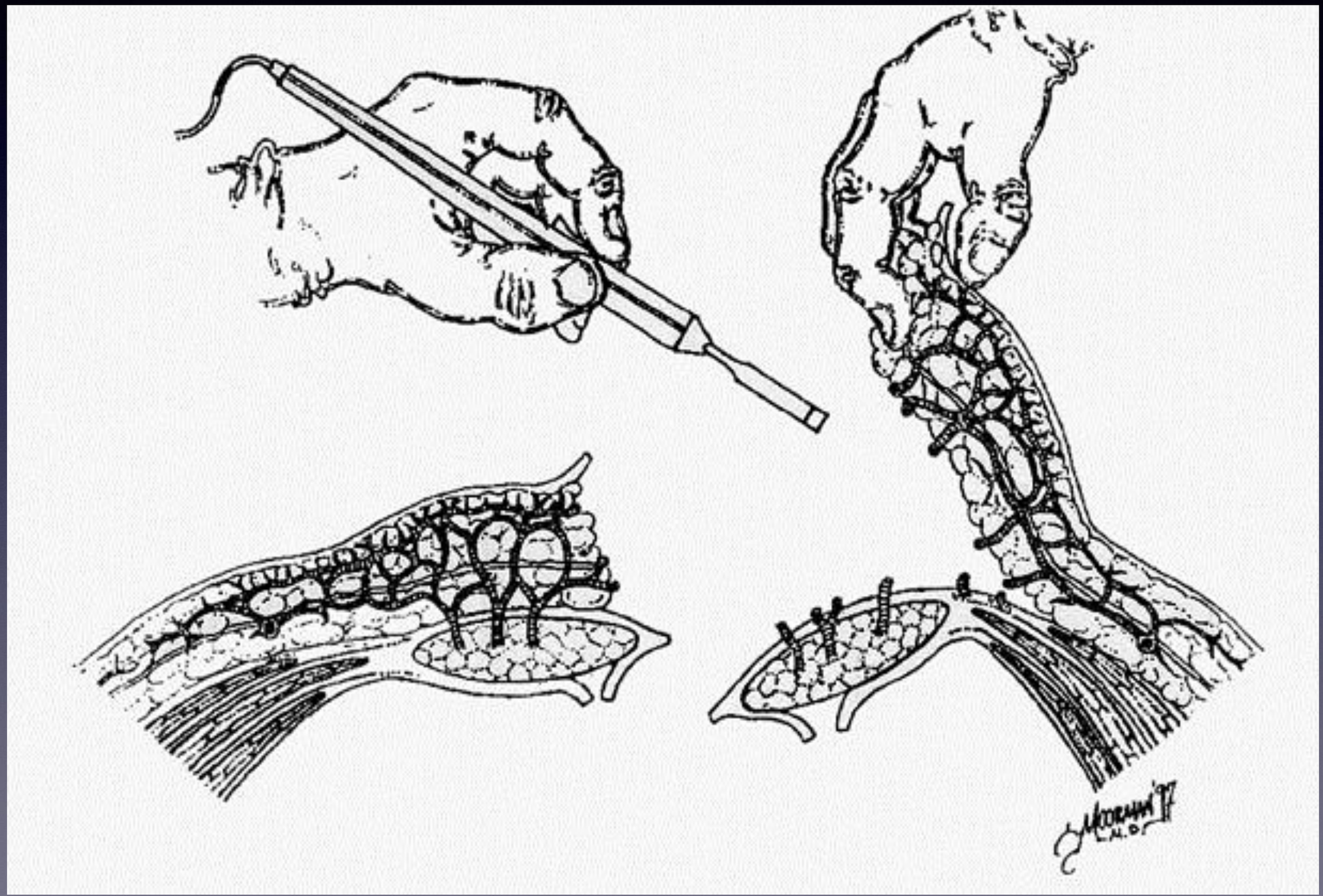


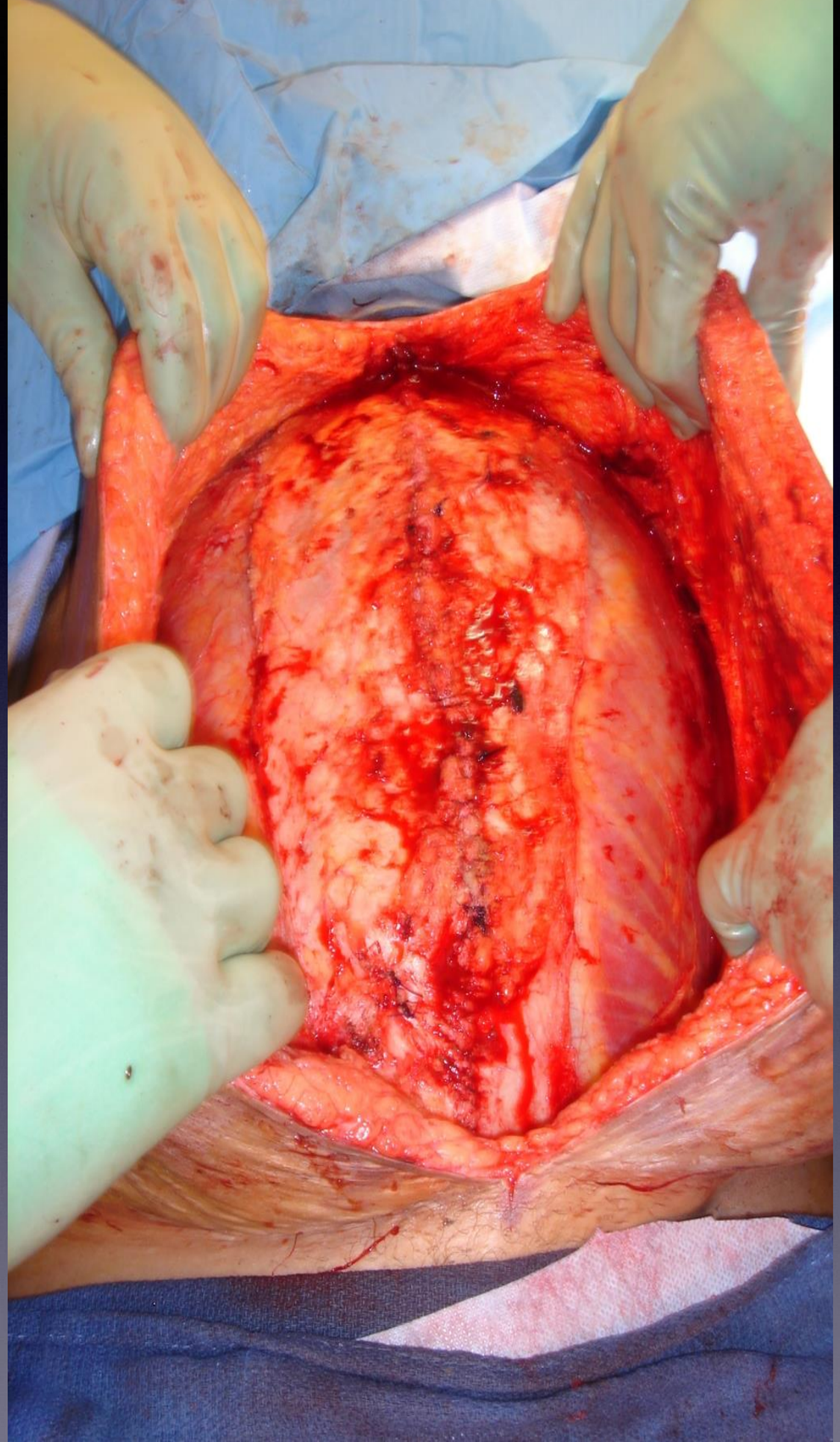
Anterior Components Separation





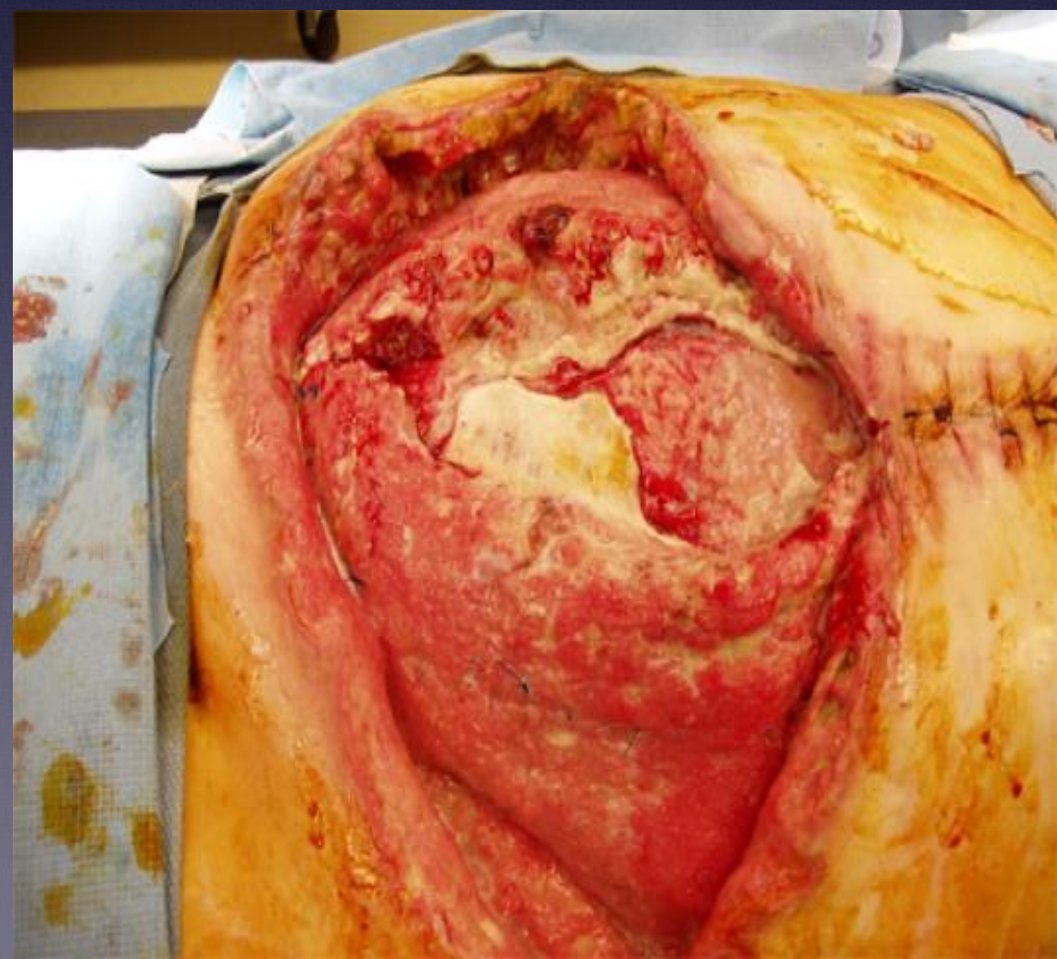
Anterior Components Separation





Anterior Components Separation

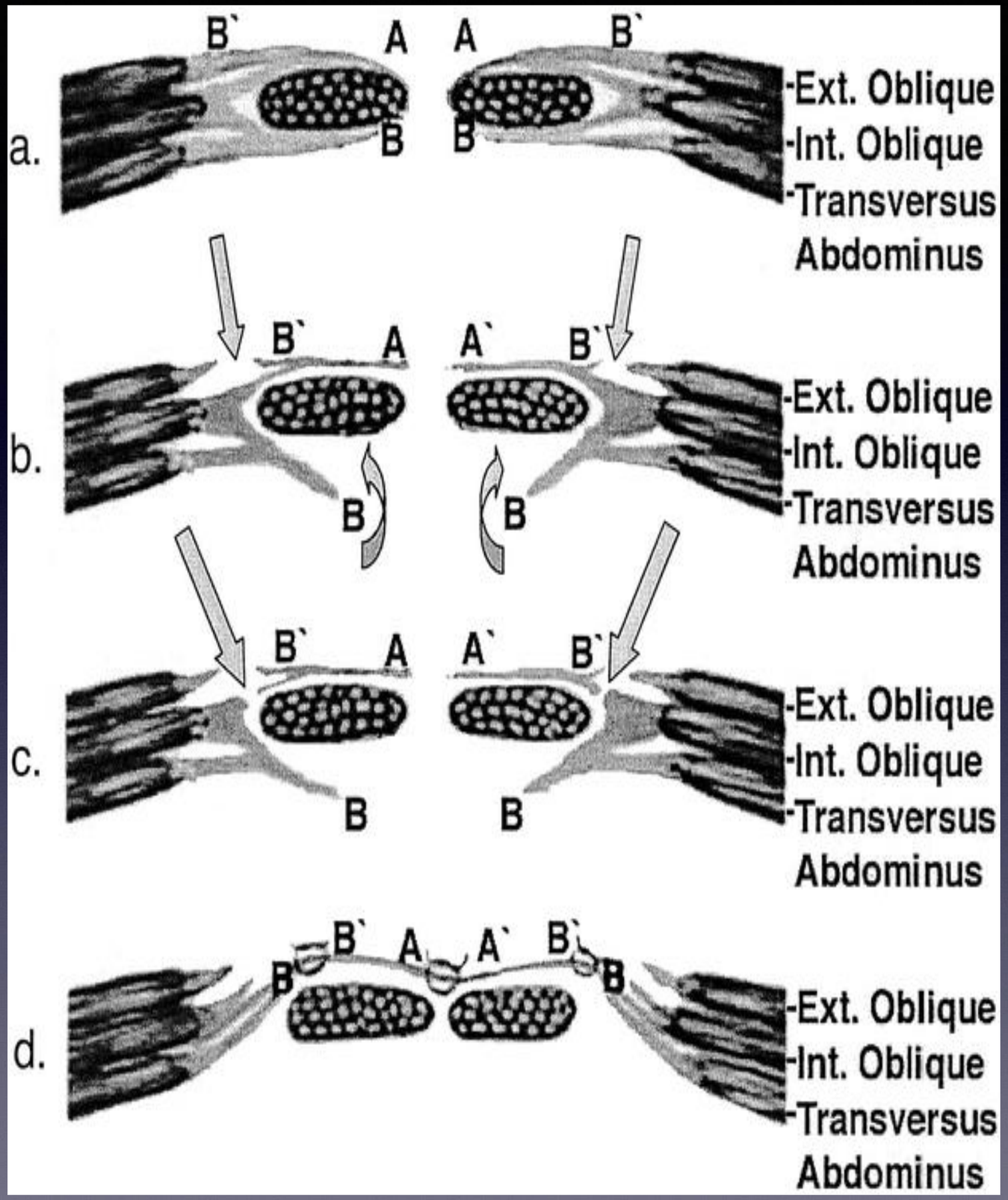
- Positives
  - Closure of the midline fascia (functional abdominal wall)
  - Lower Recurrence Rate? (great question still unanswered)
- Negatives
  - Need to use mesh with a tissue barrier
  - Lengthy procedure
  - Definite learning curve to procedure
  - Skin flap necrosis and seromas

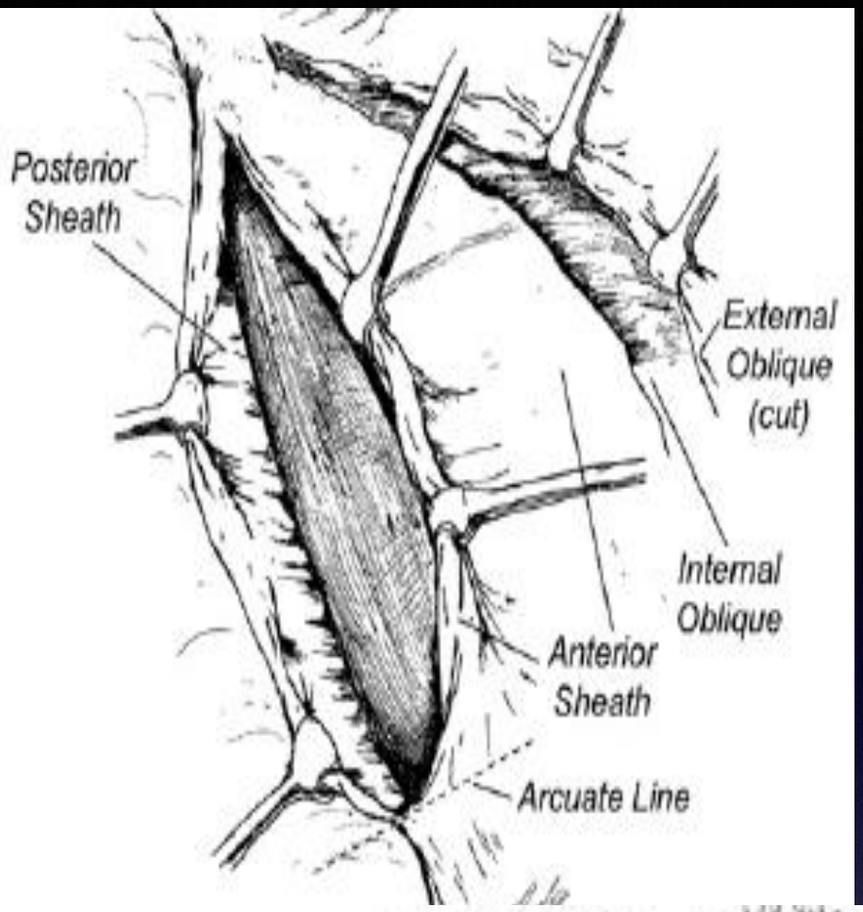


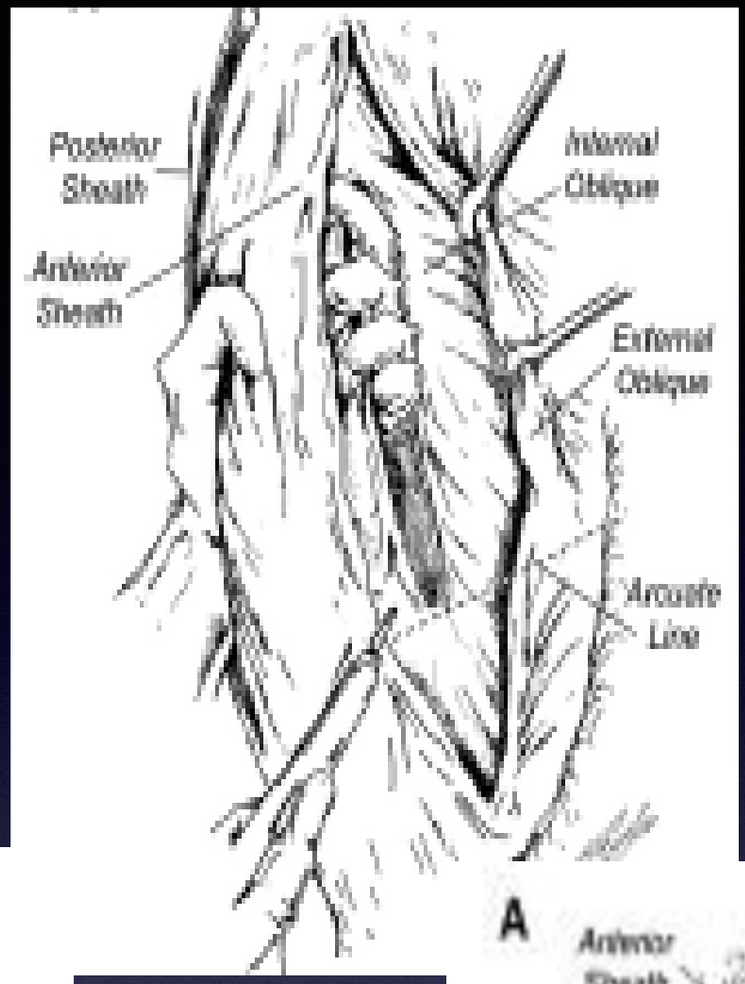
Memphis Modification to technique

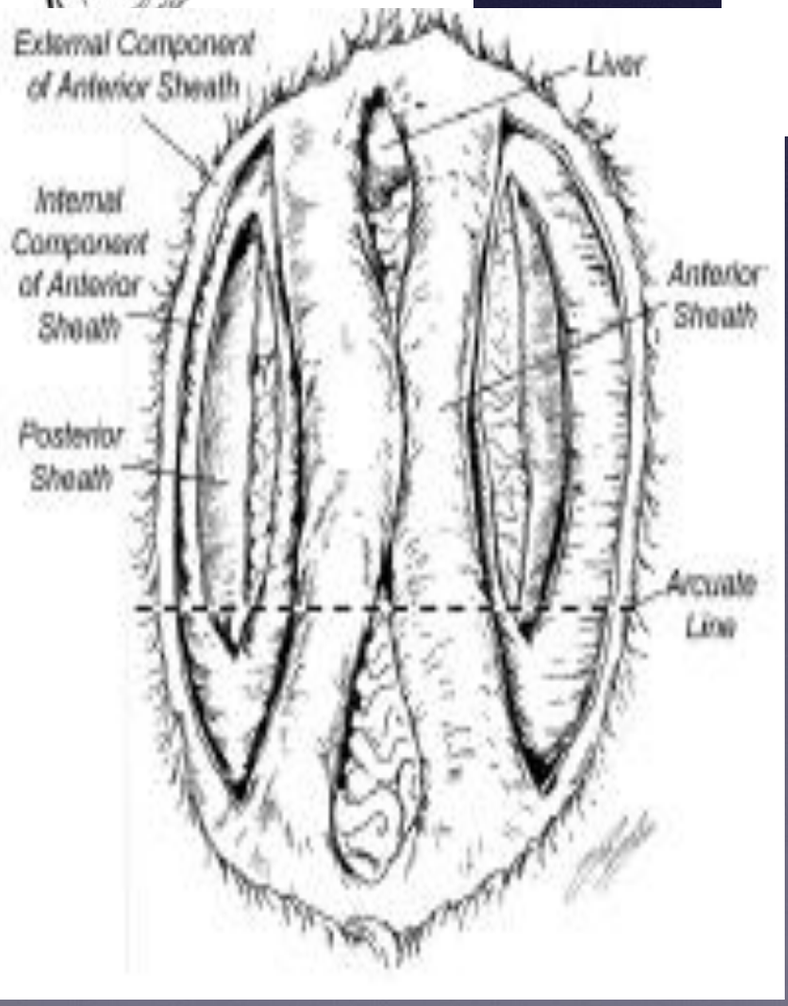
- When anterior components has been released and there is still significant distance to cover
- Release of the posterior sheath
- Rather than release the posterior sheath over 1.5-2 cm to rotate this, the internal oblique contribution to the anterior sheath is released
- Anterior rectus fascia is then sewn to posterior rectus fascia
- Mesh or no mesh is used
- Additional 5-6 cm per side (total can cover about 20-30 cm at level of the umbilicus)

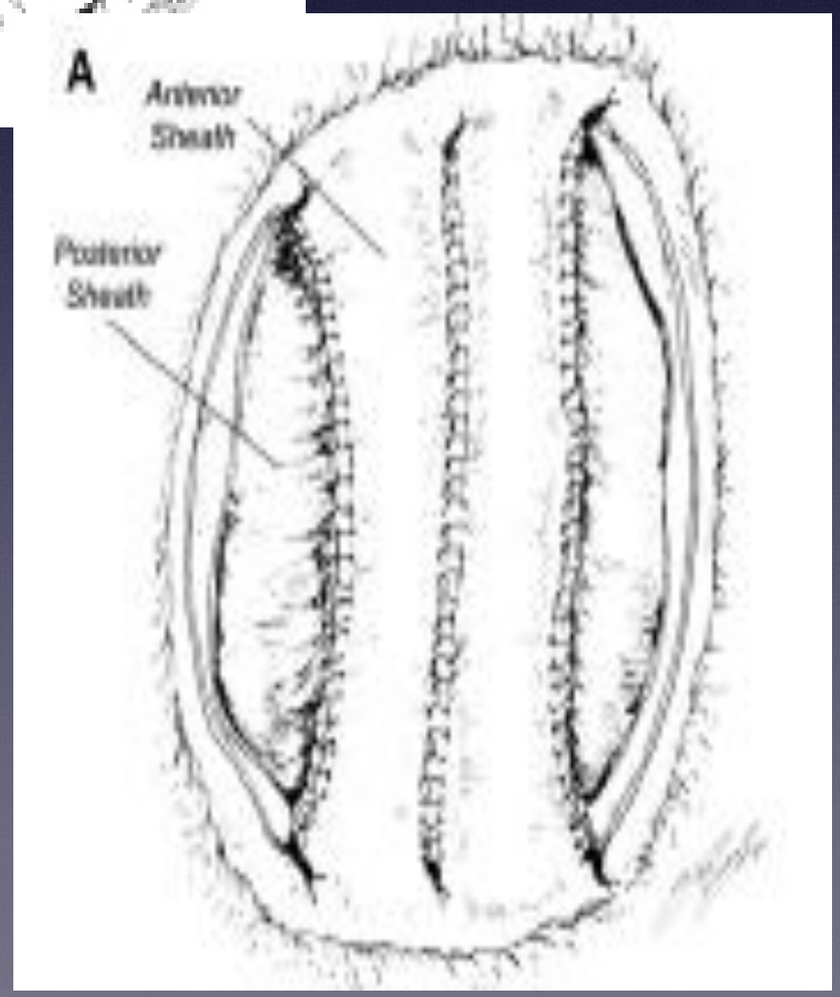
DiCocco J, Fabian TC, et al. Components separation for abdominal wall reconstruction: The Memphis Modification. Surgery. 2012;151:118-25


a.
B`
A
B
A
B`
B
-Ext. Oblique
-Int. Oblique
-Transversus
Abdominus
b.
B`
A
B
A`
B`
B
-Ext. Oblique
-Int. Oblique
-Transversus
Abdominus
c.
B`
A
B
A`
B`
B
-Ext. Oblique
-Int. Oblique
-Transversus
Abdominus
d.
B`
A
A`
B`
B
B
-Ext. Oblique
-Int. Oblique
-Transversus
Abdominus


Posterior Sheath
External Oblique (cut)
Internal Oblique
Anterior Sheath
Arcuate Line


Posterior Sheath
Anterior Sheath
Internal Oblique
External Oblique
Arcuate Line


External Component of Anterior Sheath
Internal Component of Anterior Sheath
Posterior Sheath
Liver
Anterior Sheath
Arcuate Line


A
Anterior Sheath
Posterior Sheath

“Open Book” modification

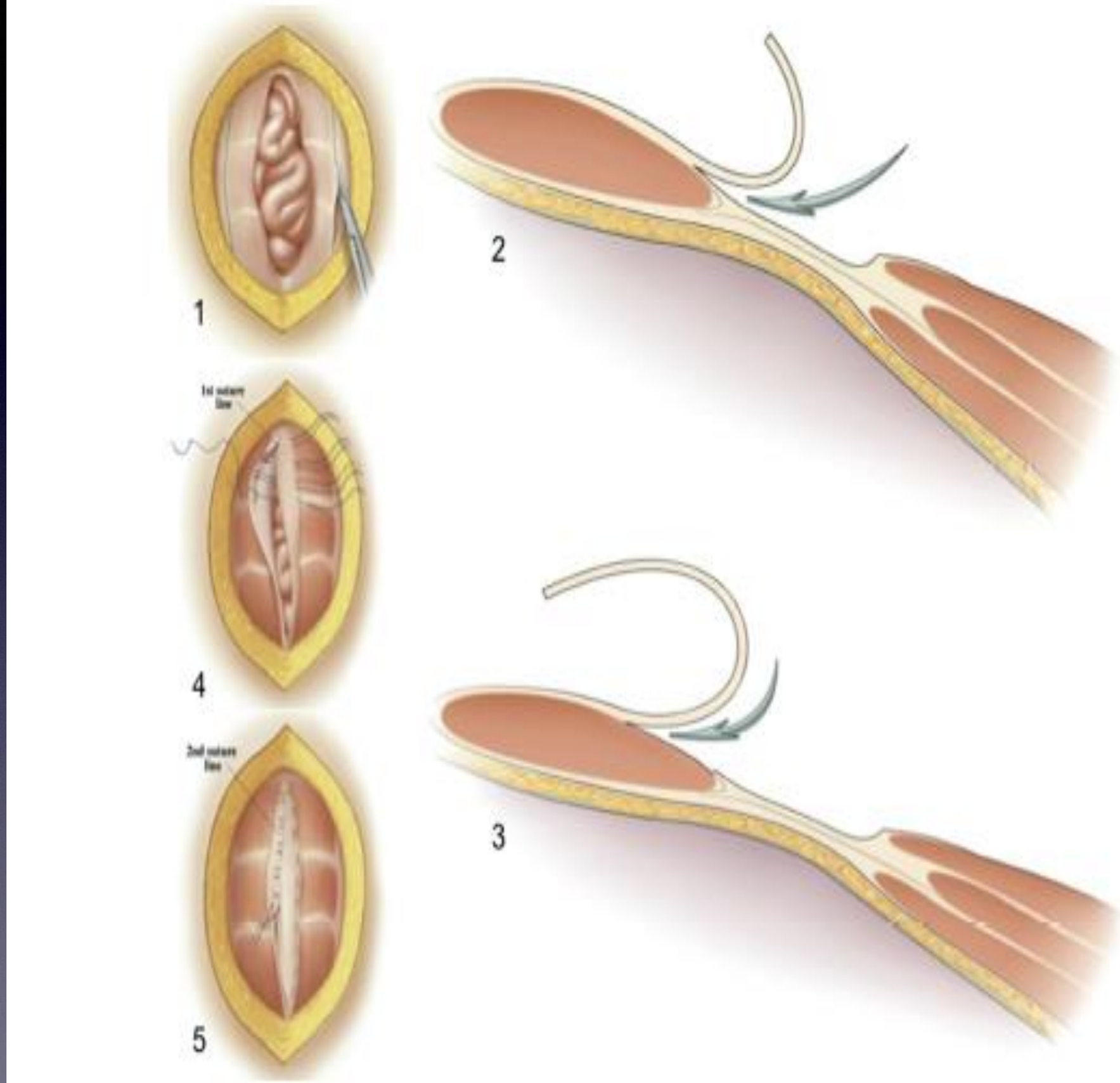
- Useful if a significant diastasis at cephalad and caudad portions of the hernia (Memphis Modification does not address this area)

- After anterior release, rather than separate anterior and posterior sheath at midline, release of the anterior fascia laterally

- Allows rotation of entire anterior sheath of rectus medially adding 4-6 cm per side entire length of the fascia

- Does release the anterior sheath of the fascia (“strength layer of the abdominal wall”)

Mericli AF, et al. The Single Fascial Incision Modification of the “open-book” component separation repair: a 15 year experience. Ann Plast Surg. 2013 Aug;71(2): 203-8.


1
2
4
3
5

Hernia
DOI 10.1007/s10029-008-0356-2

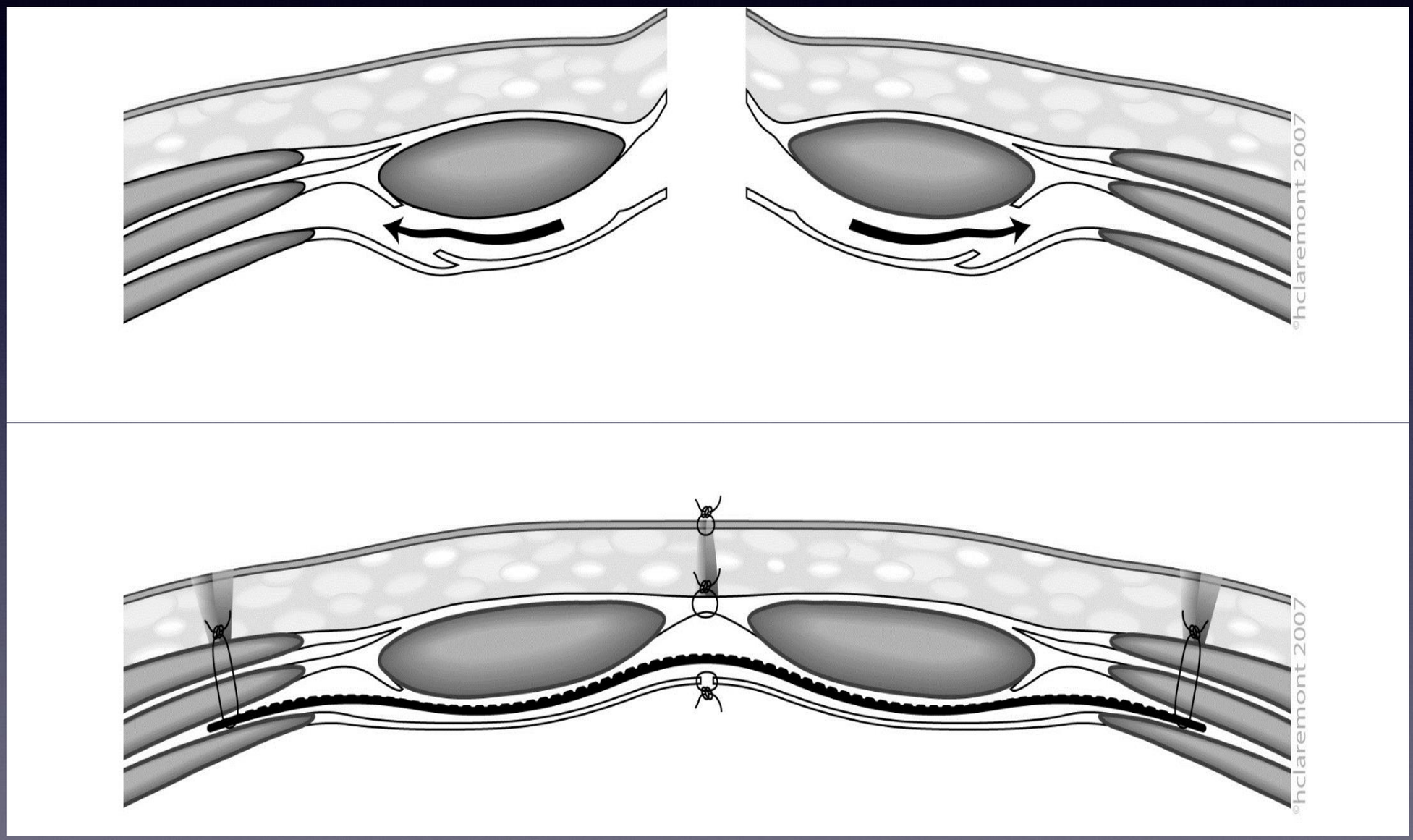
ORIGINAL ARTICLE

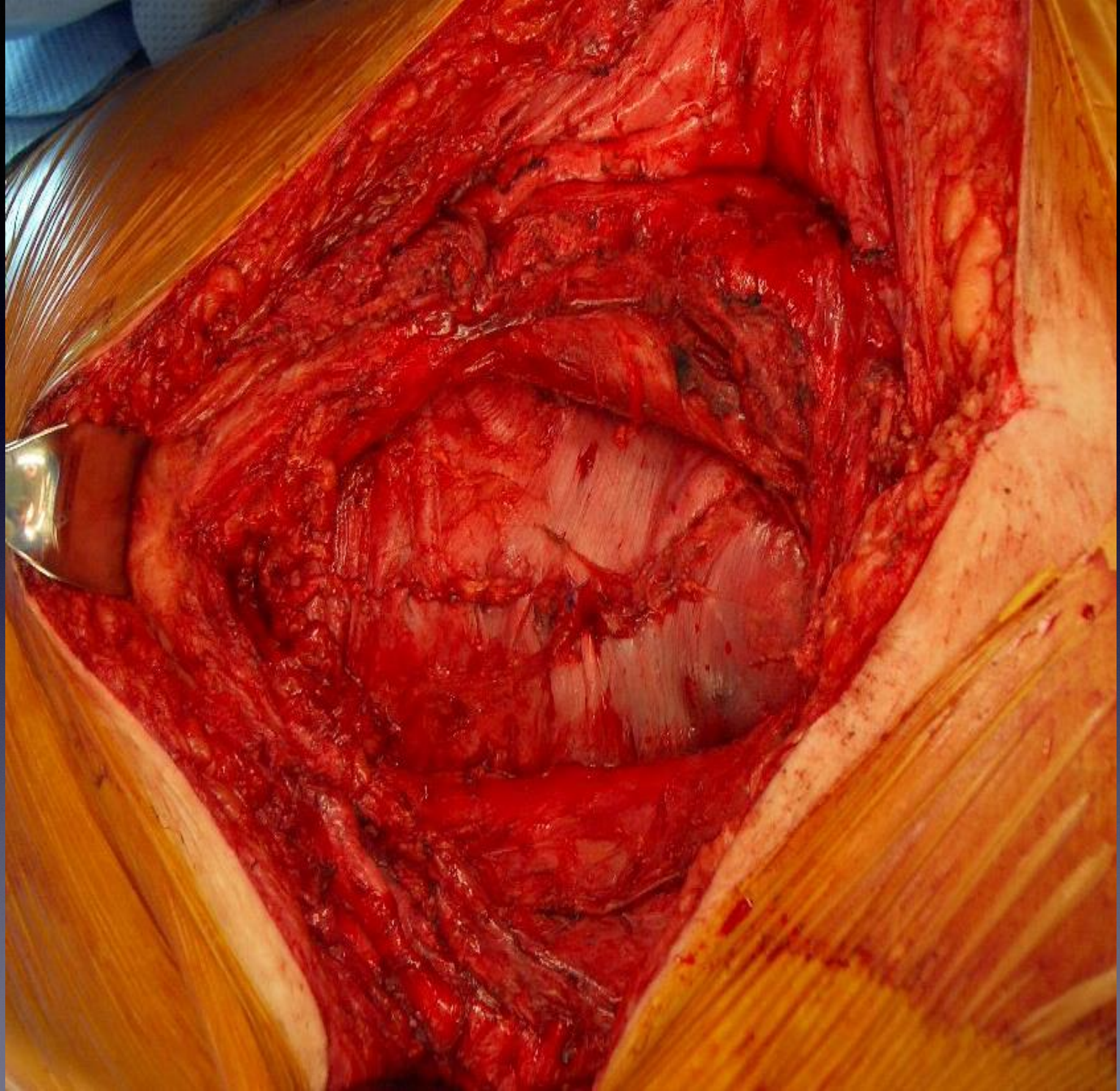
Posterior components separation during retromuscular hernia repair

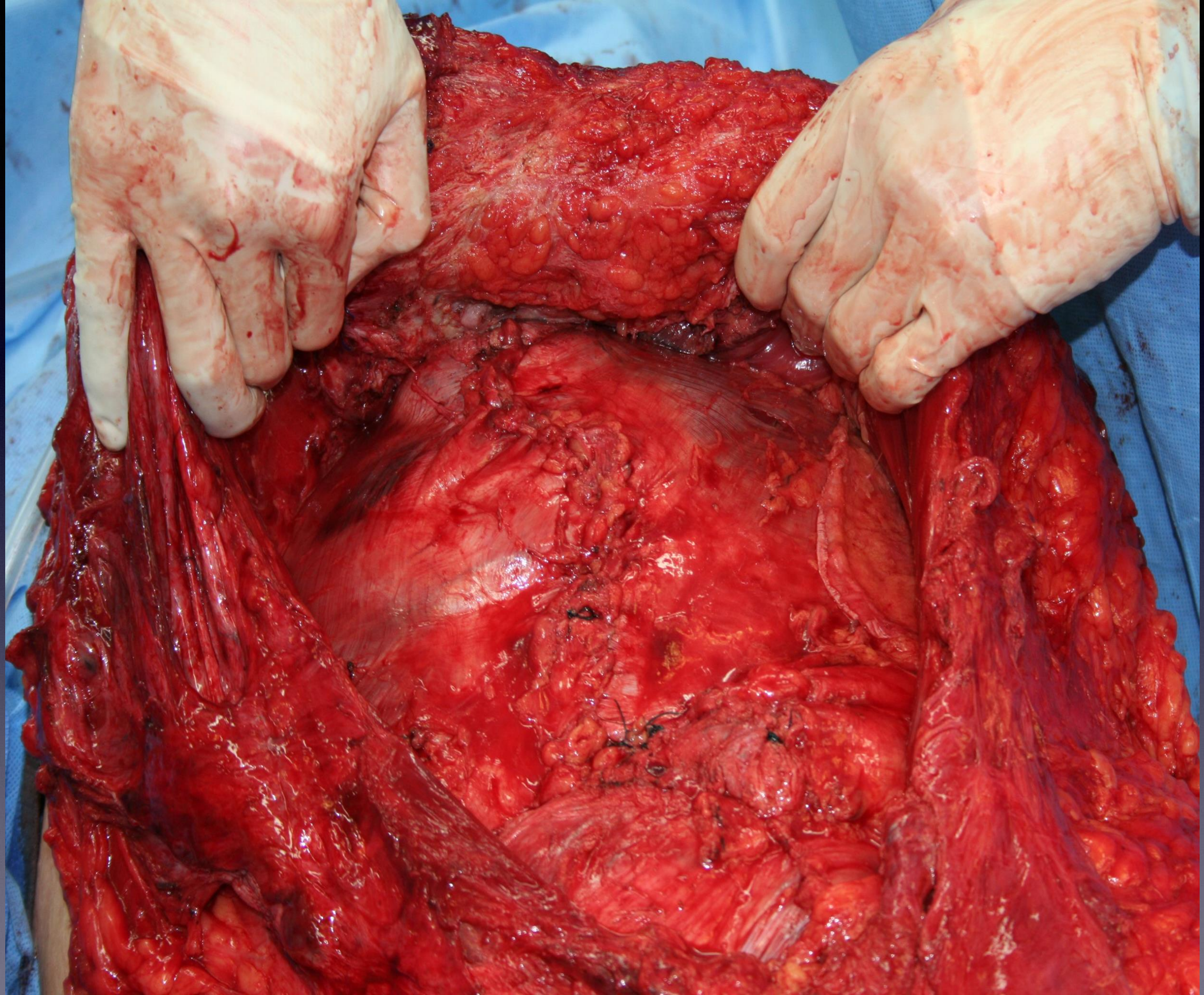
A. M. Carbonell · W. S. Cobb · S. M. Chen

- Another myofascial advancement flap
- Utilizes separation of the internal oblique fascia at the most medial point
- Allows 5-8 cm per side advanced
- Retro-rectus placement of mesh.

Posterior Components Separation Technique



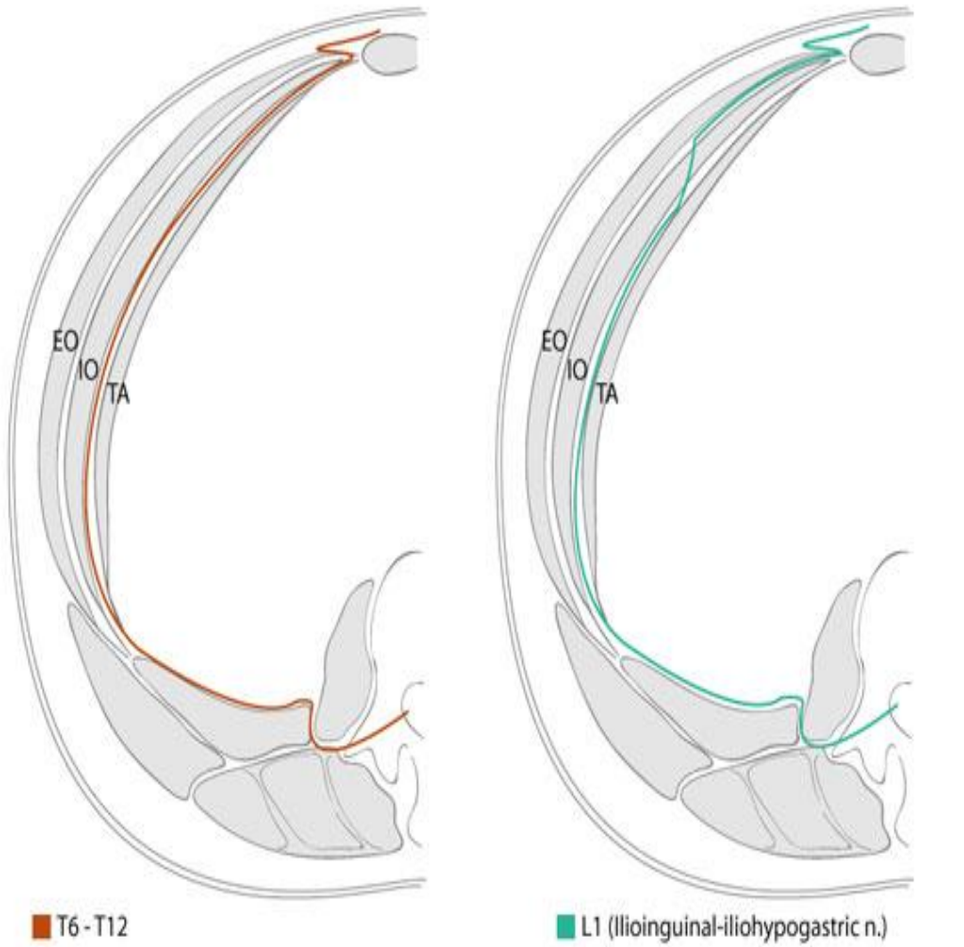


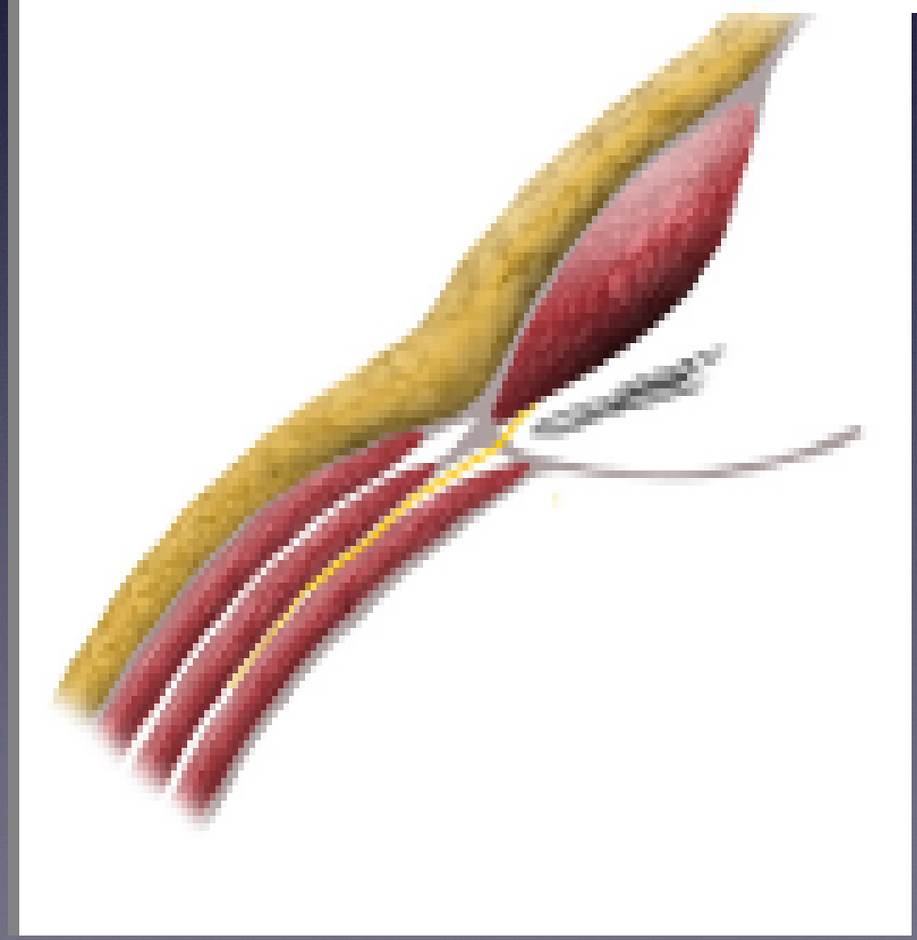


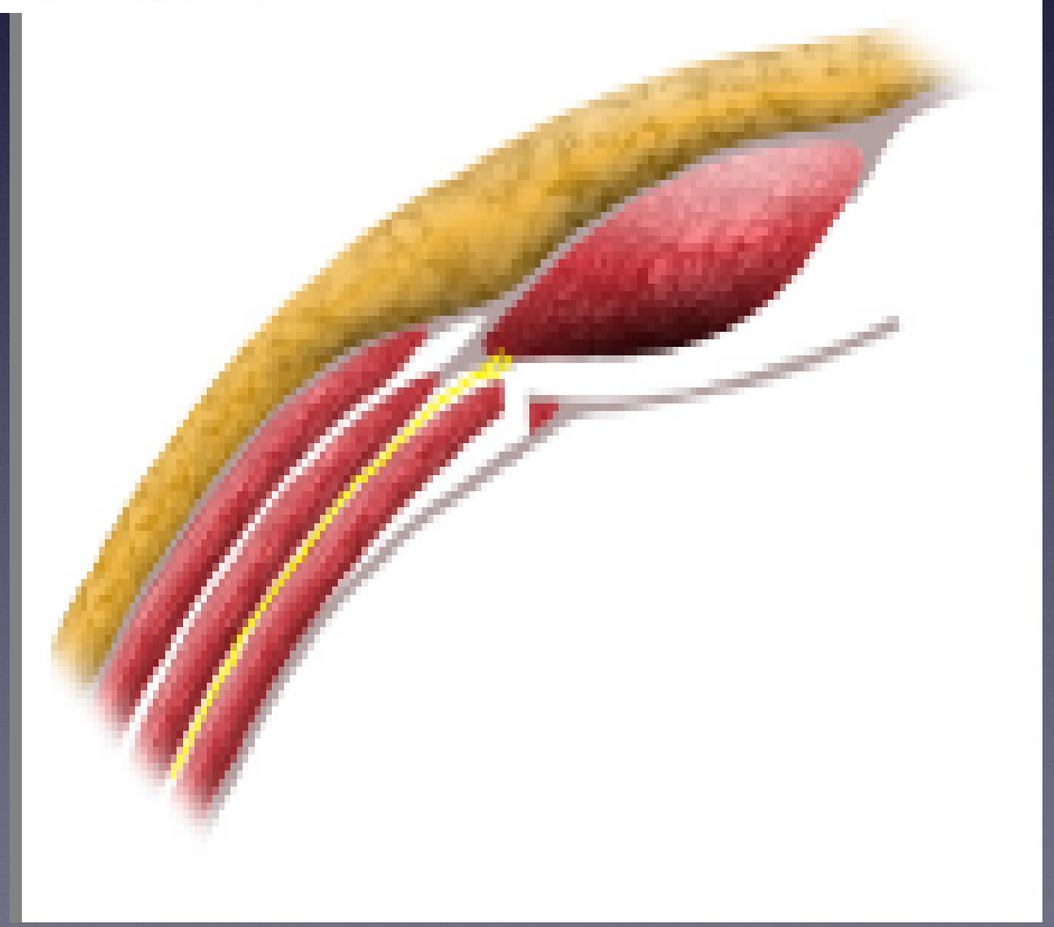
Transversus abdominis muscle release: a novel approach to posterior component separation during complex abdominal wall reconstruction

Yuri W. Novitsky, M.D.[a,b,*], Heidi L. Elliott, M.D.[a,b], Sean B. Orenstein, M.D.[a], Michael J. Rosen, M.D.[b]

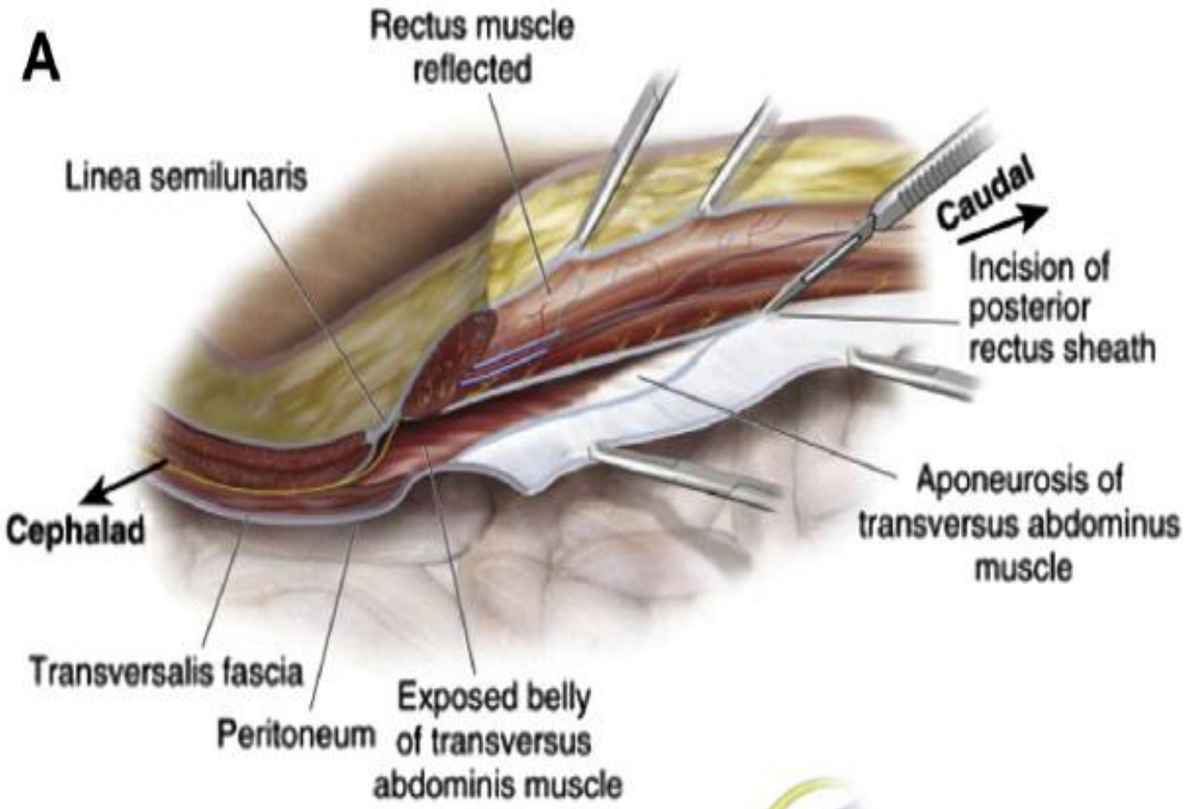
- Similar to Posterior components but sacrifices transversus abdominis muscle rather than sacrificing perforating nerves
- Plane is 1 muscle layer deeper
- All other information is the same.


EO
IO
TA
EO
IO
TA
T6 - T12
L1 (Ilioinguinal-iliohypogastric n.)

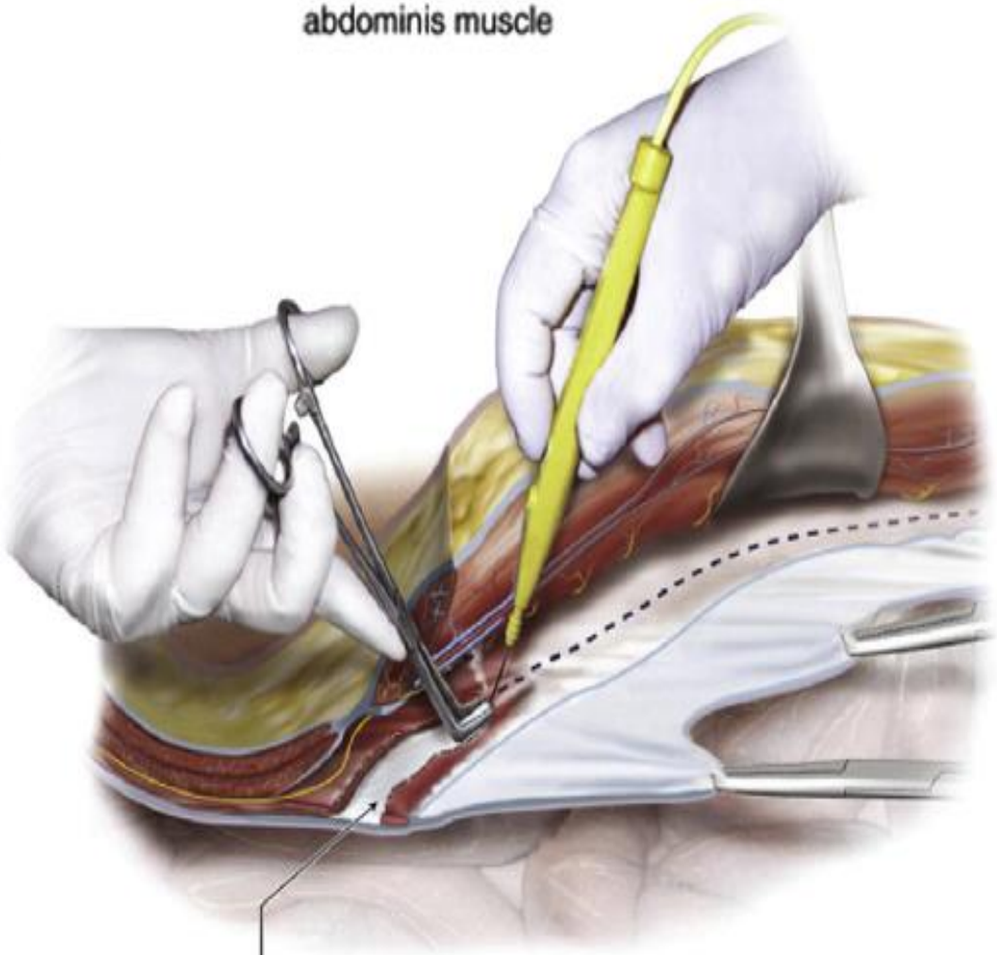


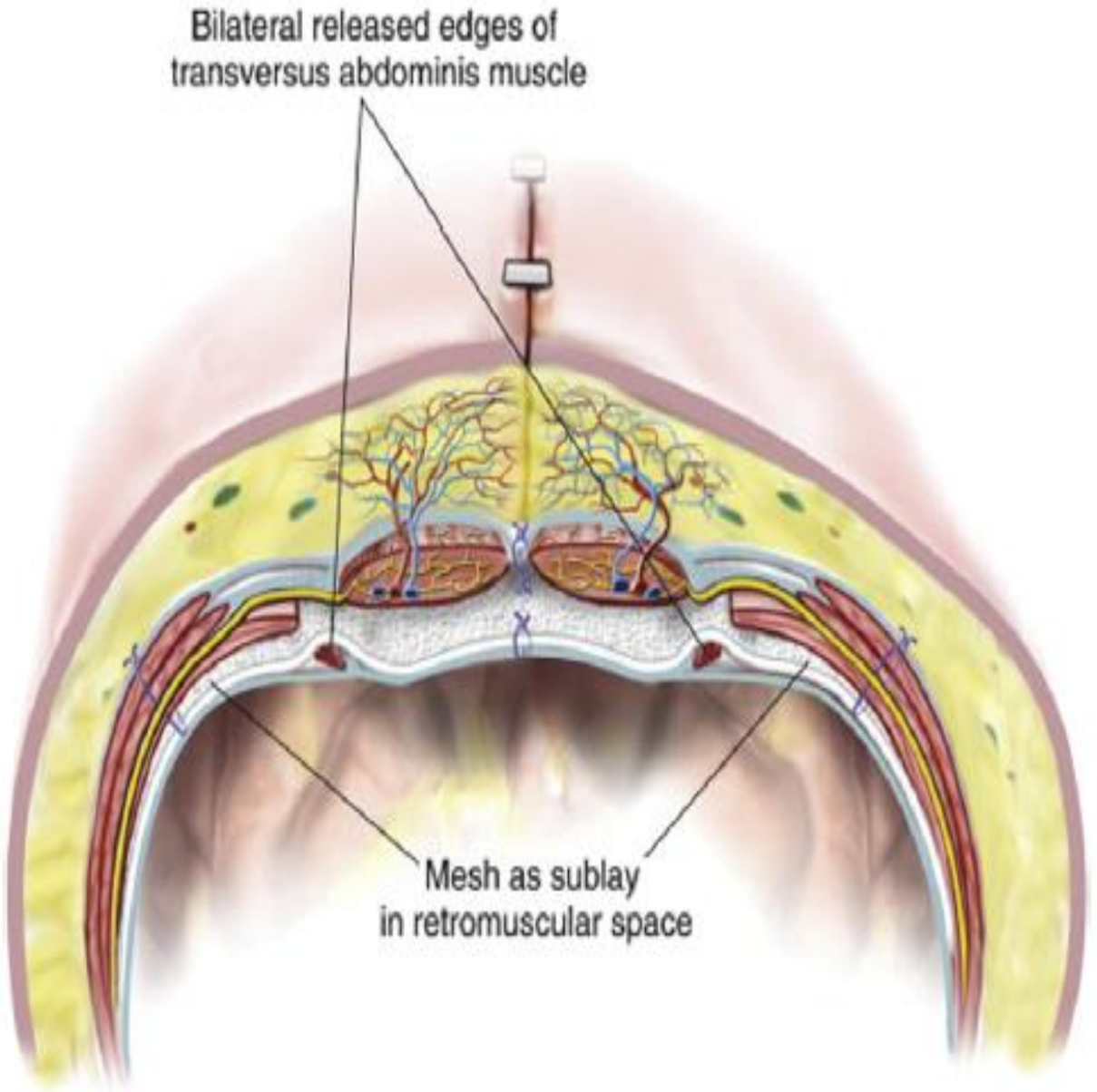


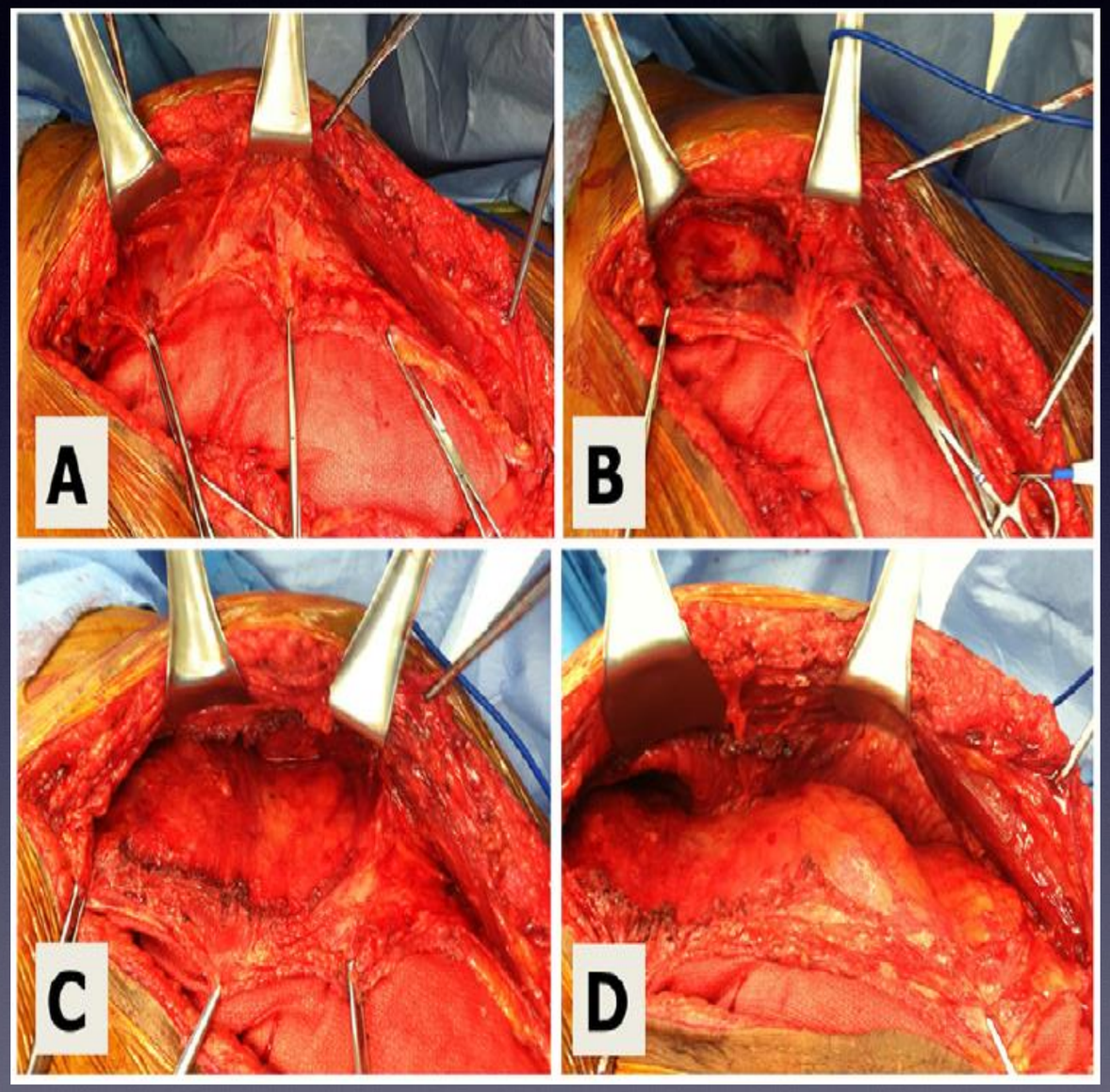
A

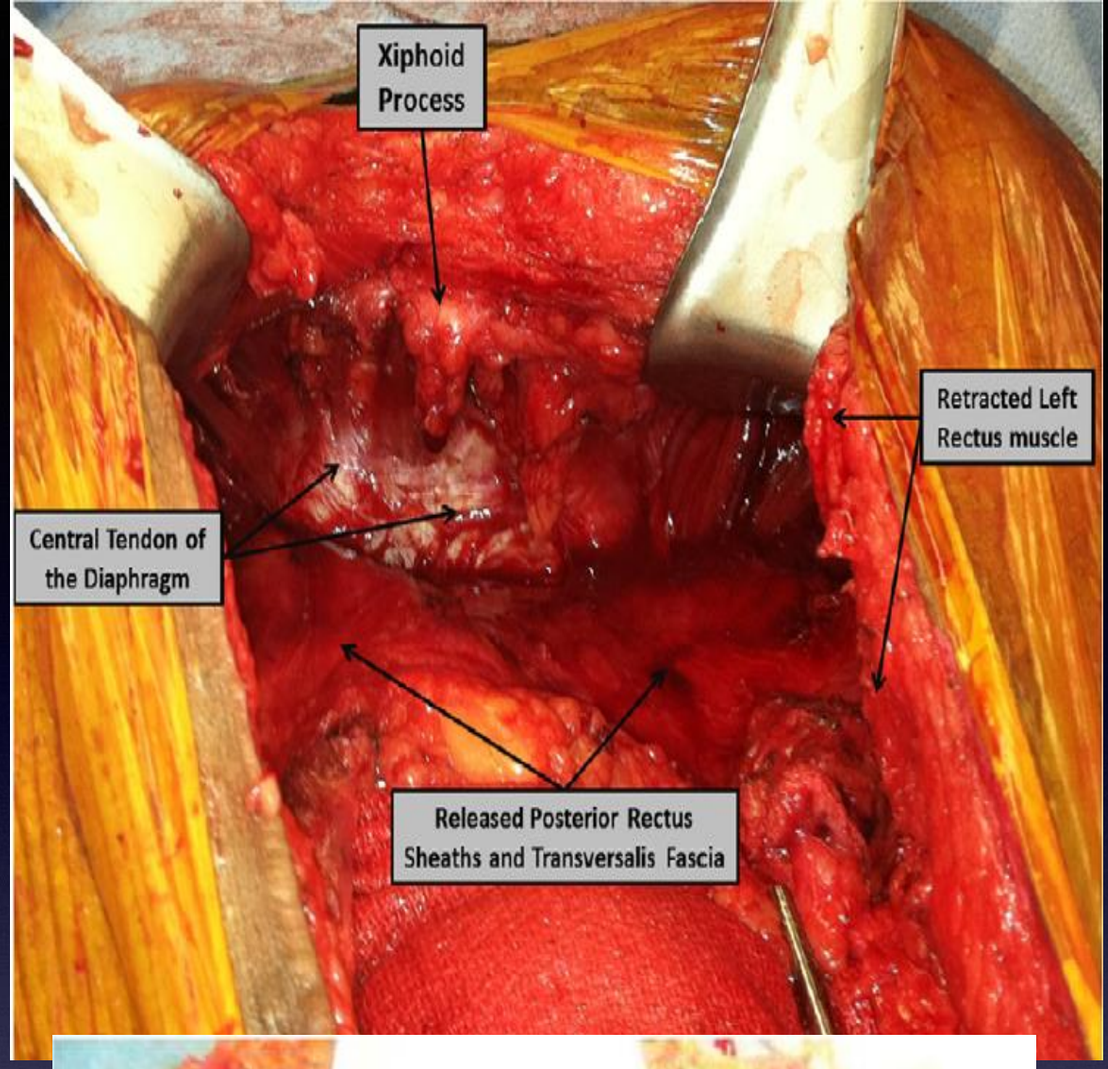

Rectus muscle reflected
Linea semilunaris
Caudal
Incision of posterior rectus sheath
Cephalad
Aponeurosis of transversus abdominus muscle
Transversalis fascia
Peritoneum
Exposed belly of transversus abdominis muscle

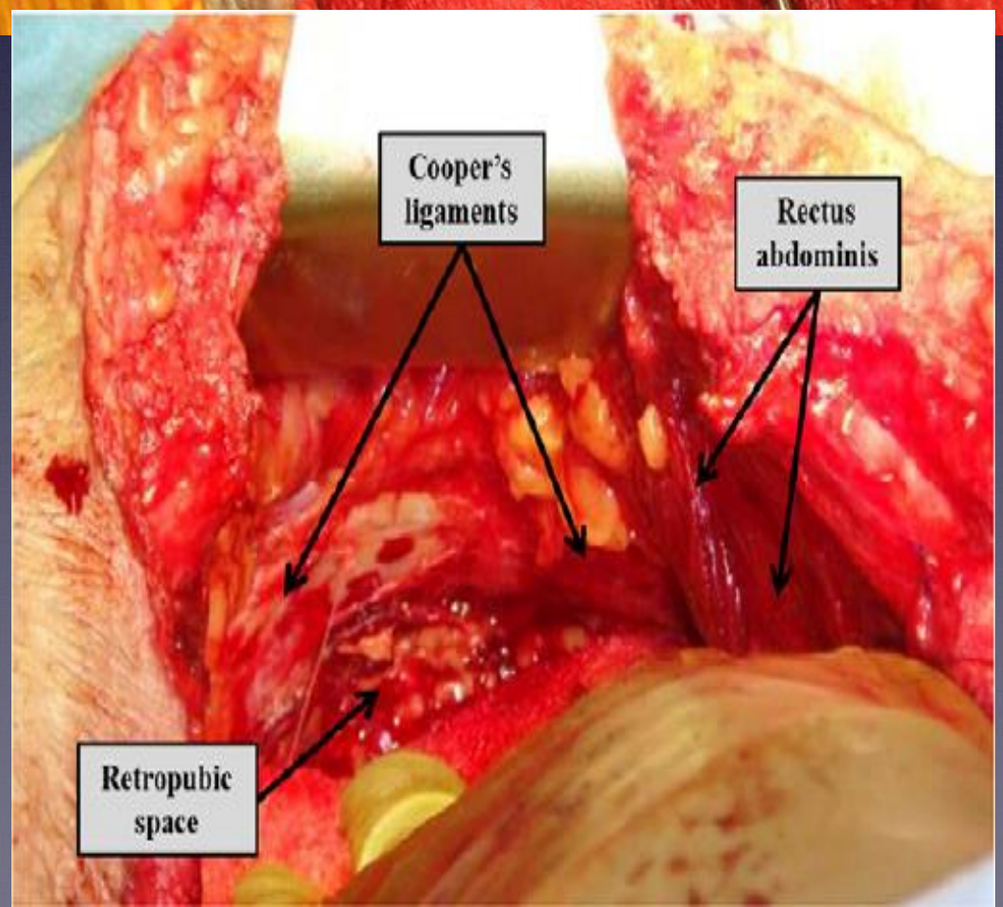
B


Transversus abdominis release (TAR)


Bilateral released edges of transversus abdominis muscle
Mesh as sublay in retromuscular space


A
B
C
D


Xiphoid Process
Retracted Left Rectus muscle
Central Tendon of the Diaphragm
Released Posterior Rectus Sheaths and Transversalis Fascia


Cooper's ligaments
Reetus abdominis
Retropubic space

Transversus Abdominis Release

- Pro’s:
  - No damage to the perforating nerves to the rectus muscle
- Con’s
  - Less mobilization than anterior components separation (maybe?)
  - Division of the transversus abdominis with unknown result

Post Operative Management

Post Operative Care

- ERAS protocols for Hernia Surgery
  - TAPP Blocks (post op care starts pre-op)
  - Early mobilization - Aggressive PT/OT/RT
  - Multi - modality pain control - including acetaminophen, gabapentin, valium
  - Early diet advancement
  - Multi physician and caregiver interactions
  - Expectation setting (bring clothes for POD 2, etc)

Novitsky - 2016 Hernia

Hernia Complexity and Care Access

How do we incorporate all of the above?


Bridging
The Gap
Healthcare
2015
Fee For
Service
Healthcare
2017
Fee For
Value

Triple Aim

- Improve Quality
  - Clinical Outcomes
  - Preventive Screenings
  - Health Status
  - Member Satisfaction

- Enhance Member Experience
  - Access to PCPs & Specialists
  - After hours care
  - Call Center Triage
  - Electronic Communication

- Reduce Cost
  - Aligned Financial Incentives
  - Shared Savings with Quality Gates
  - Medical, Prescription Drug and Behavioral Health in scope
  - Medical Home

Complex Hernia Care

- Idea is not to drive “volume” to any one location, but to have care for complex issues coordinated and algorithm based (evidence based) by individuals practicing in high volume

- Pancreas?
- Esophagus?
- Complex Hernia?

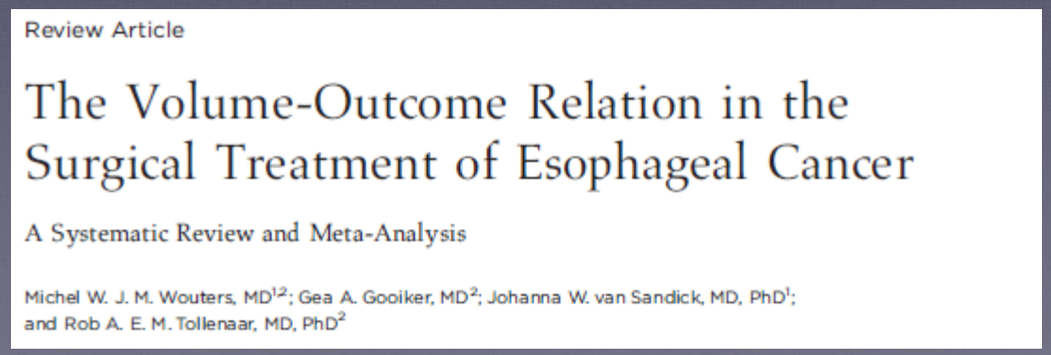
Original article

Impact of nationwide centralization of pancreaticoduodenectomy on hospital mortality

R. F. de Wilde[1], M. G. H. Besselink[1], I. van der Tweel[2], I. H. J. T. de Hingh[3], C. H. J. van Eijck[4], C. H. C. Dejong[5], R. J. Porte[6], D. J. Gouma[7], O. R. C. Busch[7] and I. Q. Molenaar[1], for the Dutch Pancreatic Cancer Group

[1]Department of Surgery and [2]Julius Centre for Health Sciences and Primary Care, University Medical Centre Utrecht, Utrecht, and Departments of Surgery, [3]Catharina Hospital, Eindhoven, [4]Erasmus Medical Centre, Rotterdam, [5]Maastricht University Medical Centre, Maastricht, [6]University Medical Centre Groningen, Groningen, and [7]Academic Medical Centre, Amsterdam, The Netherlands

Correspondence to: Dr I. Q. Molenaar, Department of Surgery, HP G04.228, University Medical Centre Utrecht, PO Box 85500, 3508 GA Utrecht, The Netherlands (e-mail: i.q.molenaar@umcutrecht.nl)



Review Article

The Volume-Outcome Relation in the Surgical Treatment of Esophageal Cancer

A Systematic Review and Meta-Analysis

Michel W. J. M. Wouters, MD[1,2]; Gea A. Gooiker, MD[2]; Johanna W. van Sandick, MD, PhD[1]; and Rob A. E. M. Tollenaar, MD, PhD[2]

But Complex Hernia?

Hernia (2014) 18:625–630
DOI 10.1007/s10029-014-1279-8

ORIGINAL ARTICLE

The impact of developing a comprehensive hernia center on the referral patterns and complexity of hernia care

S. Raigani · G. S. De Silva · C. N. Criss · Y. W. Novitsky · M. J. Rosen

J Gastrointest Surg (2015) 19:100–110
DOI 10.1007/s11605-014-2627-9

2014 SSAT PLENARY PRESENTATION

Surgeon Volume Plays a Significant Role in Outcomes and Cost Following Open Incisional Hernia Repair

Christopher T. Aquina · Kristin N. Kelly · Christian P. Probst · James C. Iannuzzi · Katia Noyes · Howard N. Langstein · John R. T. Monson · Fergal J. Fleming

Advances in Science

Surgical Innovation
2014, Vol. 21(6) 572–579

DOI: 10.1177/1553350614528579
srl.sagepub.com
SAGE

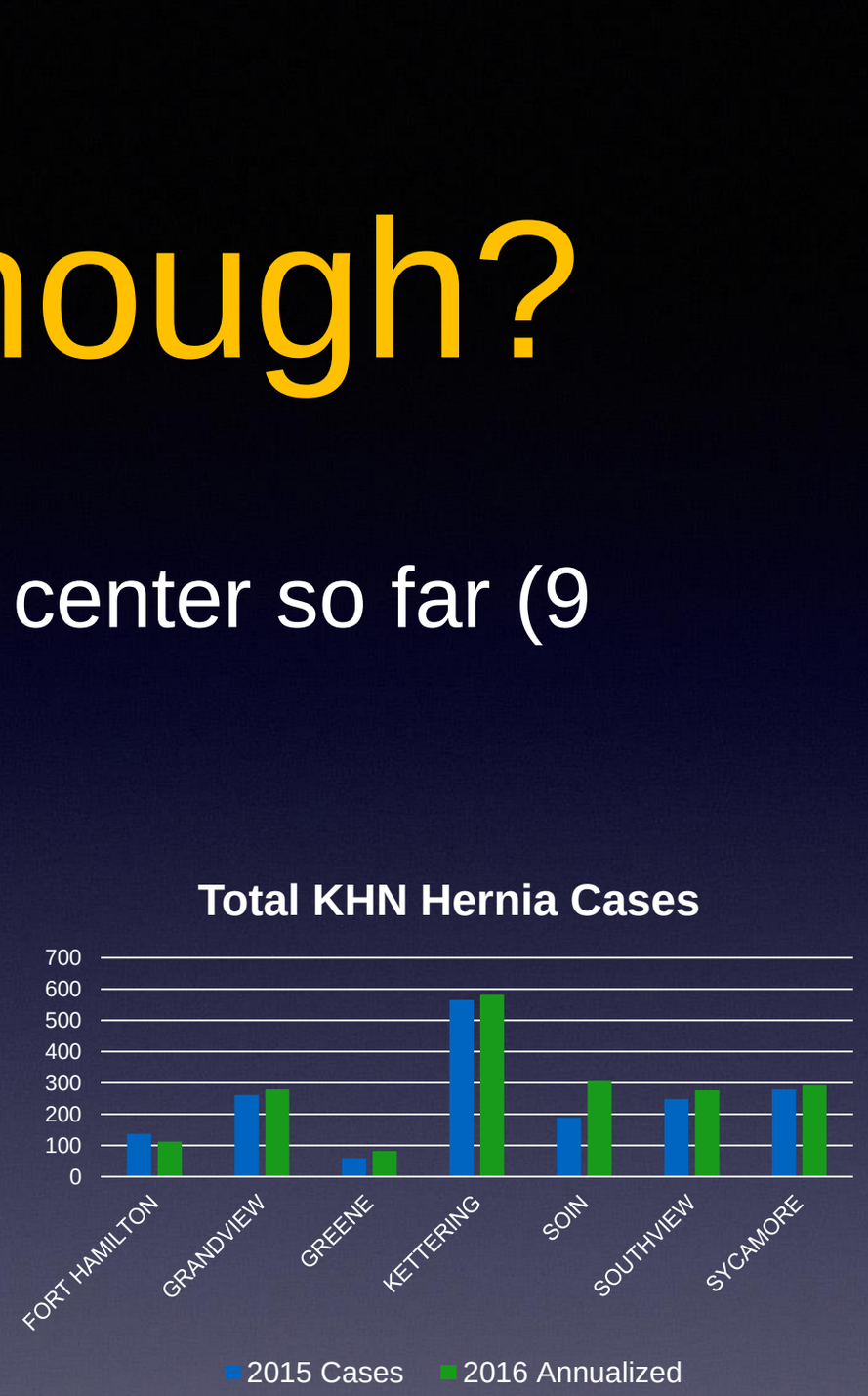
Impact of the Establishment of a Specialty Hernia Referral Center

Kristopher B. Williams, MD[1], Igor Belyansky, MD[2], Kristian T. Dacey, MHA[1], Yuliya Yurko, MD[1], Vedra A. Augenstein, MD[1], Amy E. Lincourt, PhD, MBA[1], James Horton, MD[1], Kent W. Kercher, MD[1], and B. Todd Heniford, MD[1]

Results Eighteen thousand forty-seven patients met the inclusion criteria. The hernia reoperation rate was 9 %, and median time to reoperation was 1.4 years (mean=1.8). After adjusting for clinical factors, surgeons performing an average of ≥36 repairs/year had significantly lower reoperation rates (HR=0.59, 95 % confidence interval (CI)=0.48,0.72), operative time (incidence rate ratio (IRR)=0.67, 95 % CI=0.64,0.71), and downstream charges (IRR=0.63, 95 % CI=0.57,0.69). Facility characteristics

Does it work though?

- 172 Cases referred through hernia center so far (9 months)
- 41 highest grade/complexity



- 2 complications requiring surgical revision

Does it work though?

- *Benefits of Multimodal Enhanced Recovery Pathway in Patients Undergoing Open Ventral Hernia Repair* – JACS 2016, Novitski Et al
  - 100 pts – 12 month period (this is high volume)
  - ALOS 4.0 days (3.45)
  - 90 day re-admission 4% (4%)

Does it work though?

- Yes!

Next Steps

- Increase access through marketing
- Improve care through system wide algorithm and outcomes tracking
- Improve care via SF-36 and patient satisfaction surveys
- Stay ahead of the game on research and academia (publication, fellowships, memberships)
- Assure care remains high quality

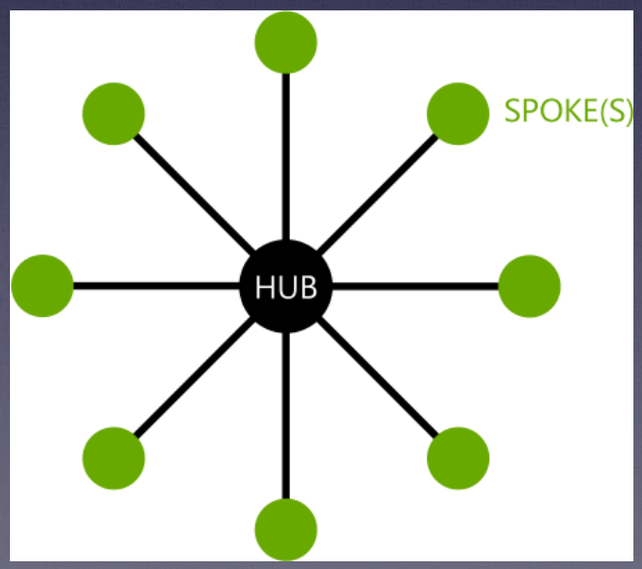
Goals

- Create a better understanding of the term “Hernia Center”
  - What it means and why it is important
  - What is “complex” and what is “straight forward” and why that is important
    - Recognizing the importance of clinical pathways for complex hernia
- Illustrate the benefits of a “Hernia” quaternary referral center
    - Patients, Network, and involved providers
- Define how the Hernia Center model addresses changes in care and reimbursement paradigms
- Generate a model for other disease processes

The End?

“Hernia” Center as a Disease Specific Model

- Can be used to stratify and treat all complex medical and surgical processes
- Identify the problem and levels of complexity
- Need to have “buy in” from treating physicians
- Identify experts
- Identify providers
- Centralize most complex cases only
- Manage less complex locally



“Hernia Center” as a disease specific model

- Can cross multiple specialties
- Leadership from each when necessary
- Coordinator – non physician, but experienced provider
- Must be completely transparent
- Needs to have a benefit to all for buy in…

“Hernia Center” as a disease specific model

- Quality tracking and following is mandatory – probably the most important part
- Participants falling outside benchmarks should have repercussion (temporary or permanent)
- Flexibility for unforseen issues
- Patient outcomes must be transparent and maintained in database as well.

Lessons Learned

Lessons Learned

- Patience – a new model, not “30 plus years” old
- Flexibility – need for neurosurgery and cardiology services at our facility
- Transparency – full documenting regarding incoming cases

HERNIA LIAISON MEETING STATS FOR OCT. 6TH, 2016

HERNIA STATS FOR September 1st THROUGH September 29th, 2016

Date	M/F	Age	Zip Code	City	Refer. Dr./Self	Hear about HCAS	Get ahold of us	PCP	Type of hernia	Hosp. F	Hosp.	Dr. Pref.	Ref. to	Surg. Y/N
9/1/2016	F	85	45417	Dayton	Dr. Pulaski	OB/GYN	Fax	N/A	Umbilical	Y	Kettering	Y	Dr. Schneider	Y
9/6/2016	M	56	45385	Xenia	Dr. Balonier	Transition Clinic	Fax	Dr. Balonier	inguinal	Y	Soin	Y	Dr. Schneider	Pend
9/7/2016	M	36	45458	Centerville	Dr. O'Connell	PCP	Drop-Down	Dr. O'Connell	inguinal	N	Kettering	Y	Dr. Paul	N
9/9/2016	M	30	45342	Miamisburg	Self	Dr. Schneider	Doc Button	N/A	inguinal	Y	Kettering	Y	Dr. Schneider	Y
9/12/2016	M	58	45345	New Lebanon	Self	Friend	Phone	Dr. Brammer	inguinal	Y	Soin	N	Dr.Ondulick	Y
9/12/2016	M	61	45177	Wilmington	Dr. O'Connell	PCP	Drop-Down	Dr. O'Connell	Umbilical	Y	Soin	Y	Dr. Schneider	Y
9/13/2016	M	56	45440	Kettering	Dr. Shutte	PCP	Drop-Down	Dr. Shutte	Inguinal	Y	Kettering	N	Dr. Schneider	Y
9/13/2016	M	57	45341	Medway	Dr. Bolden	PCP	Fax	Dr. Bolden	inguinal	Y	Kettering	Y	Dr. Schneider	N
9/13/2016	F	84	45385	Xenia	Self	Internet	Phone	Dr. Gibson	Hiatal	N	Soin	N	Dr. Schneider	Pend
9/16/2016	M	40	45404	Dayton	Dr. Cortez	ER	Phone/Fax	N/A	Abdominal pain	Y	Soin	Y	Dr. Schneider	Y
9/16/2016	F	33	45324	Fairborn	Dr. Jonas	PCP	Phone	Dr. Jonas	Gallbladder	Y	Soin	Y	Dr. Schneider	Y
9/20/2016	M	40	45503	Springfield	Self	Friend	Doc Button	N/A	Inguinal/Umbilical	Y	Soin	N	Dr. Schneider	Pend
9/20/2016	F	68	45432	Dayton	Dr. Sawmiller	Surgeon	Drop-Down	N/A	Ventral	Y	Soin	N	Dr.Ondulick	Pend
9/20/2016	F	56	45459	Dayton	Dr. Sawmiller	Surgeon	Drop-Down	N/A	Incisional	Y	Soin	N	Dr. Schneider	Y
9/21/2016	M	69	45431	Beavercreek	Dr. Askew	PCP	Fax	Dr. Askew	Inguinal/Femoral	Y	Soin	N	Dr.Ondulick	Pend
9/21/2016	F	58	45431	Beavercreek	Dr. Sawmiller	Surgeon	Drop-Down	N/A	Umbilical	Y	Soin	N	Dr. Schneider	Pend
9/23/2016	M	71	45417	Dayton	Dr. Clark	PCP	Drop-Down	Dr. Clark	Inguinal	N	Kettering	Y	Dr. Anderson	Y
9/23/2016	M	61	45342	Miamisburg	P. Garland PA	PCP	Drop-Down	P. Garland PA-C	Ventral	Y	Soin	N	Dr.Ondulick	N
9/26/2016	F	29	45420	Dayton	Self	Internet	Doc Button	N/A	Umbilical	Y	Kettering	N	Dr. Lebamoff	Y
9/26/2016	M	66	45451	Cincinnati	Self	Internet	Phone	Dr. Kris Huang	Umbilical	N	Fort Hami	N	Dr. Nagesetty	N
9/26/2016	M	57	45342	Miamisburg	Self	Internet	Phone	Dr. Bonnie Ball	Umbilical	N	Kettering	Y	Dr. Lebamoff	Pend
9/26/2016	F	32	45419	Dayton	Self	Internet	Phone	N/A	Umbilical	N	Soin	N	Dr.Ondulick	Pend
9/26/2016	F	51	45458	Centerville	PCP	PCP	Fax	Dr. O'Connell	Inguinal	N	Soin	Y	Dr. Schneider	Pend
9/28/2016	M	43	45385	Xenia	PCP	PCP	Drop-Down	Dr. L. Bankston	Umbilical	N	Sycamore	N	Dr.Ondulick	Pend
9/28/2016	M	57	45417	Dayton	Dr. Sawmiller	Surgeon	Drop-Down	N/A	Ventral	N	Soin	N	Dr. Schneider	Pend
9/29/2016	M	68	45385	Xenia	Dr. Deutsch	PCP	Fax	Dr. Udom	Inguinal/Umbilical	N	Green	Y	Dr. Deutsch	Pend

Total	M/F	Avg.	Zip codes	City	Refer	How did you hear	Get Ahold	PCP	Type of hernia	Hosp. F	Hosp.	Dr. Pref.	Dr.	Surg. Y/N
26 patients	F 9	55	17	Beavercreek 2	Self 8	Dr. Schneider 1	Doc Button 3	N/A 10	Inguinal 8	No 10	FH 1	No 14	Dr. Paul 1	No 4
	M 17			Centerville 2	Dr. Askew 1	ER 1	Drop Button 10	Dr. Askew 1	Abdominal Pain 1	Yes 16	GMH 1	Yes 12	Dr. Anderson 1	Yes 10
				Cincinnati 1	Dr. Balonier 1	Friend 2	Fax 6	Dr. Balonier 1	Gallbladder 1		KH 8		Dr. Nagesetty 1	Pend 12
				Dayton 8	Dr. Bolden 1	Internet 5	Phone 6	Dr. O'Connell 3	Hiatal 1		IR 15		Dr. Lebamoff 2	
				Fairborn 1	Dr. Clark 1	OB/GYN 1	Phone/Fax 1	Dr. Brammer 1	Incisional 1		SH 1		Dr. Ondulick 6	
				Kettering 1	Dr. Cortez 1	PCP 11		Dr. Shutte 1	Inguinal/Femoral 1				Dr. Schneider 14	
				Medway 1	Dr. Deutsch 1	Surgeon 4		Dr. Bolden 1	Inguinal/Umbilical 2				Dr. Deutsch 1	
				Miamisburg 3	Dr. Jonas 1	Transition 1		Dr. Gibson 1	Umbilical 8					
				New Lebanon 1	Dr. O'Connell 2			Dr. Jonas 1	Ventral 3					
				Springfield 1	Dr. Polaski 1			Dr. Clark 1						
				Wilmington 1	Dr. Sawmiller 4			P. Garland PA-C 1						
				Xenia 4	Dr. Shutte 1			Dr. Kris Huang 1						
					P. Garland PA 1			Dr. Bonnie Ball 1						
					PCP 2			Dr.L Bankston 1						
								Dr. Udom 1						

No skips the month

Lessons Learned

- Quality monitoring and outcomes must have teeth
- Patient satisfaction is #1
- Networking regionally and nationally need to be incorporated
- Monthly meetings with input from all providers encouraged until all are satisfied
- Marketing should be equal throughout the network regions
- Center of Excellence – if available – should be goal regardless of difficulty (will help with CMS quality drive)

“_____ Center” as a disease specific model

- How about vascular?
- Identify providers – CT, vascular, cariology
- Identify leadership – one person from each
- Identify complex vs simple – AAA, redo’s, LE bypass, endovascular
- Identify center to provide care for most complex cases – Kettering? Sycamore? What fits best

“_____ Center” as a disease specific model

- Identify those that would like to participate
    - Maybe first time aorta? Fem pop? Access? Etc.
        - decide within the group
- Identify requirements for care - ?seen within a week?
- Keep care local for those individuals but within protocols and algorithms
- Track Data – must enforce quality

“_____ Center” as a disease specific model

- Must have an outstanding coordinator and staff
    - Lot of data – empiric here
    - Generate algorithm for patient placement/consults
    - Be completely transparent about each new patient
    - Market globally and regionally

“_____ Center” as a disease specific model

- Have EXCELLENT patient satisfaction and outcomes
- Have growth and a profitable model with buy in from physicians
- Expand ONLY when critical volume achieved

The End?

Yes, for real this time…

Questions?