
University of Miami

Abdominal Wall Reconstruction

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BACKGROUND

- 3 - 13% incidence (90,000 cases/yr)
- 17% will develop incarceration or strangulation
- Mortality: 0.3% elective repair
  1.1% emergent repair

Open Hernia Repair Suture vs Mesh Repair

Recurrence Rate (3 year follow-up)

- 154 patients - first repair
  - 43% suture repair
  - 24% mesh repair
- 27 patients - second repair
  - 58% suture repair
  - 20% mesh repair

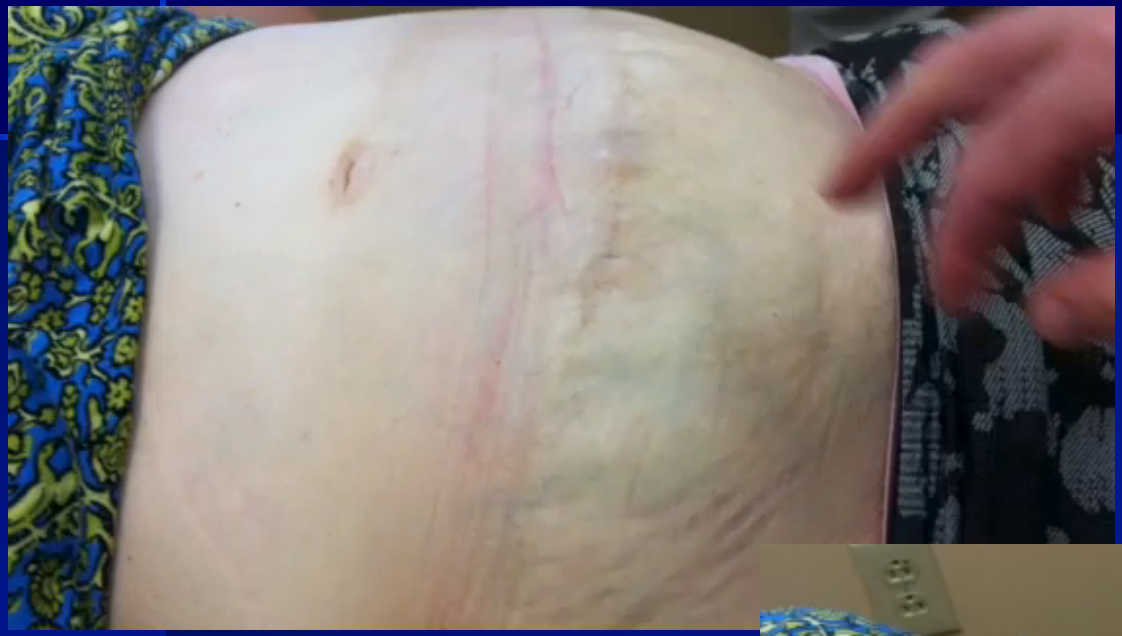
•Luijendijk RW, et al. NEJM August 2000

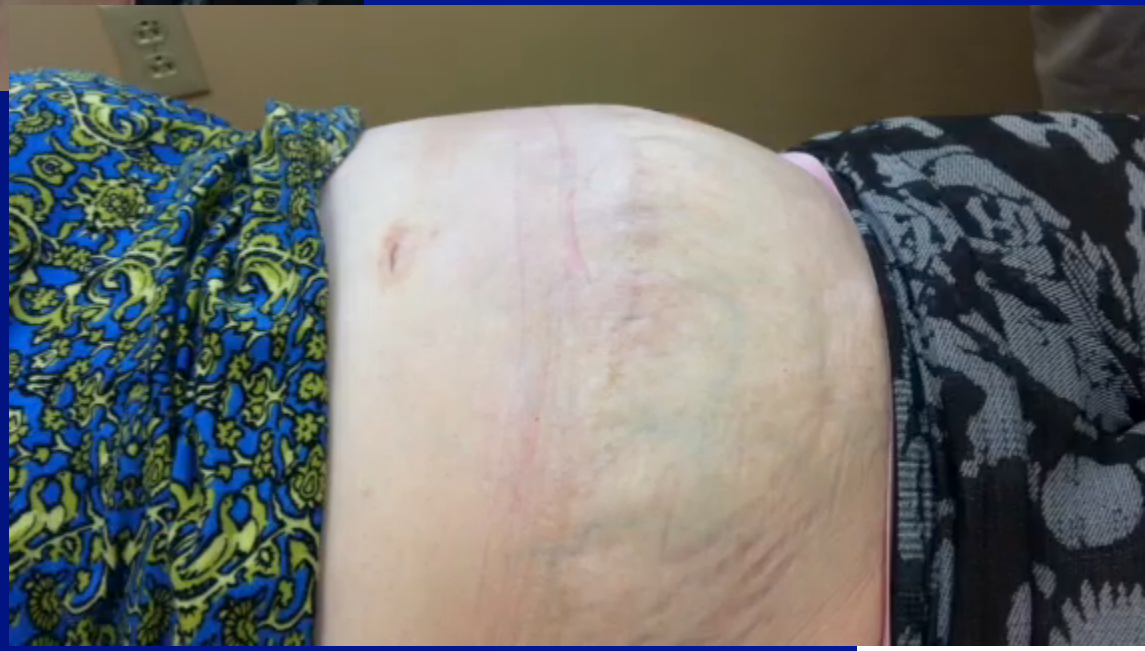
850 Laparoscopic Ventral Hernia Repairs

- Complications 13.2%
  - 1 mortality
  - 3% ileus
  - 2.6% prolonged seroma
  - 1.7% intestinal/bladder injury
  - 0.7% mesh infection
- Recurrence rate 4.7%

•Heniford et al. Ann of Surg 2003

Laparoscopic ventral hernia





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VENTRAL HERNIA TECHNIQUES

- Open: Suture only approach: 15%
- Open: Mesh approach: 65%
- Minimally invasive approach: 20%
- Hybrid approach!!!

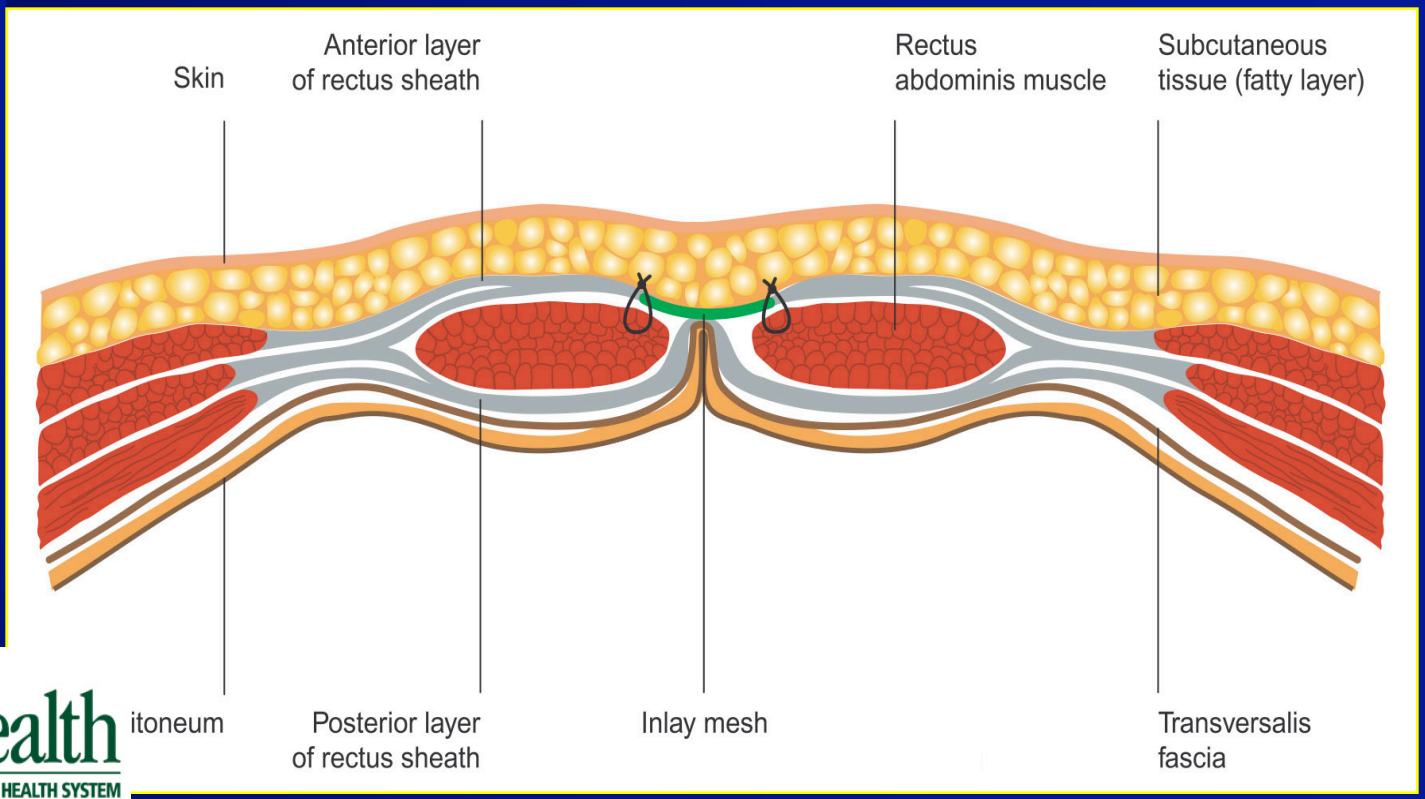
Algorithm: Ventral Hernia Repair

- Define defect
  - Start lap convert to open as needed
- Closure of defect
  - Size, location, method, tissue over defect
- Component separation
- Mesh selection
  - Potential for wound event / location
    - Size, Grade, dissection, length of surg

Technique

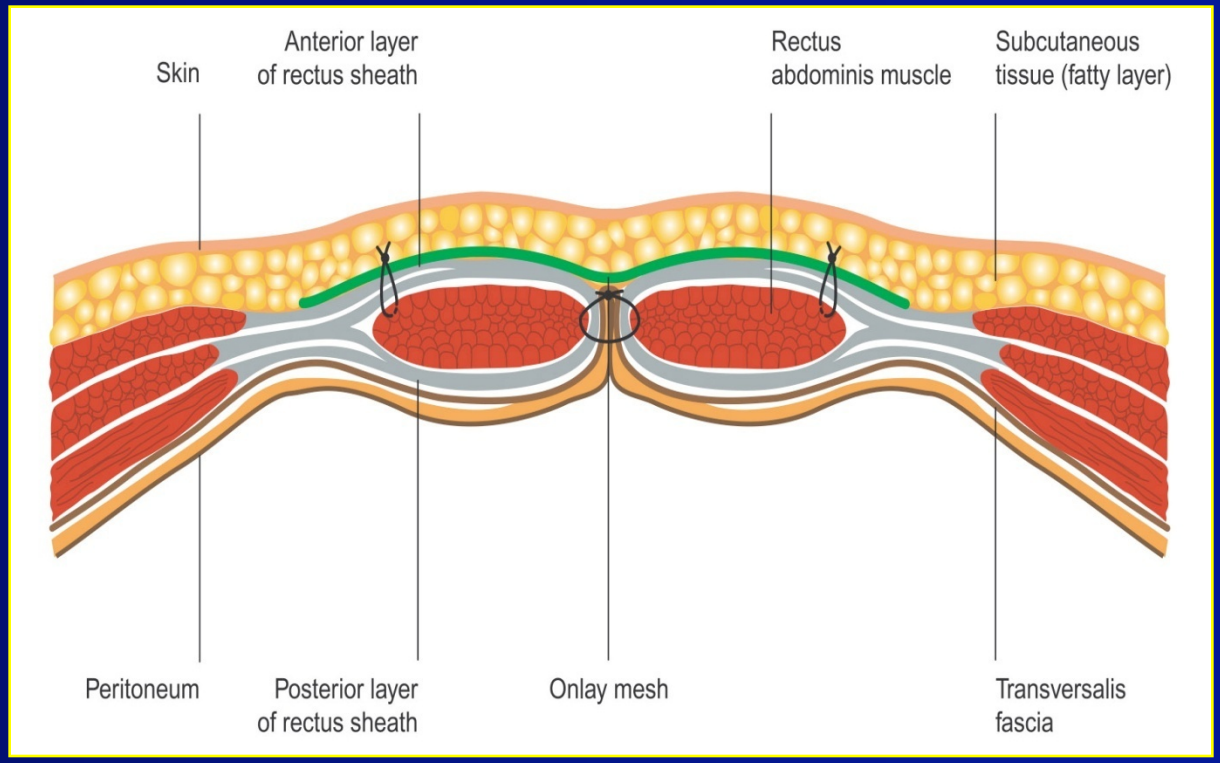
Inlay Technique

The fascia is not able to be re-approximated, and a mesh is used to bridge the two fascial edges. The mesh is fixated to the fascial edges circumferentially.

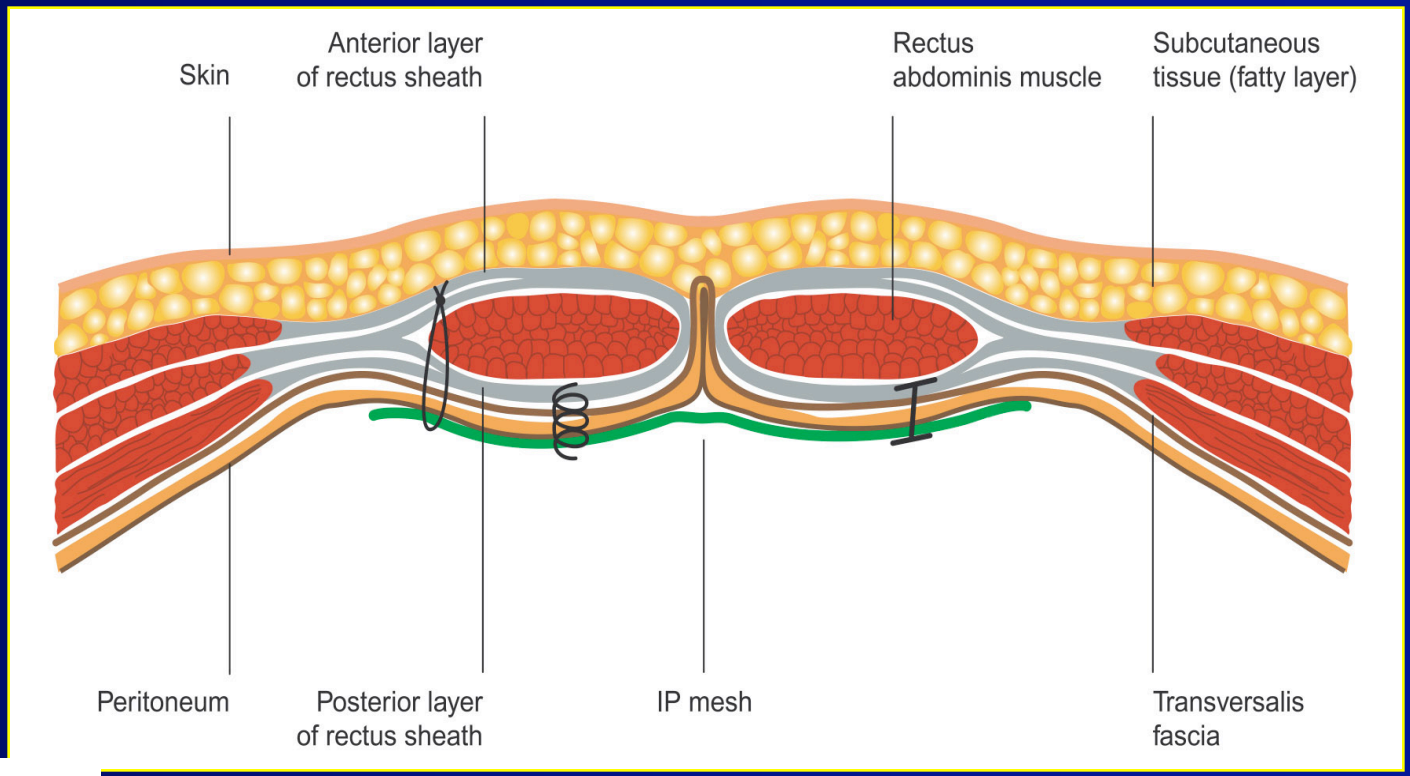


Onlay Technique

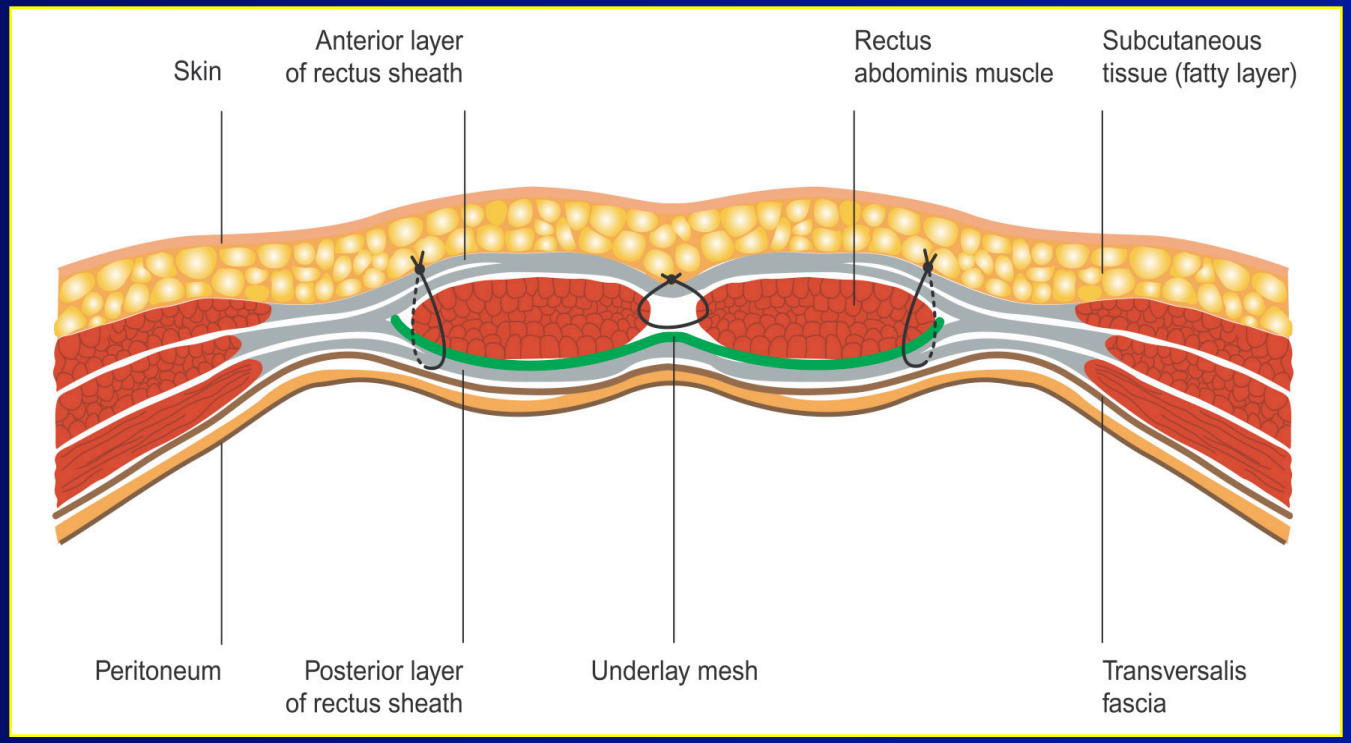
Approximation of fascia with suture (under tension). Mesh placed on top of fascia and fixated circumferentially



Underlay Technique



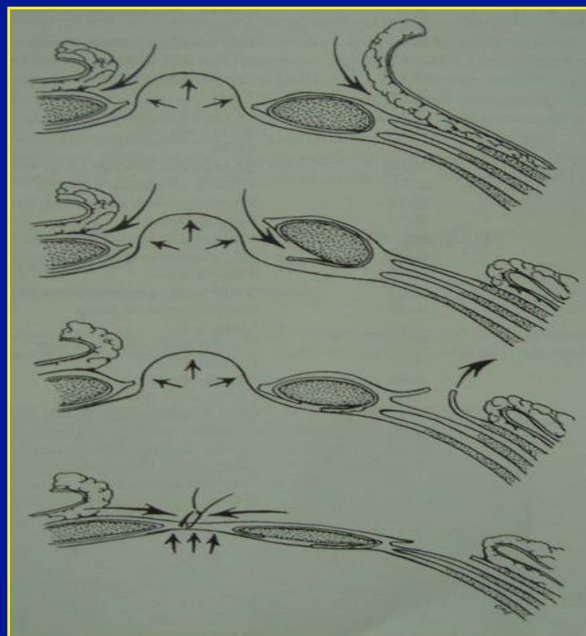
Retromuscular Technique



Component separation technique (as described by Ramirez, et al.)

•Ramirez, et al. Component Separation Methods for Closure of Abdominal Wall Defects: An Anatomic and Clinical Study. *Plast & Recon Surg.* 1990 Sept;86(3):519-526.

- Undermine and make incision 1 cm lateral to linea semilunaris
- External oblique transected laterally from its insertion into the rectus sheath and separated from internal oblique
- Advance rectus and internal oblique with transversus
  - Neurovascular bundle intact & bipedicle musculofascial advancement
- Ipsilateral advance of approximately:
  - 7 - 10 cm at mid abdomen
  - 3 - 5 cm at epigastric region
  - 1 - 3 cm suprapubic region



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Minimally Invasive Component Separation

- Periumbilical Perforator Sparing
- Endoscopic Release
  - Simplified Version
  - Laparoscopic assisted
- Transverse Abdominus Release

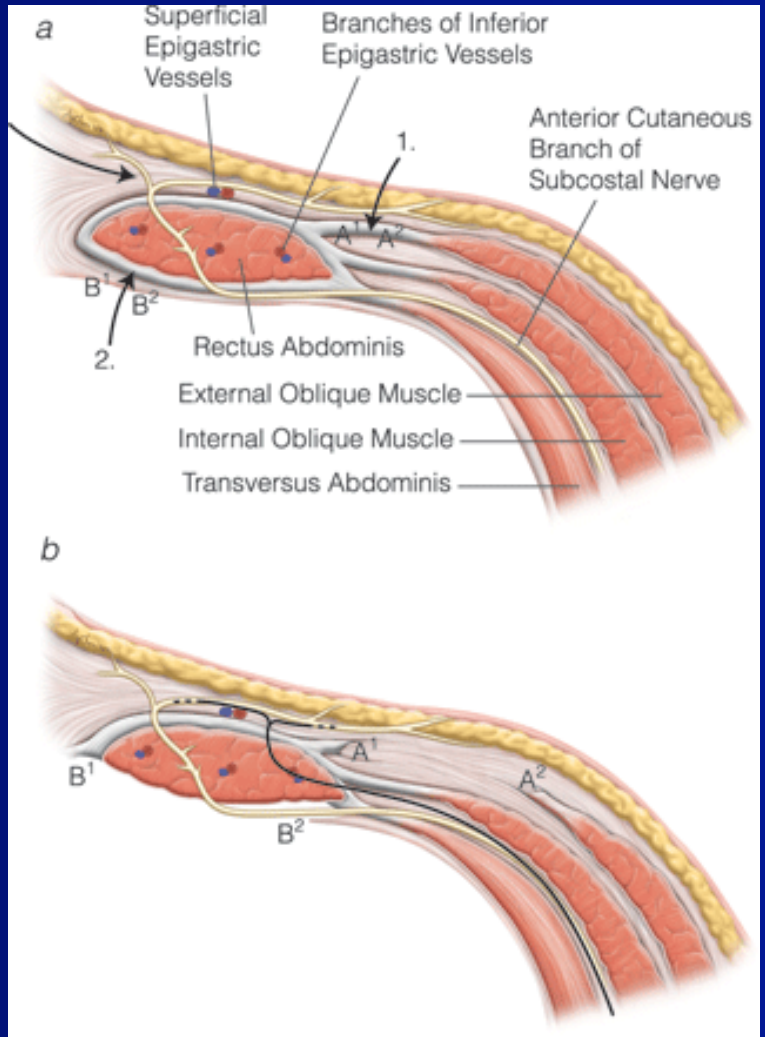
Periumbilical Perforator Sparing

- Pros
  - Limited instrumentation required
  - Simple Principles / technique
  - Decreases wound events / flap necrosis*
- Cons
  - Visualization and lateral dissection limited in obese patients
  - Limited cases that allow this technique

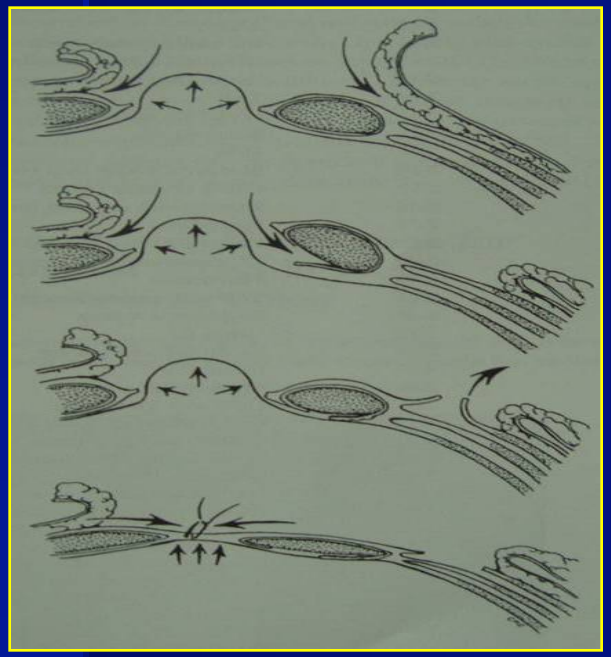
Endoscopic Simplified Technique

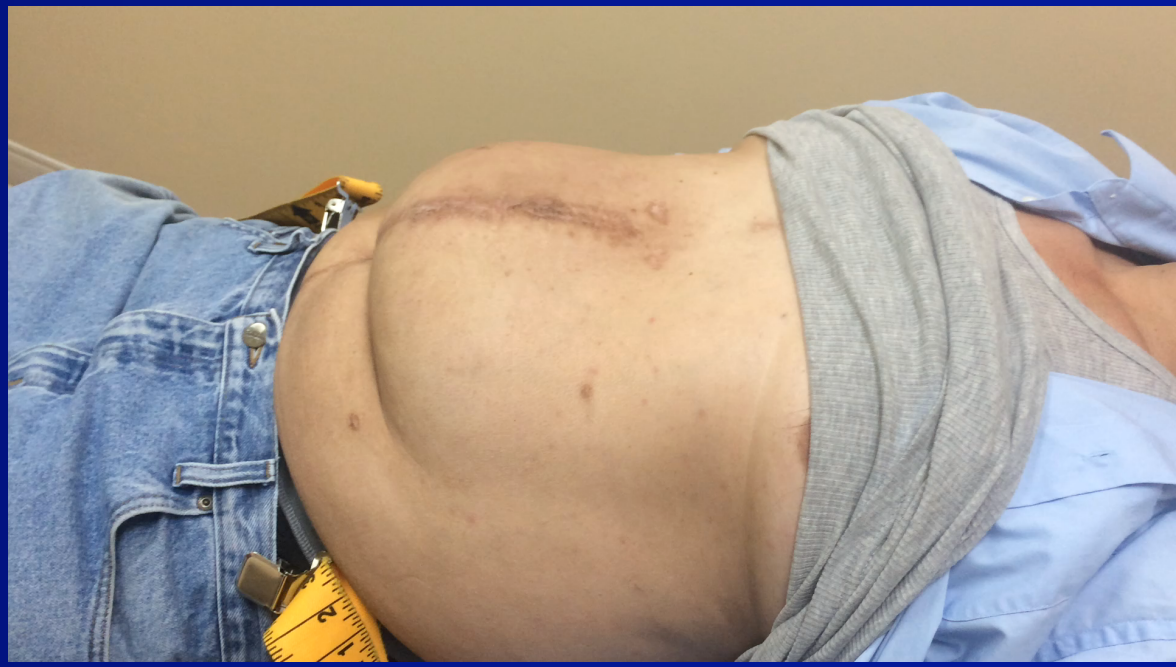
- Pros
  - Very quick
  - Least dissection leading to decrease wound events*
- Cons
  - Limited release
  - No visualization
  - Bleeding

Component Separation: Ext retro-rectus / TAR

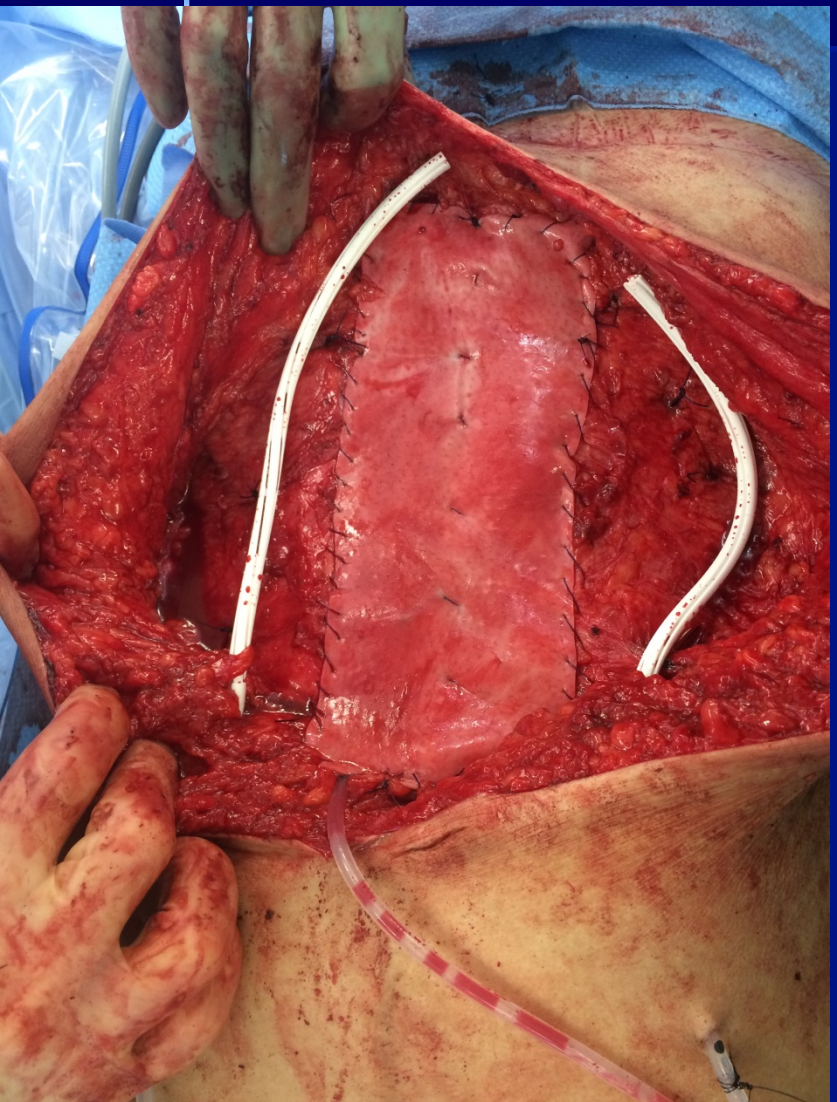


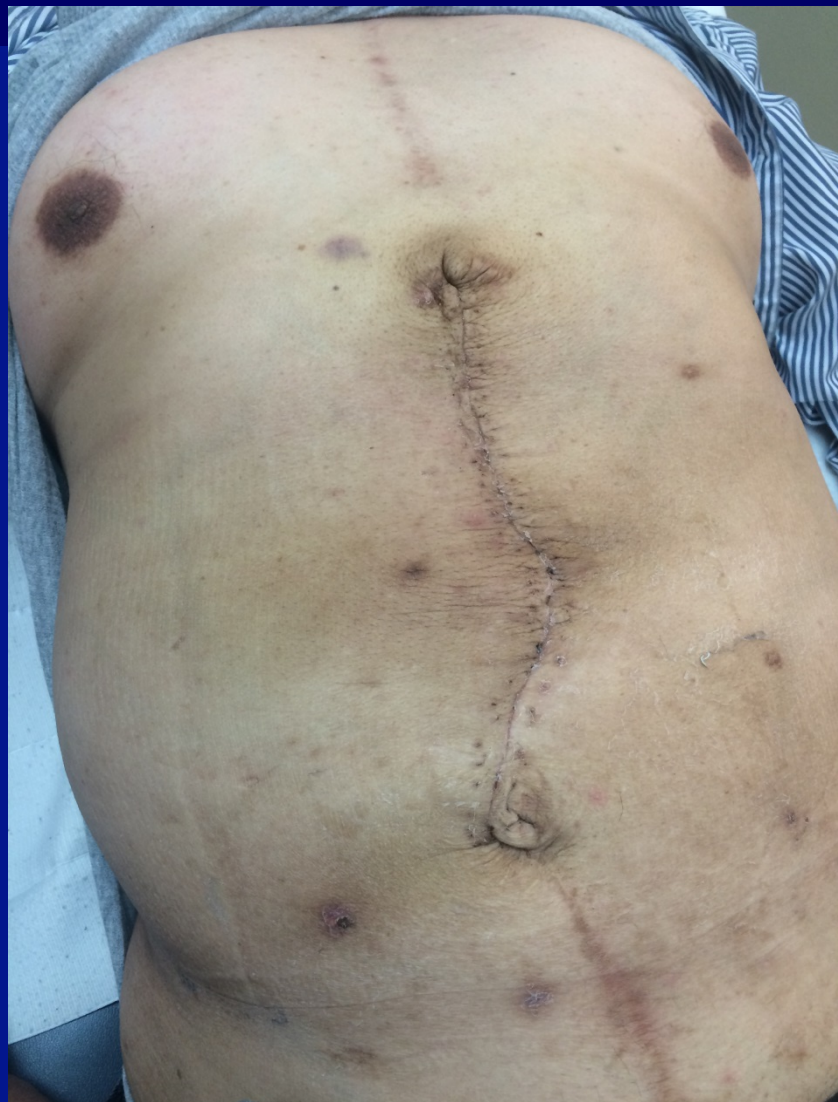
Technique
Anterior Component Separation





Anterior Component Separation: Sandwich Technique





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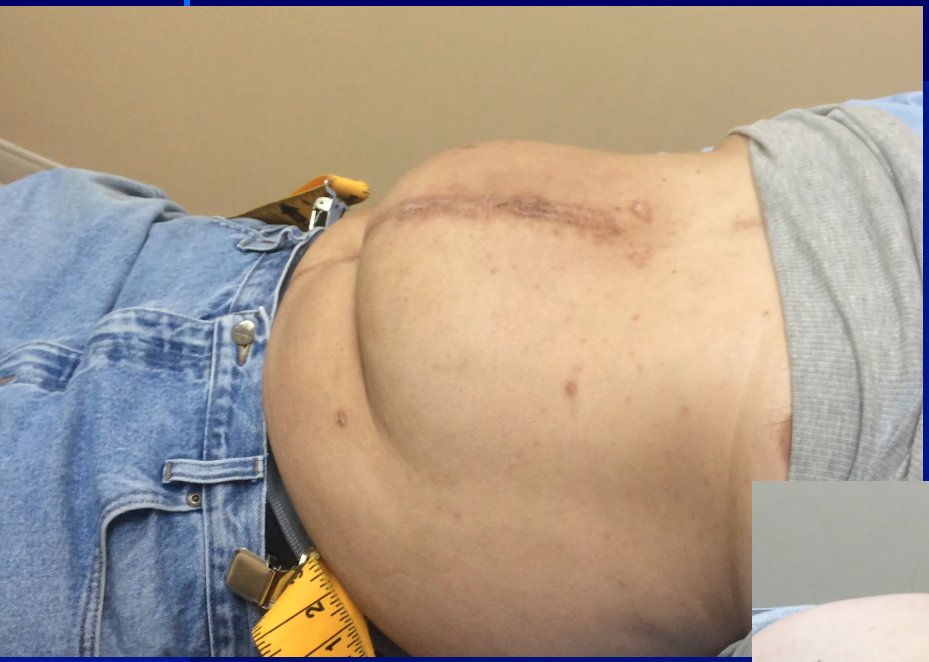

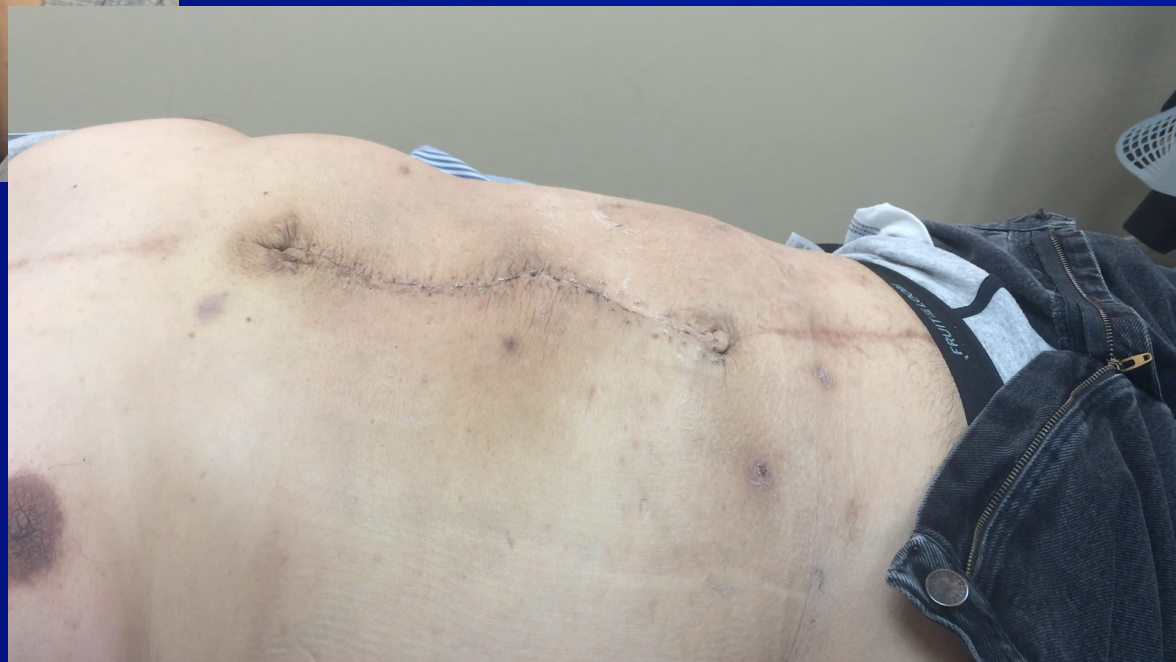

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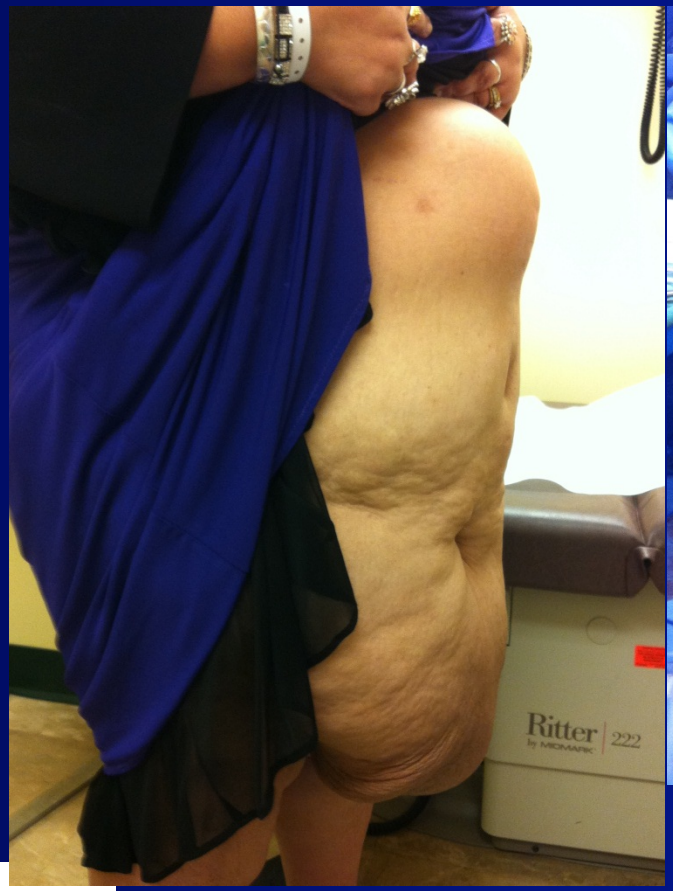
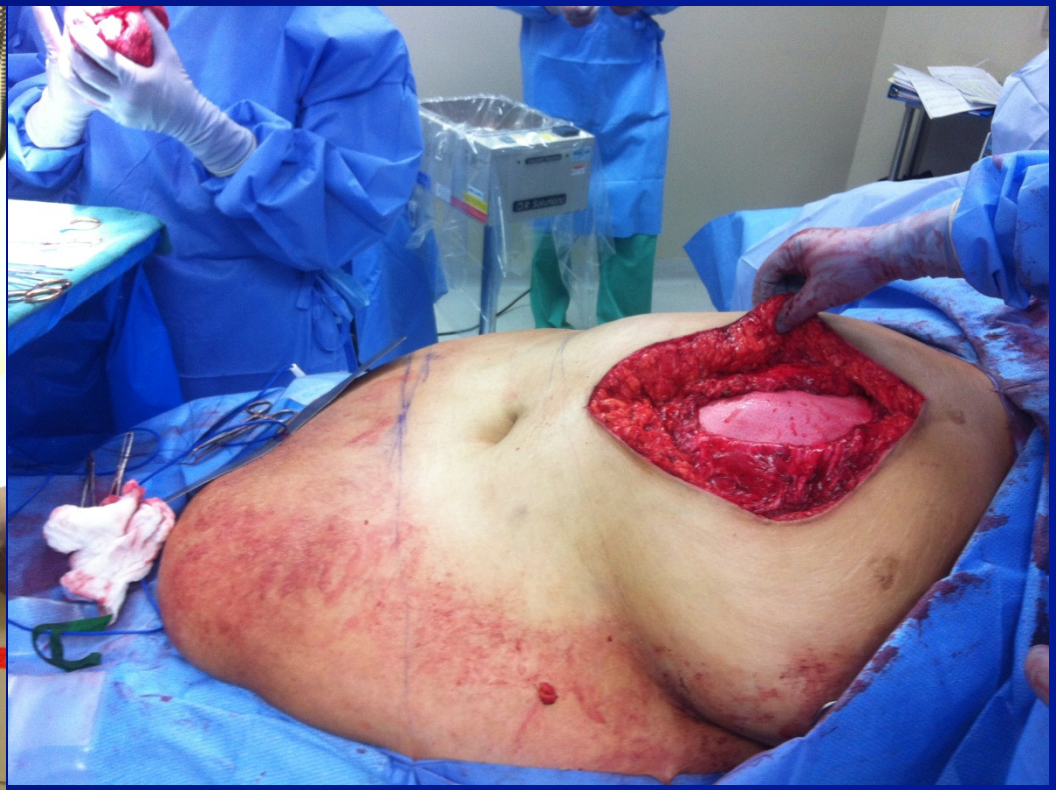
Challenging Hernias: Post Gastric bypass





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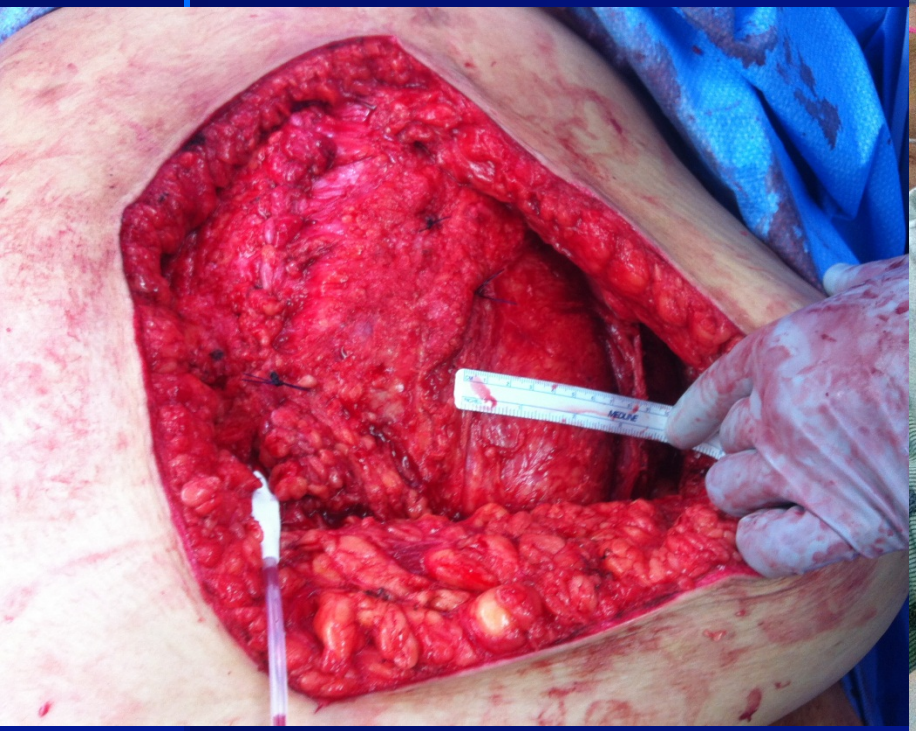
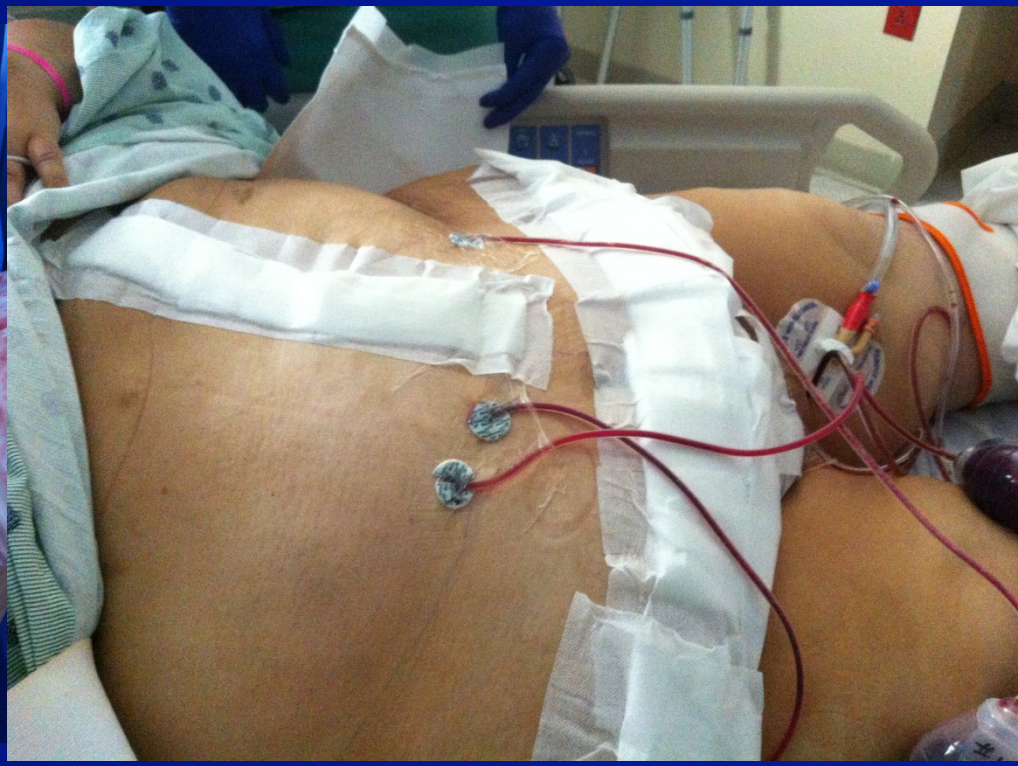
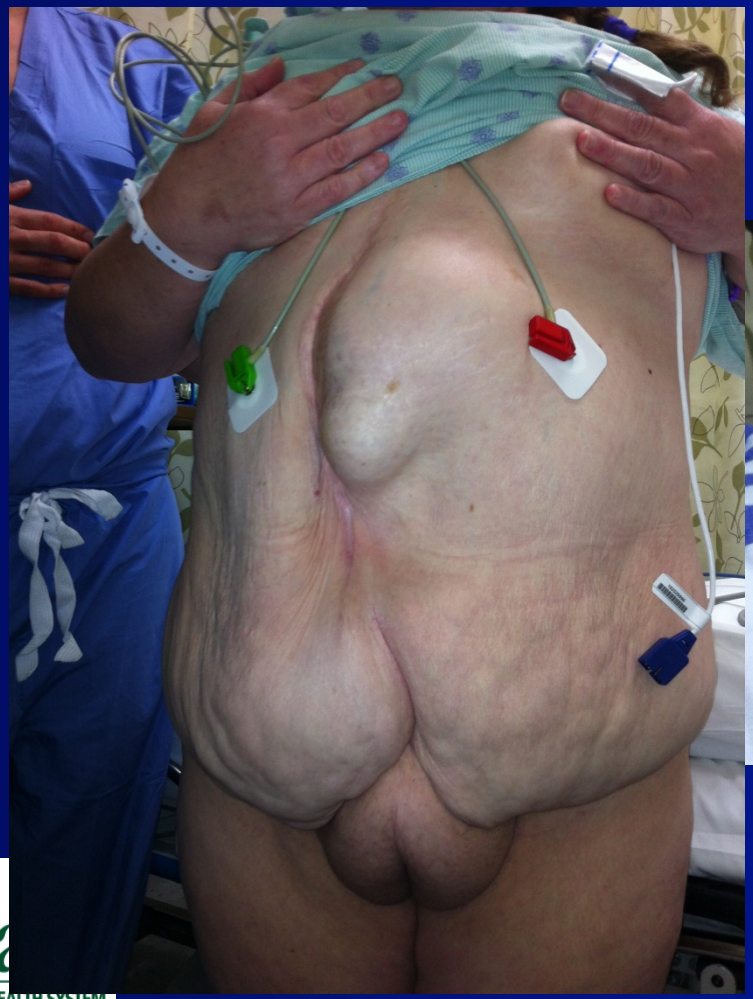
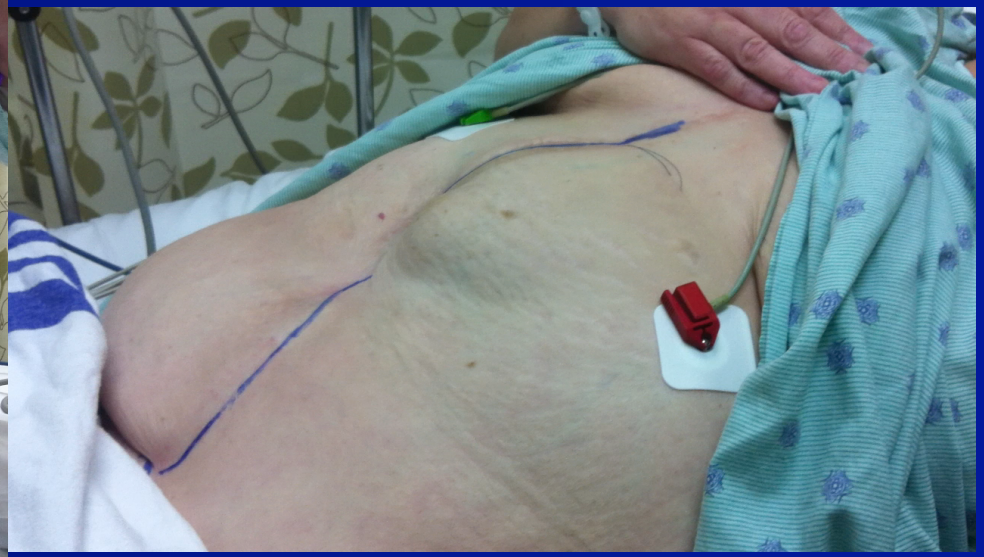




Anterior component separation: lap mesh fixation





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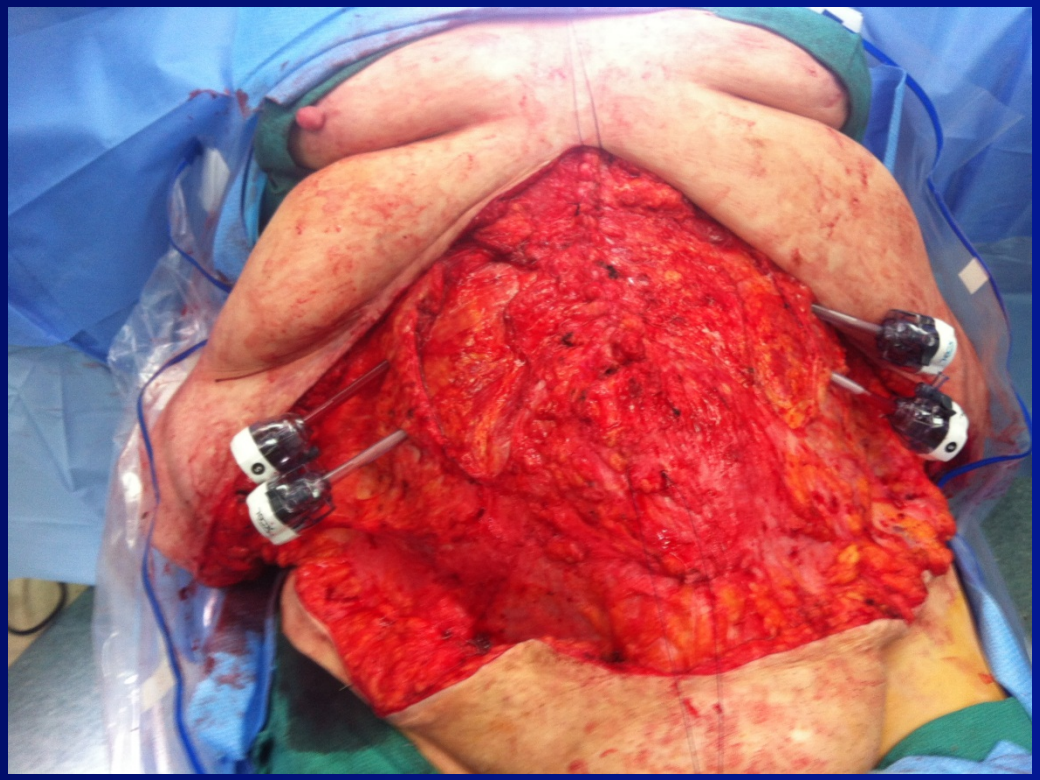

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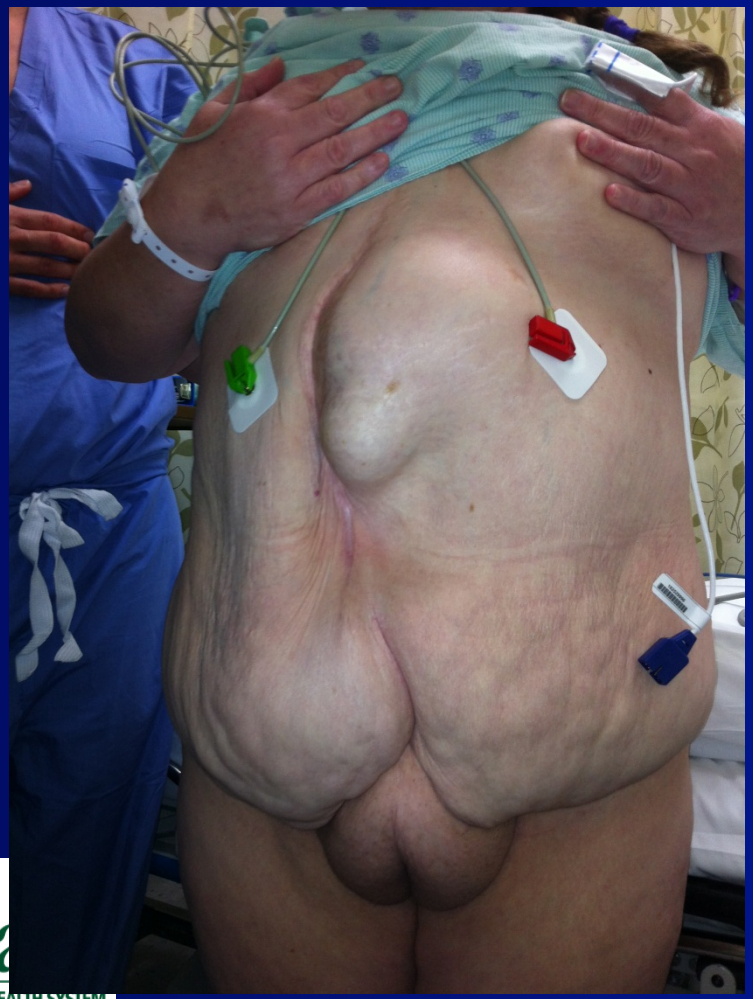
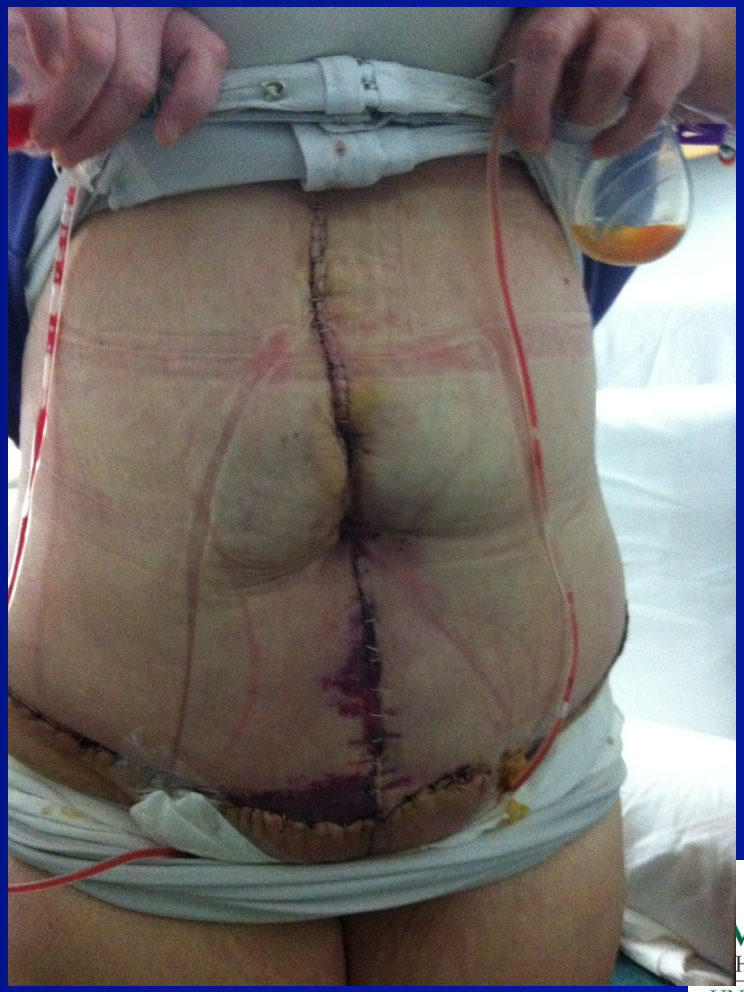
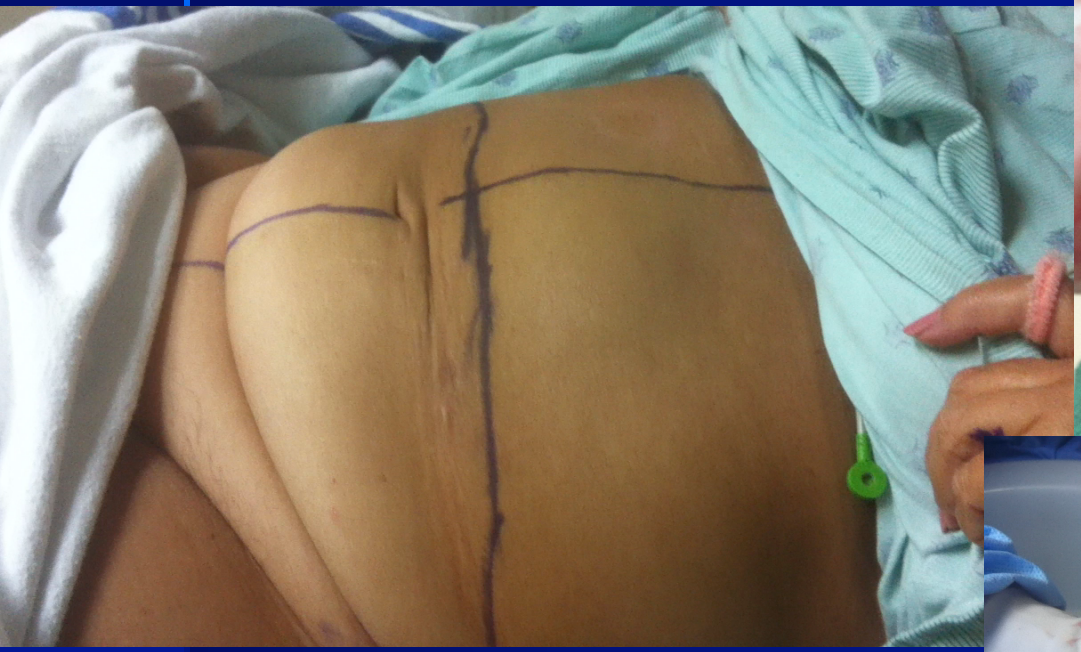
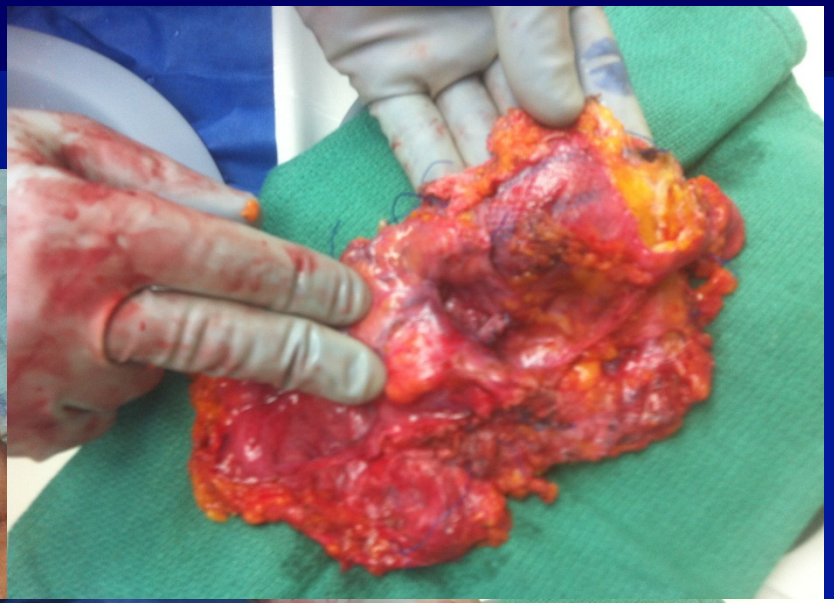
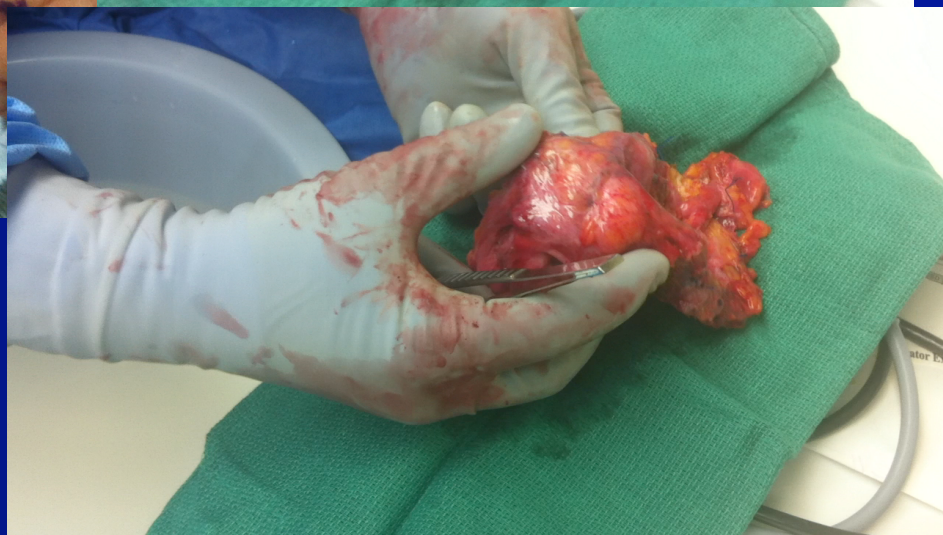




Challenging Hernias: Combined Abdominoplasty







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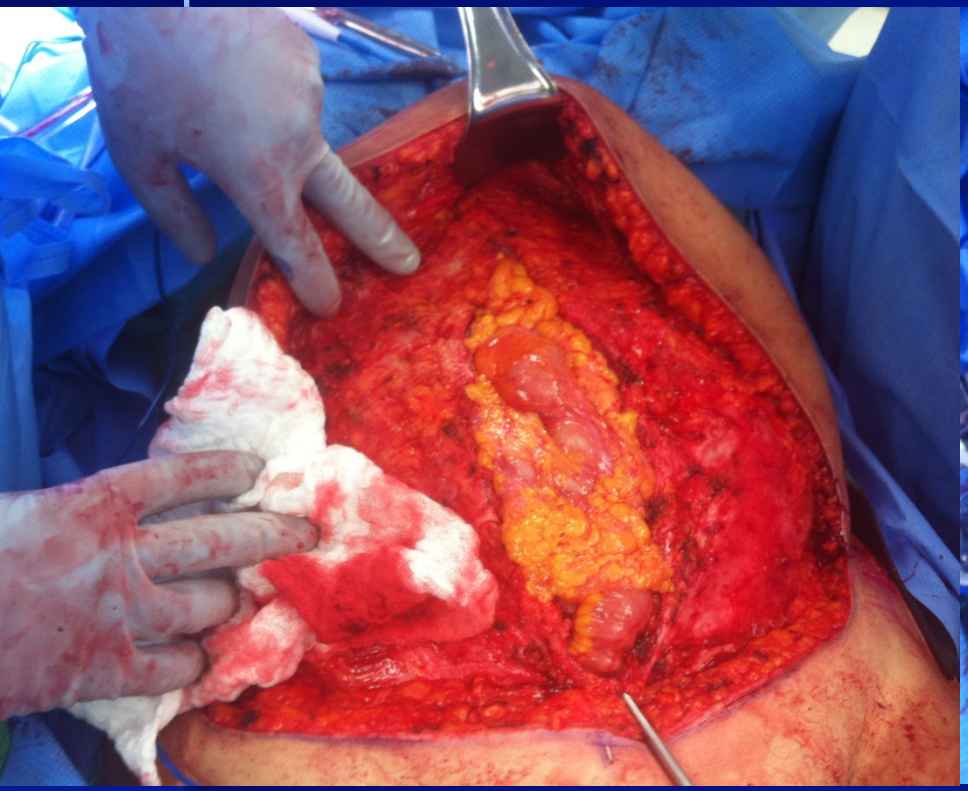

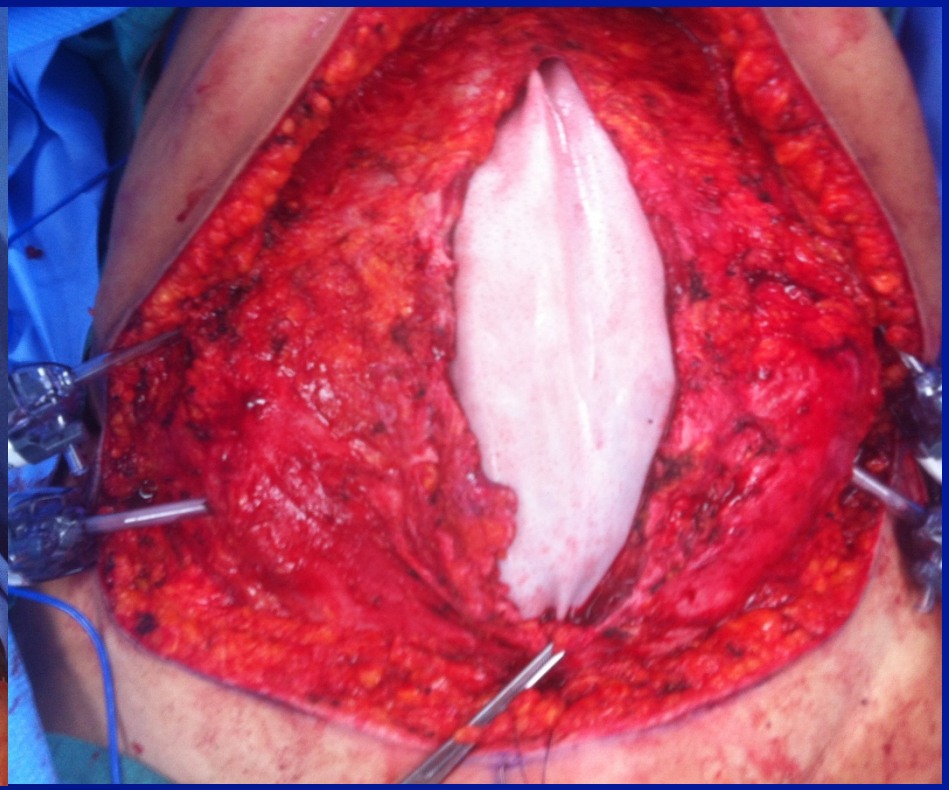

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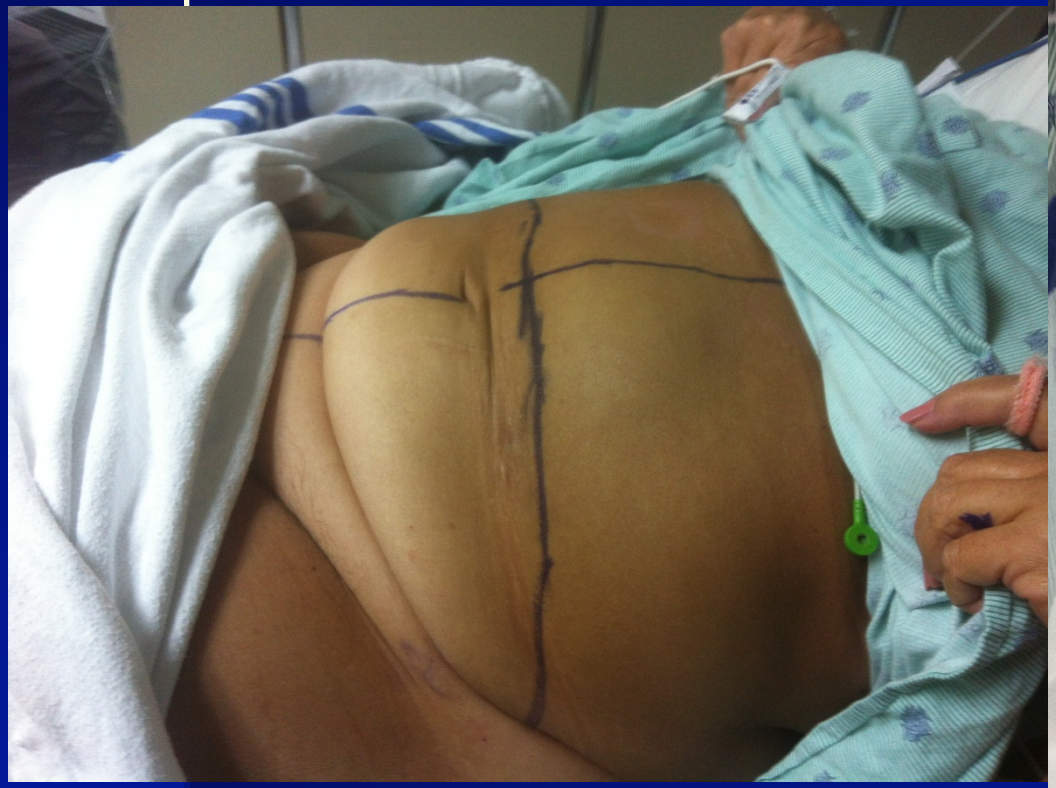

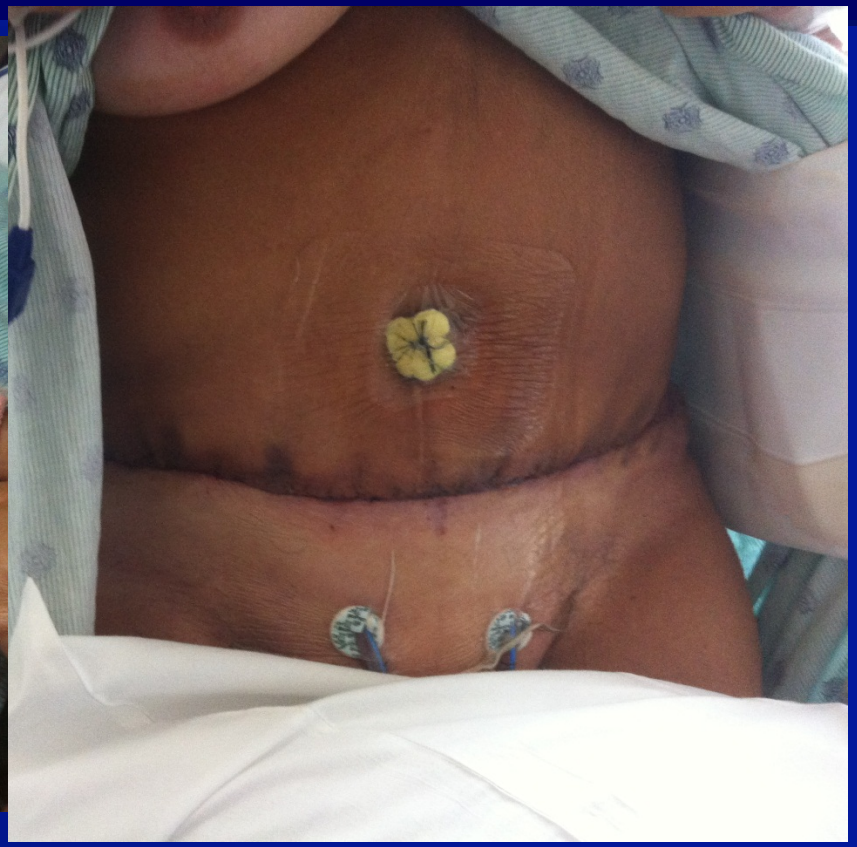

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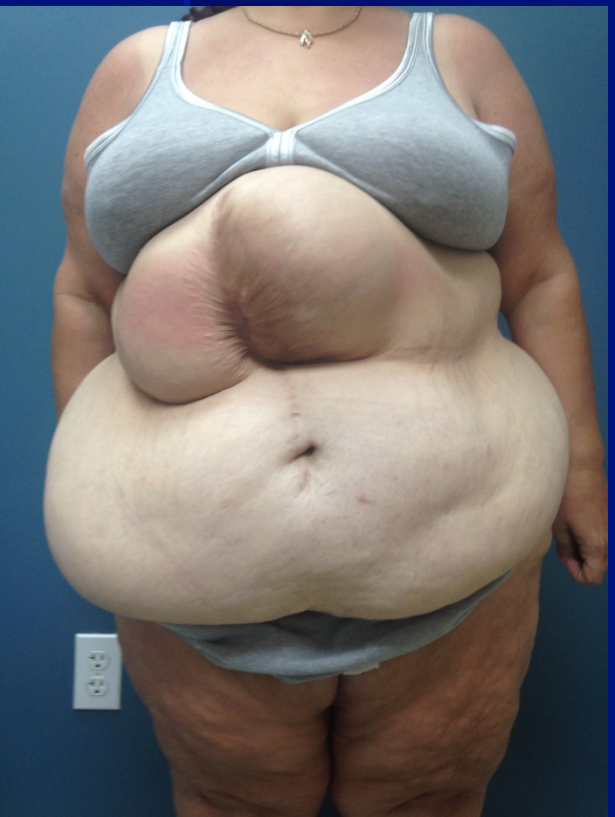

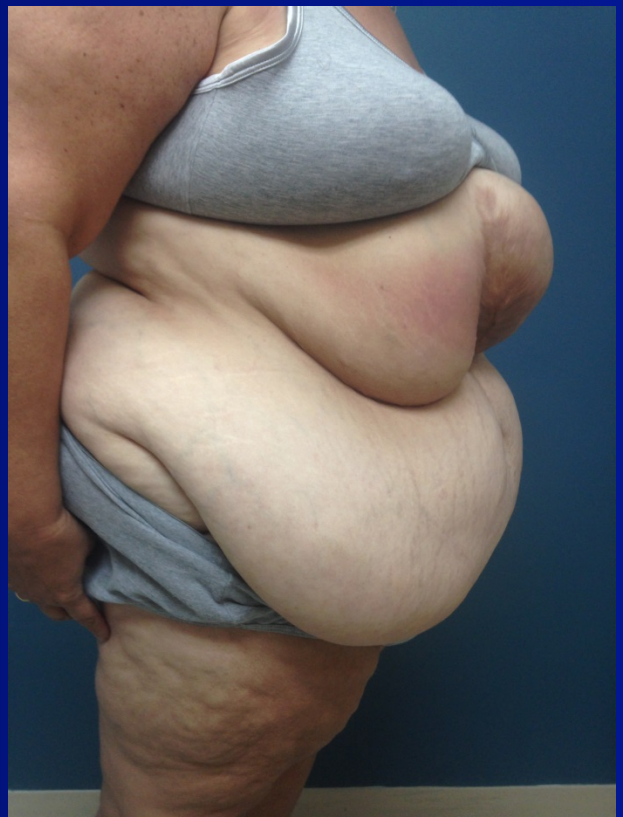

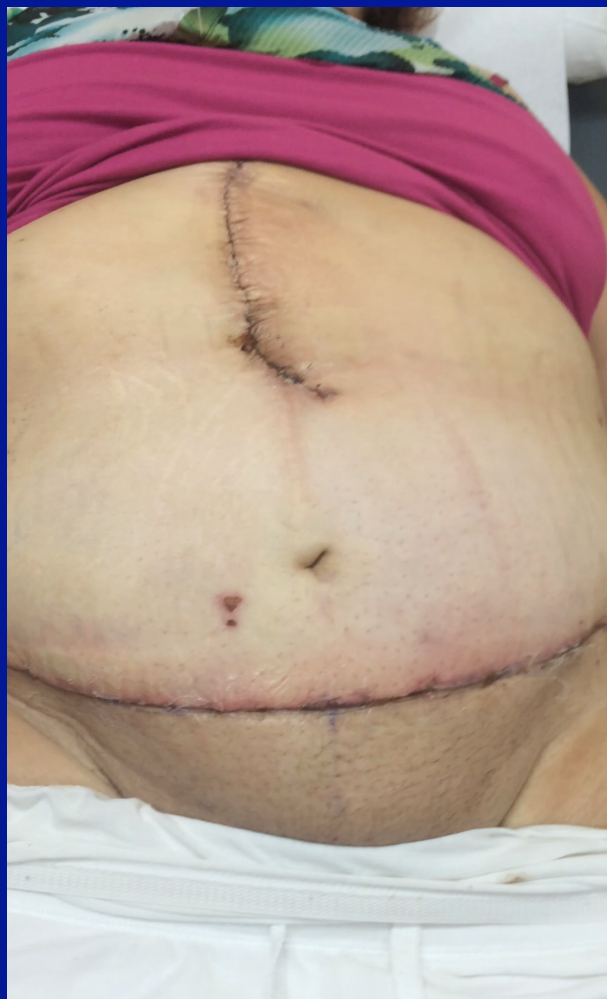

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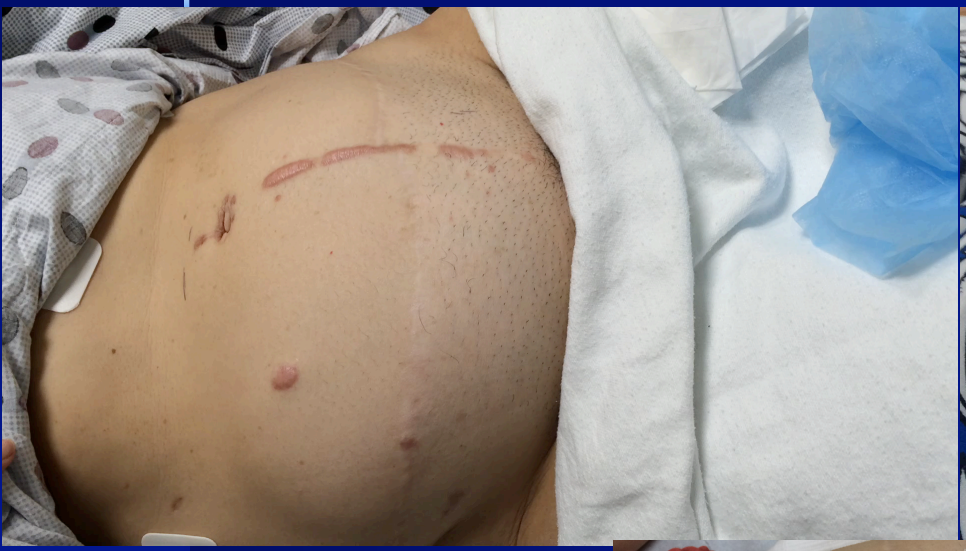
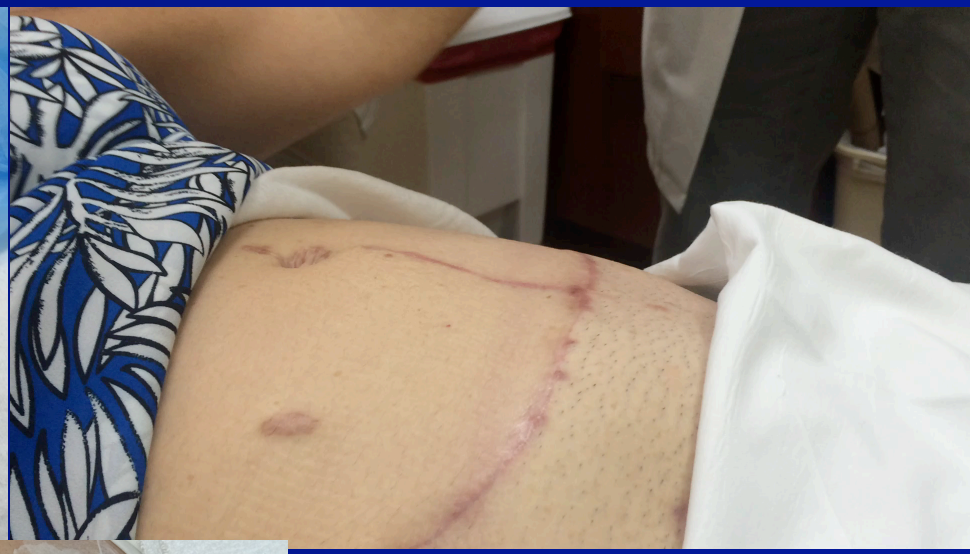
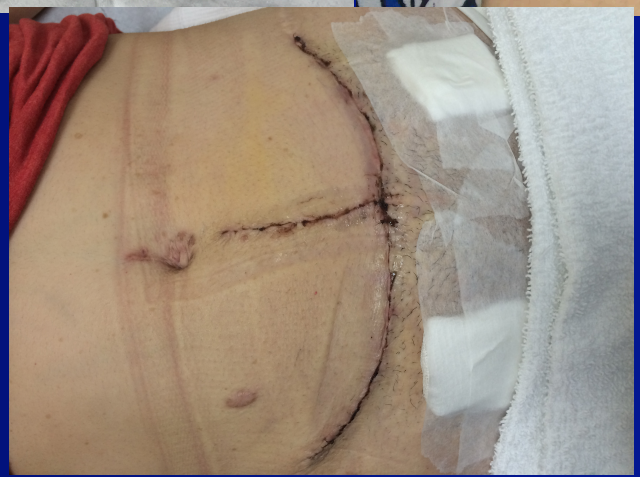
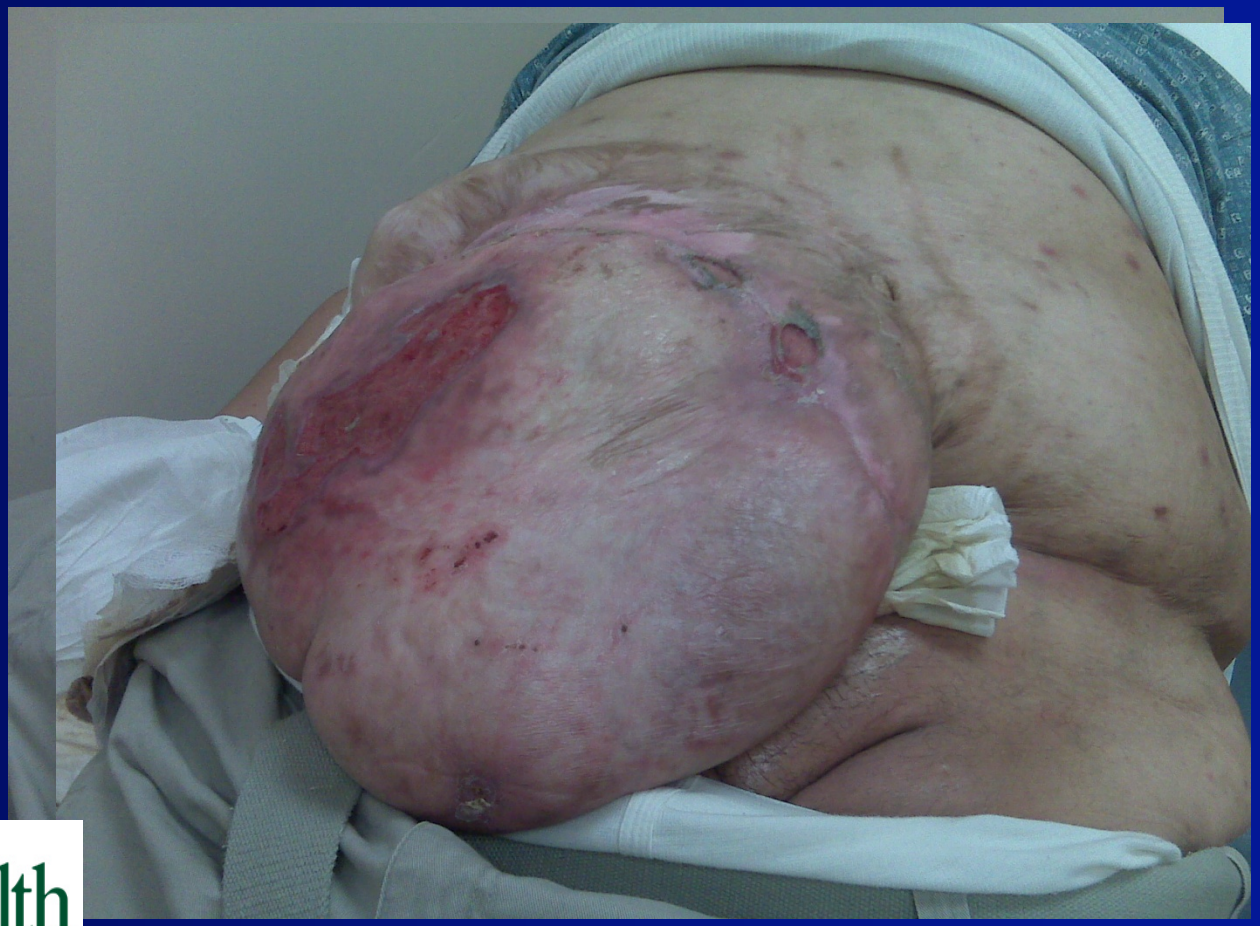






Chronic Contamination/ Complex Hernia: Tissue loss



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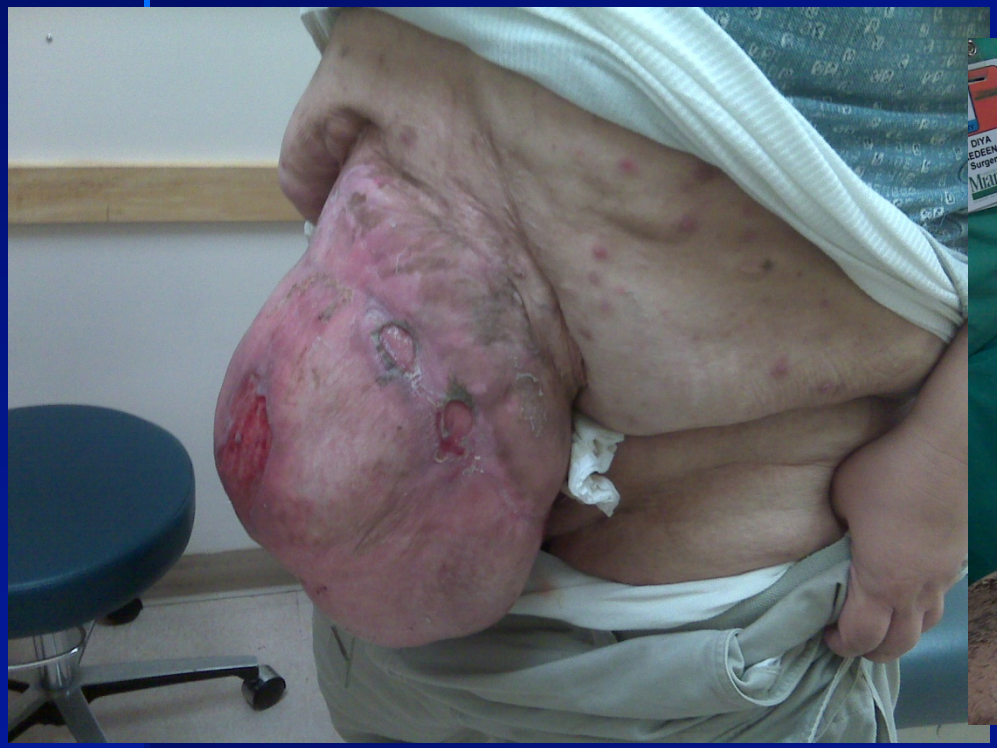

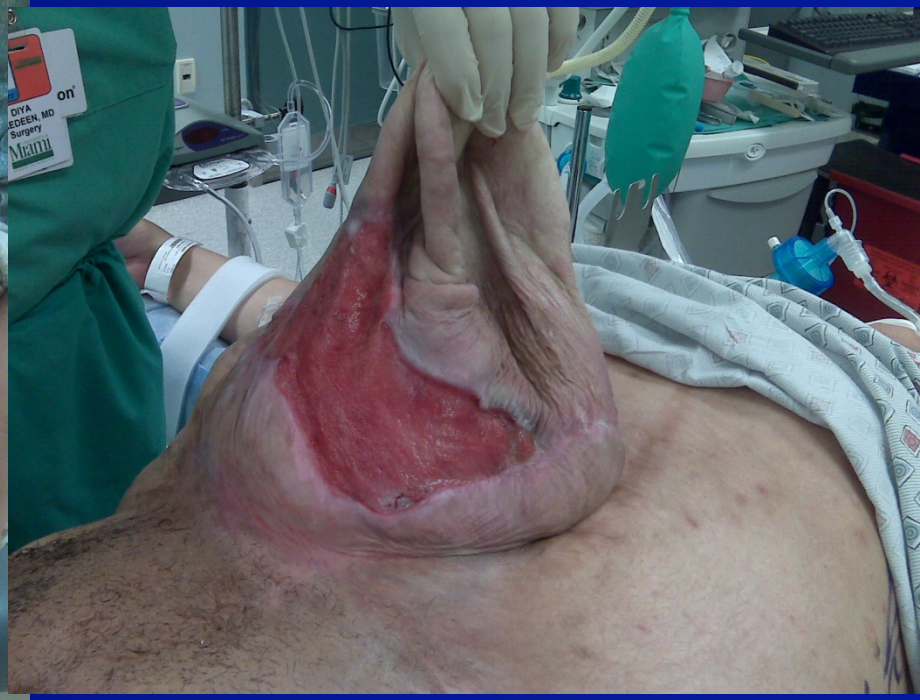

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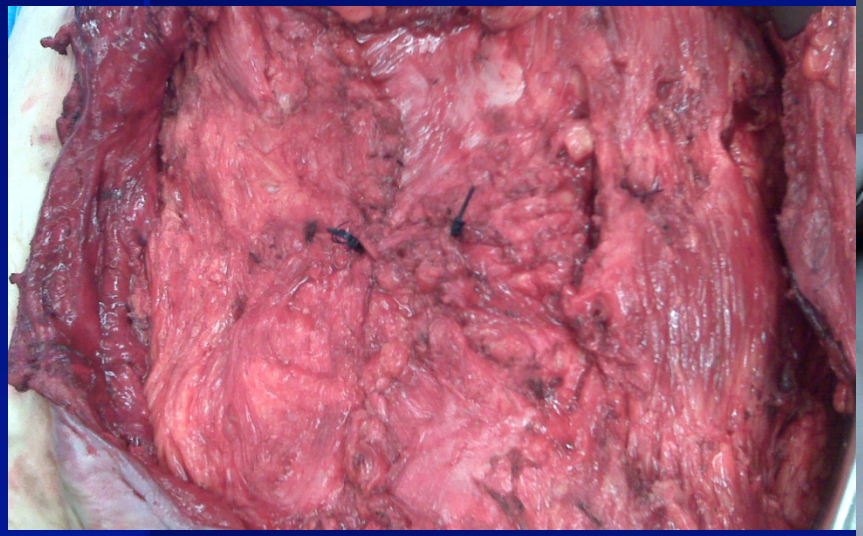

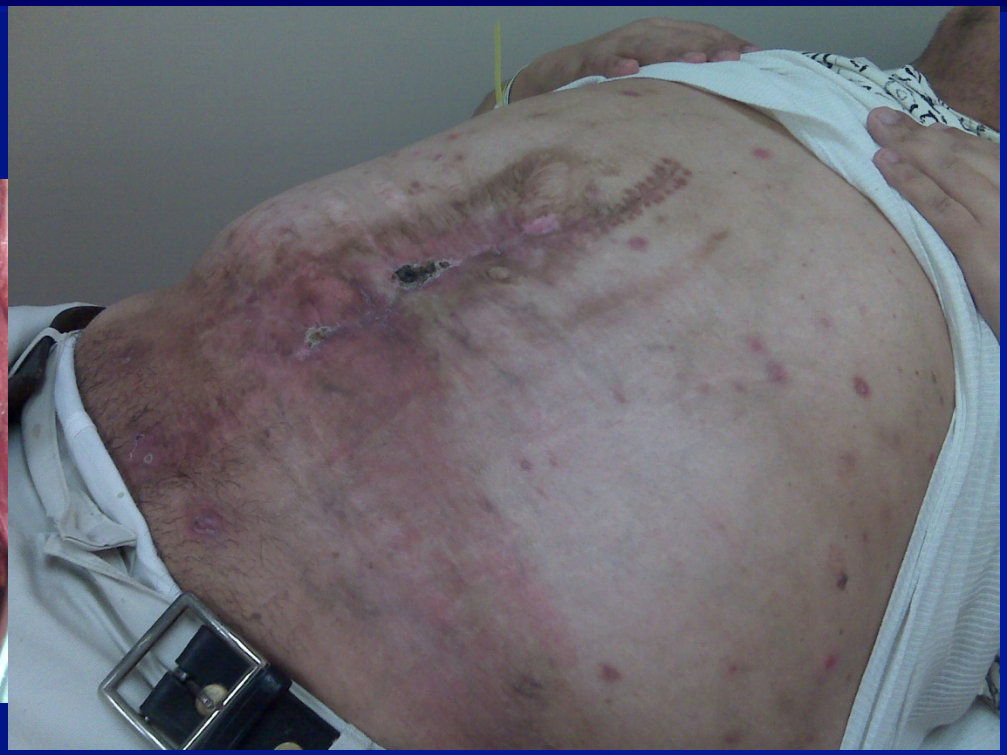

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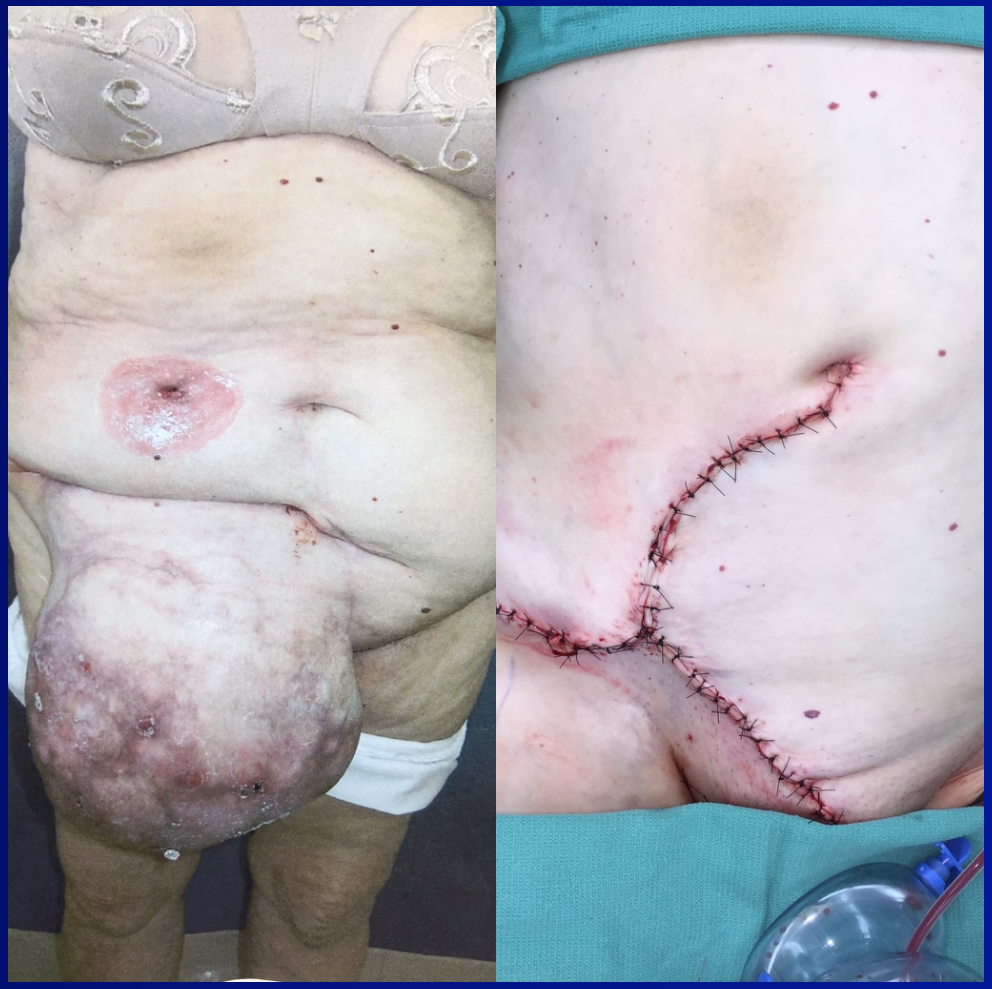
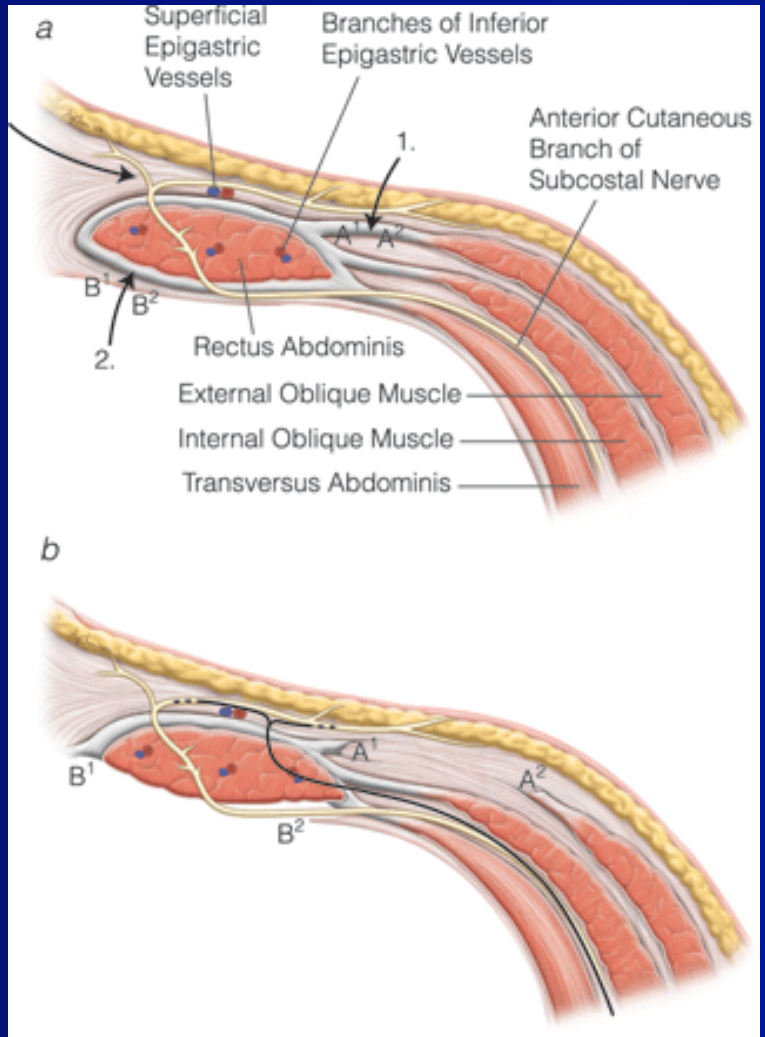
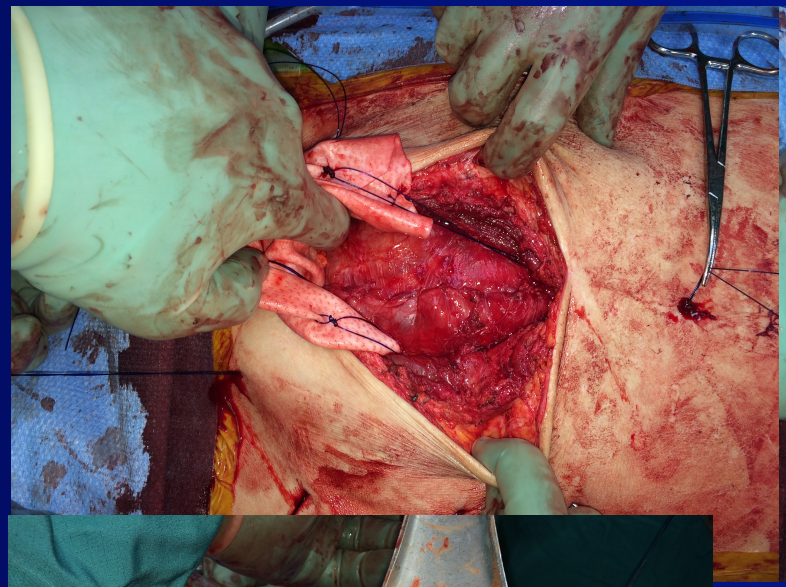
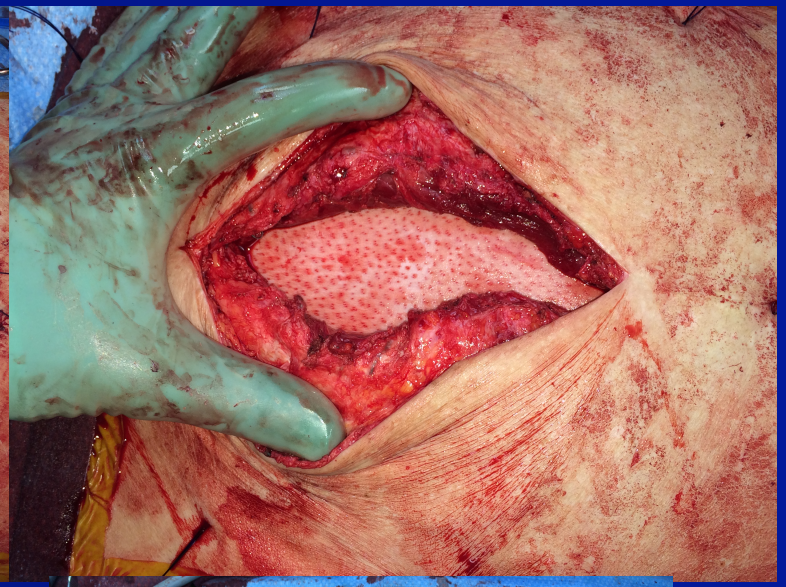


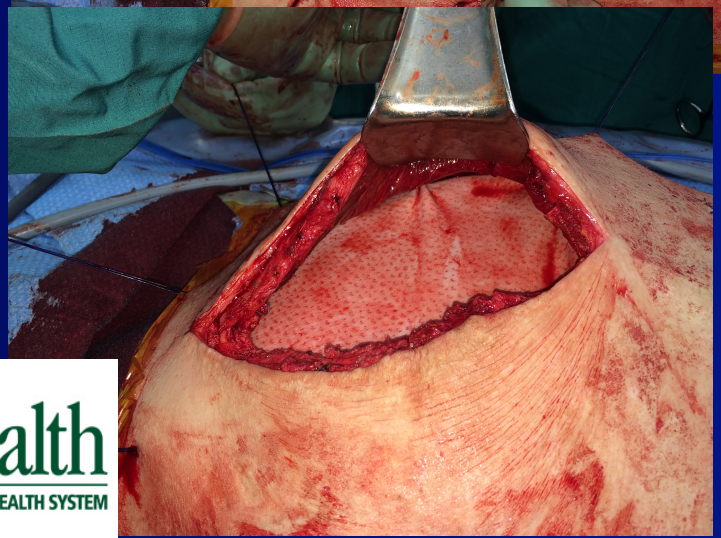
Component Separation: Ext retro-rectus / TAR

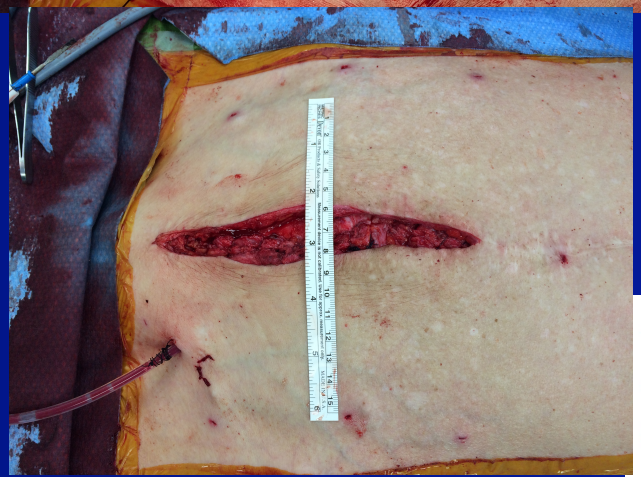


Transverse Abd Release: TAR









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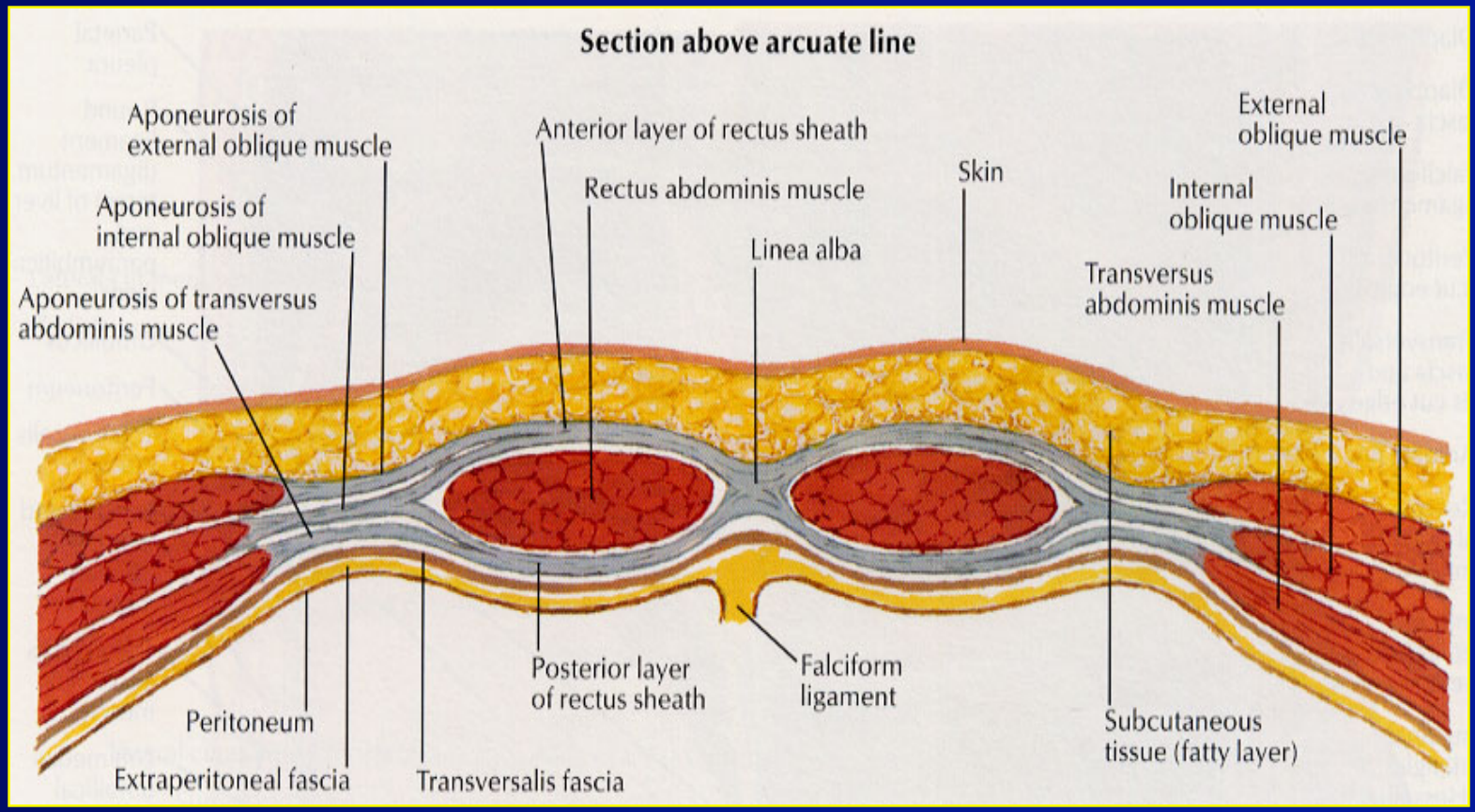
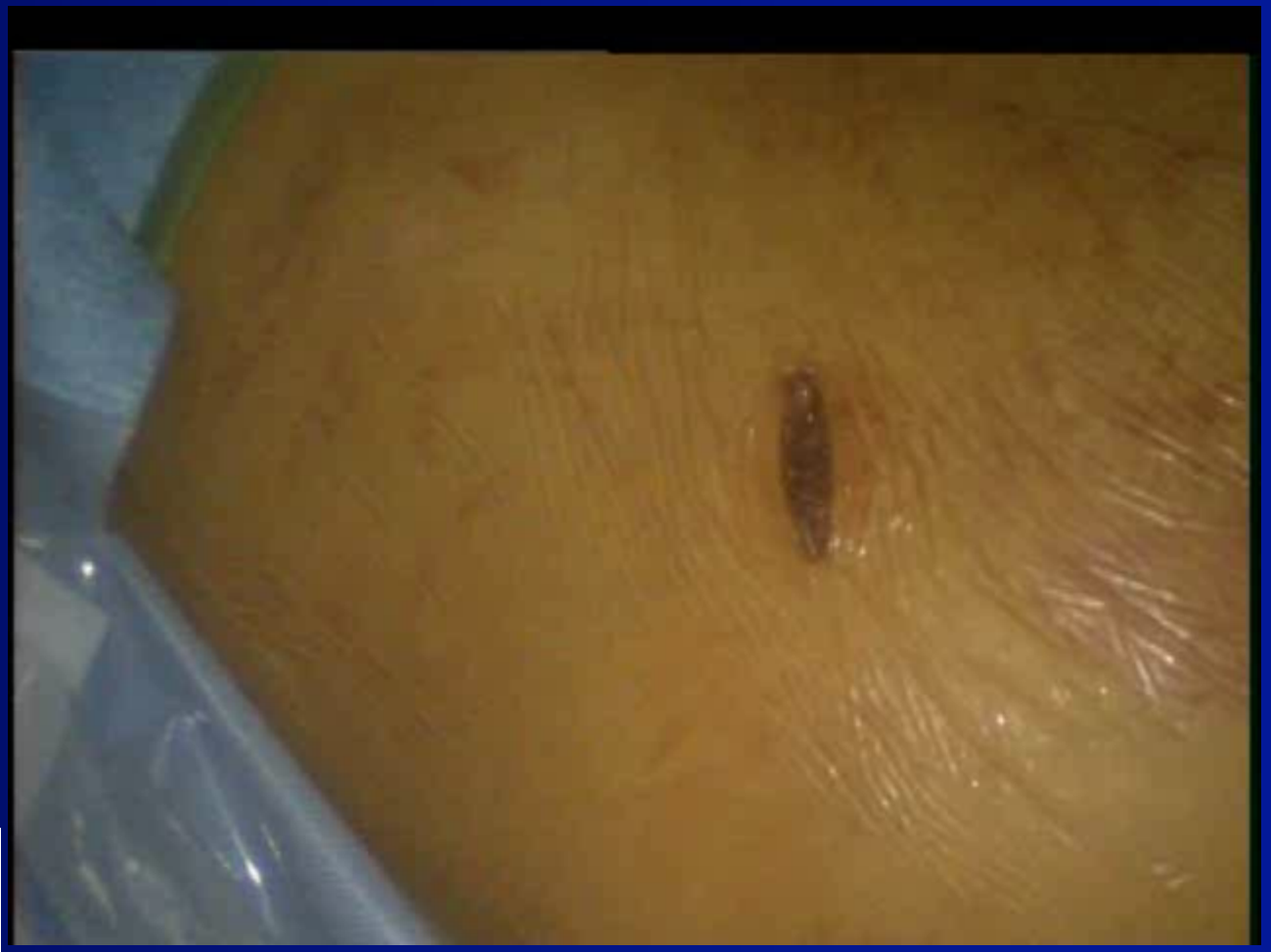
Minimally Invasive Component Separation

- Periumbilical Perforator Sparing
- Endoscopic Release
  - Simplified Version
  - Laparoscopic assisted

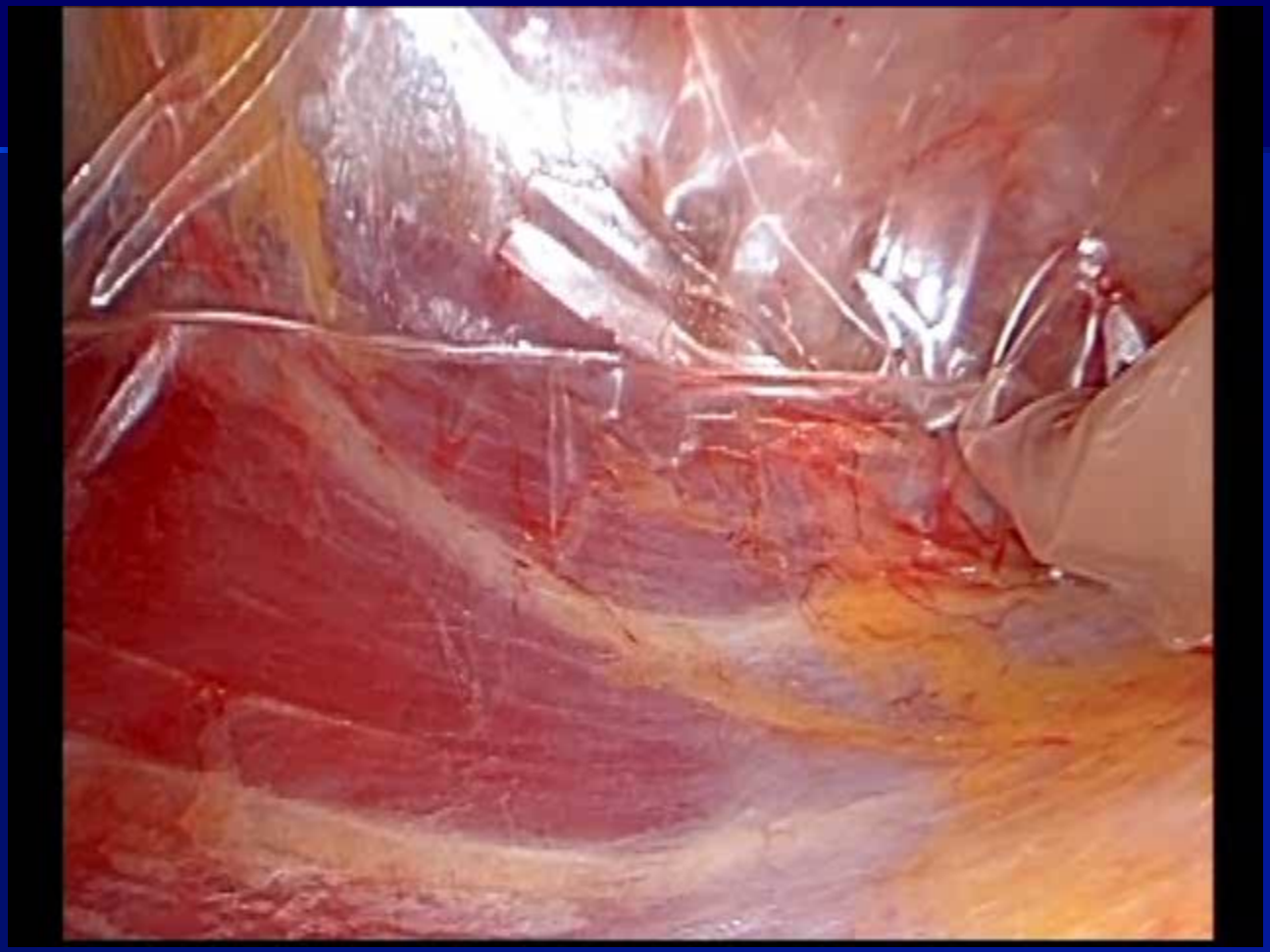
VENTRAL HERNIA: Anatomy: Dissection



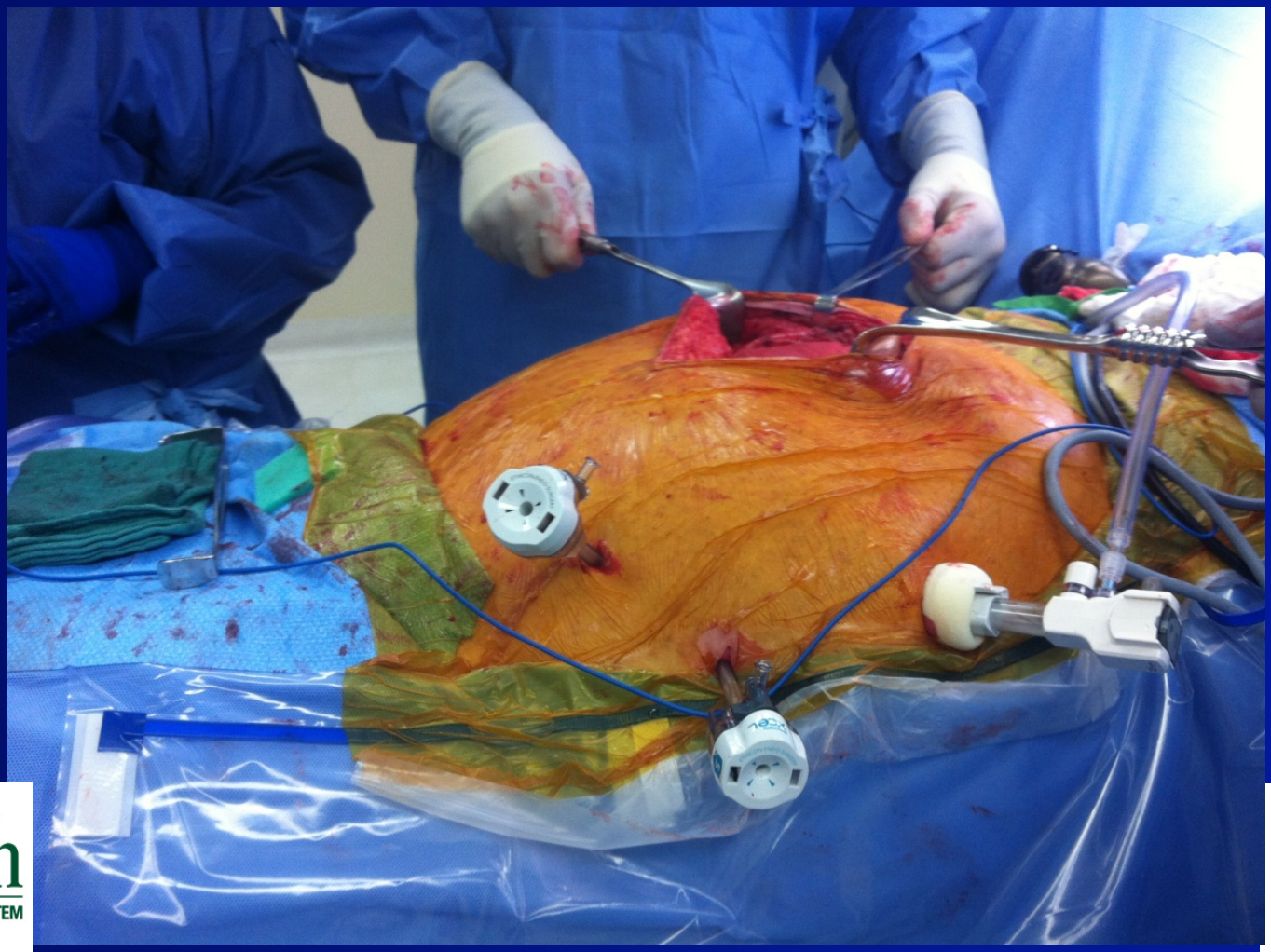
Laparoscopic Comp Separation: Steps



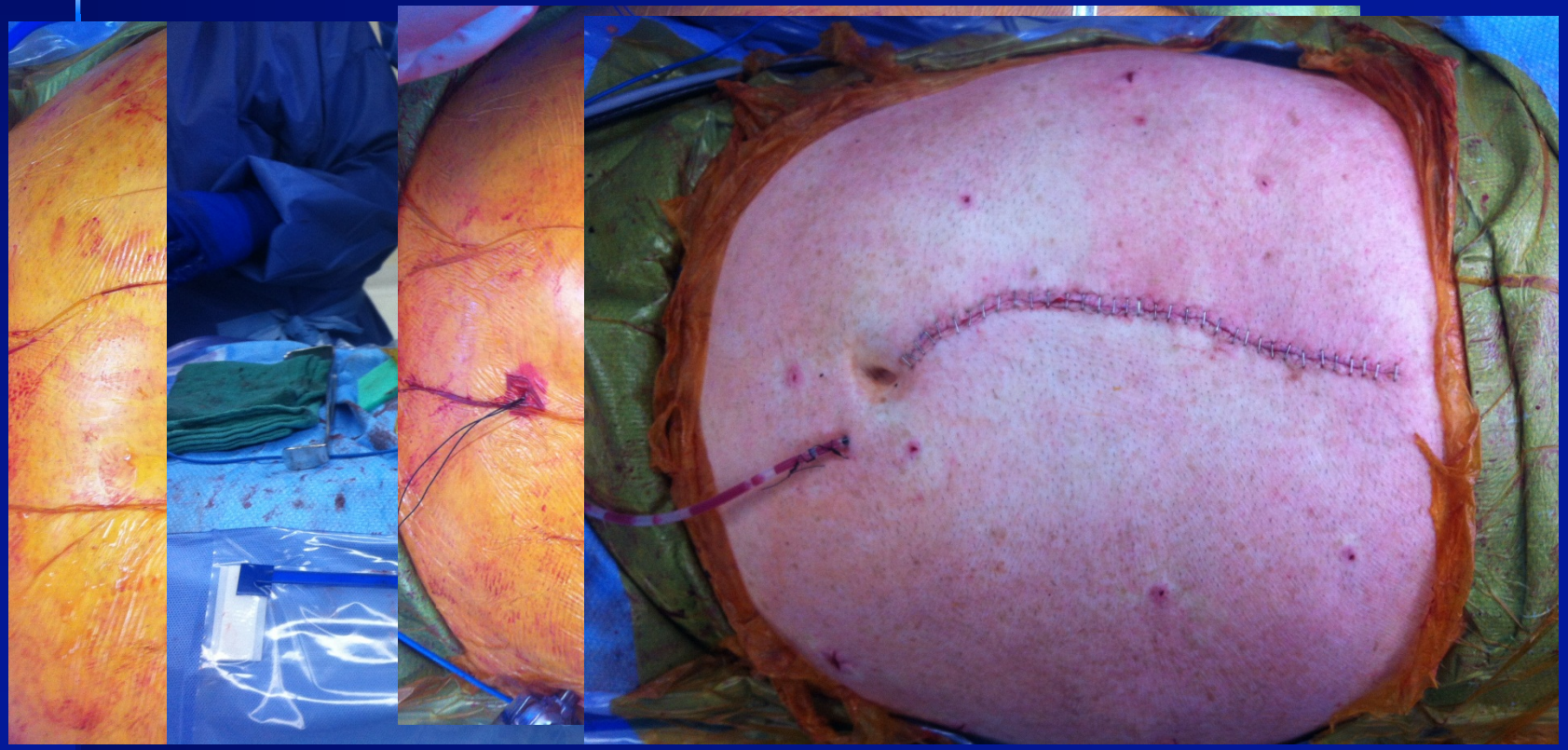
Dissection



Laparoscopic Comp Separation: Port sites



Challenging Hernias: Case 1- Grade 2



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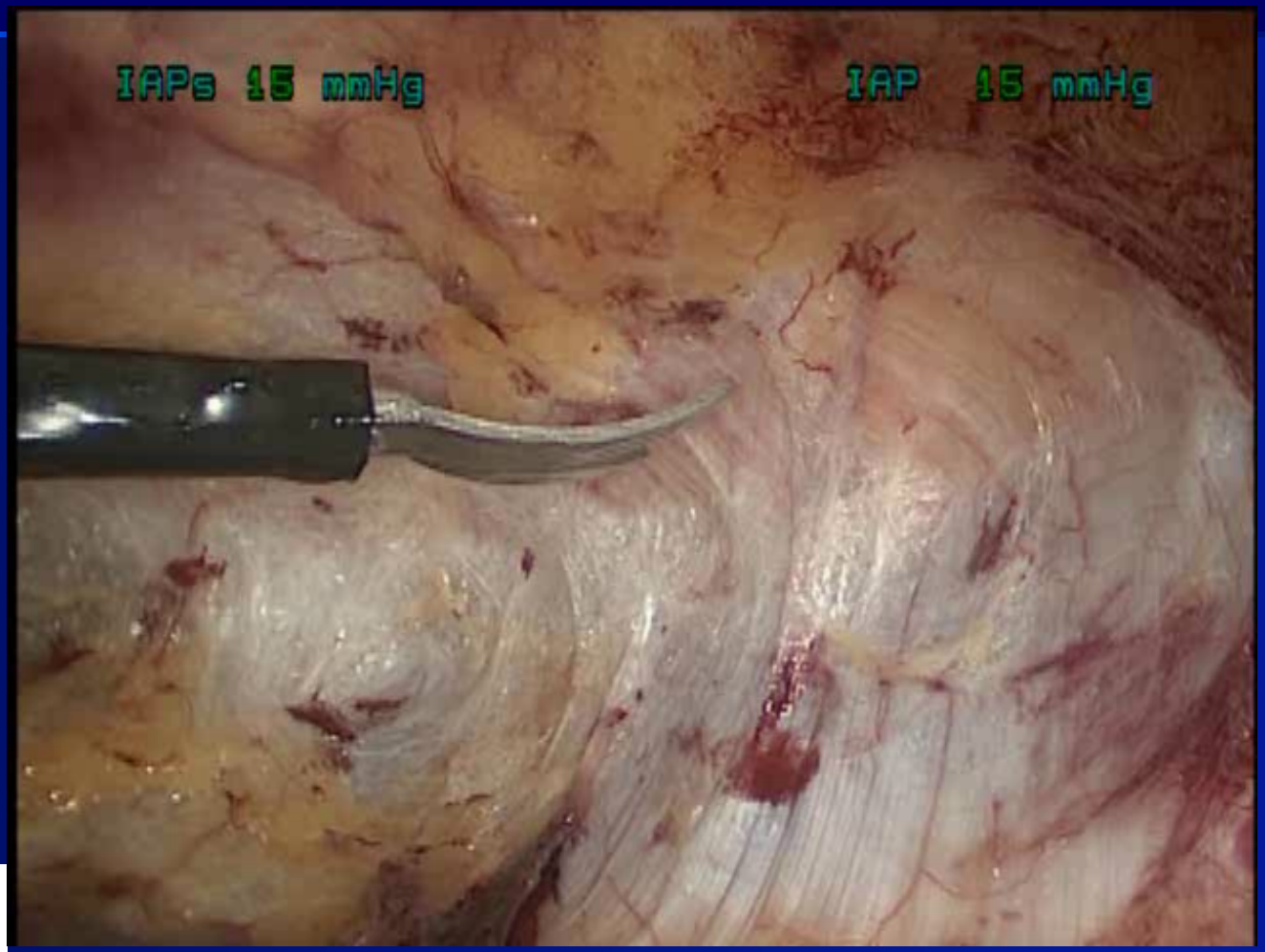
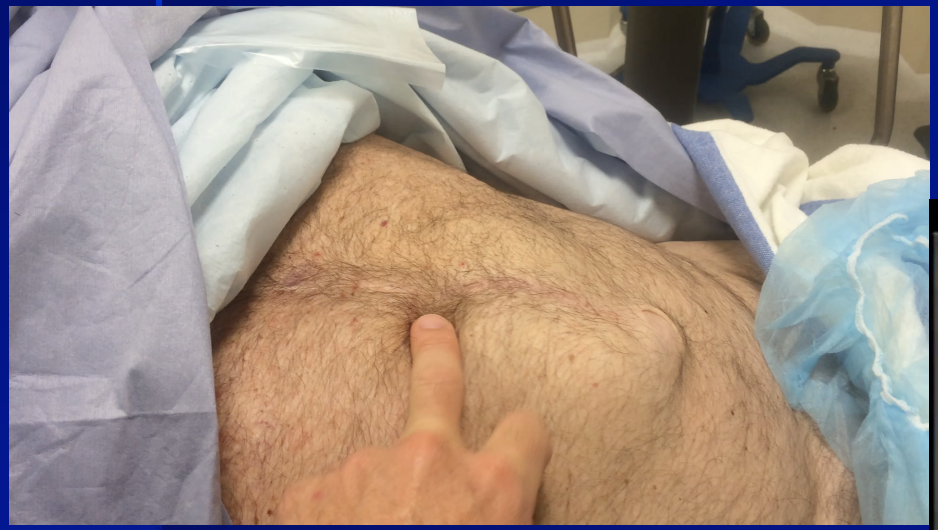
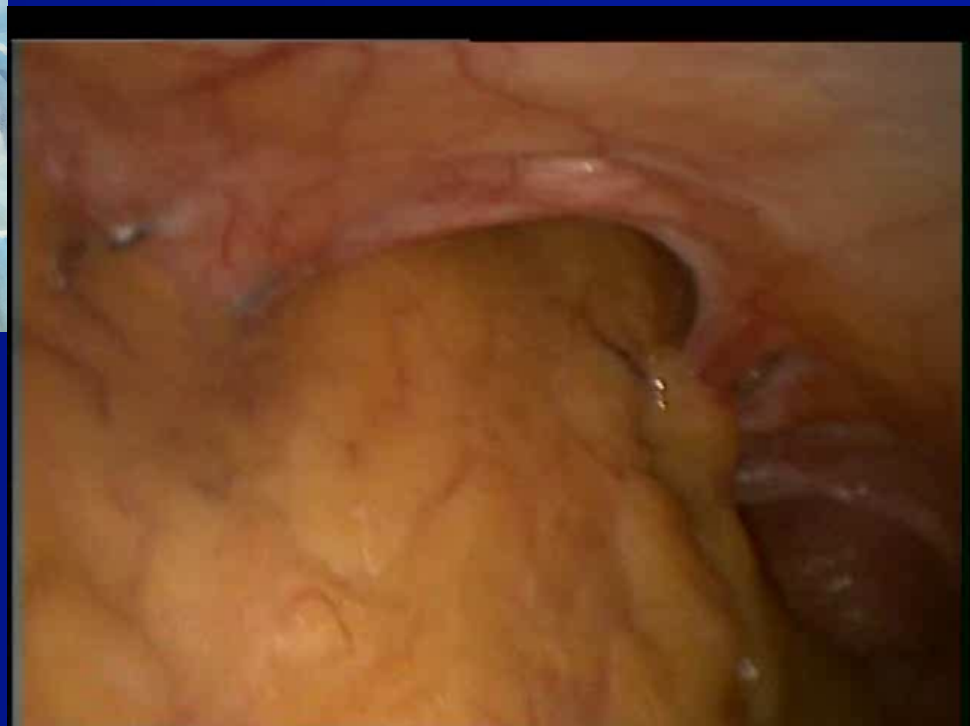
Challenging Hernias: Case 1- Grade 2



Minimally Invasive Technique: Lap Comp Separation





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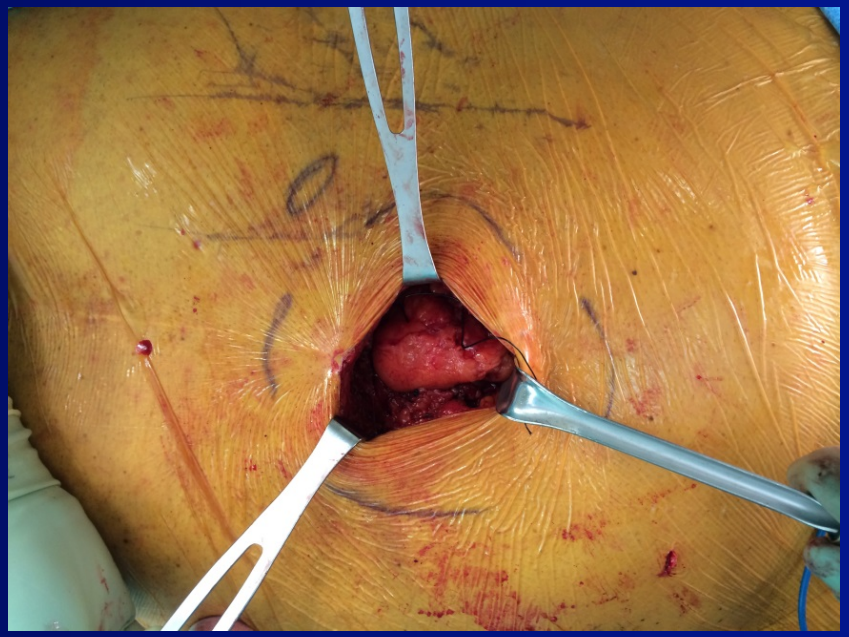
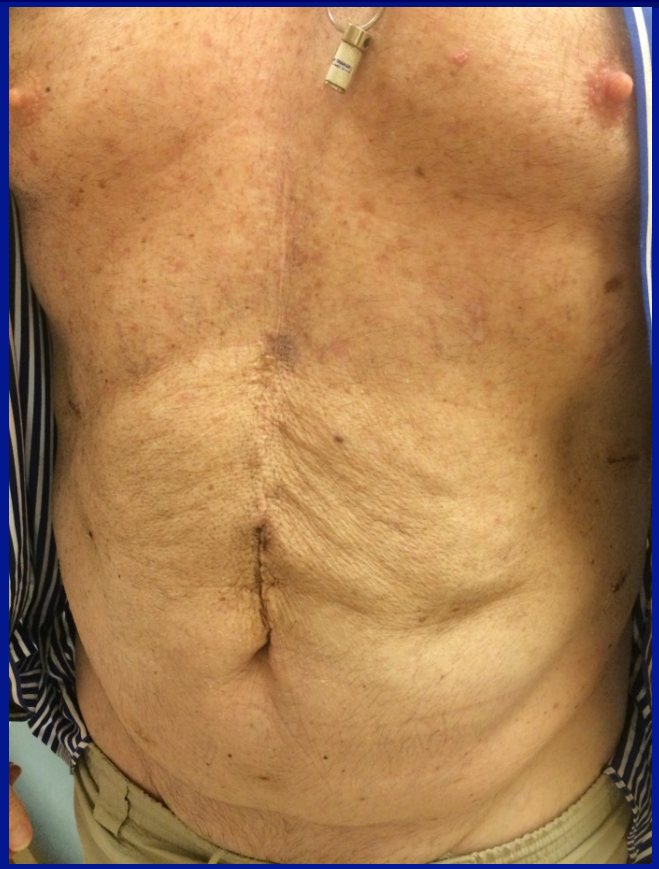
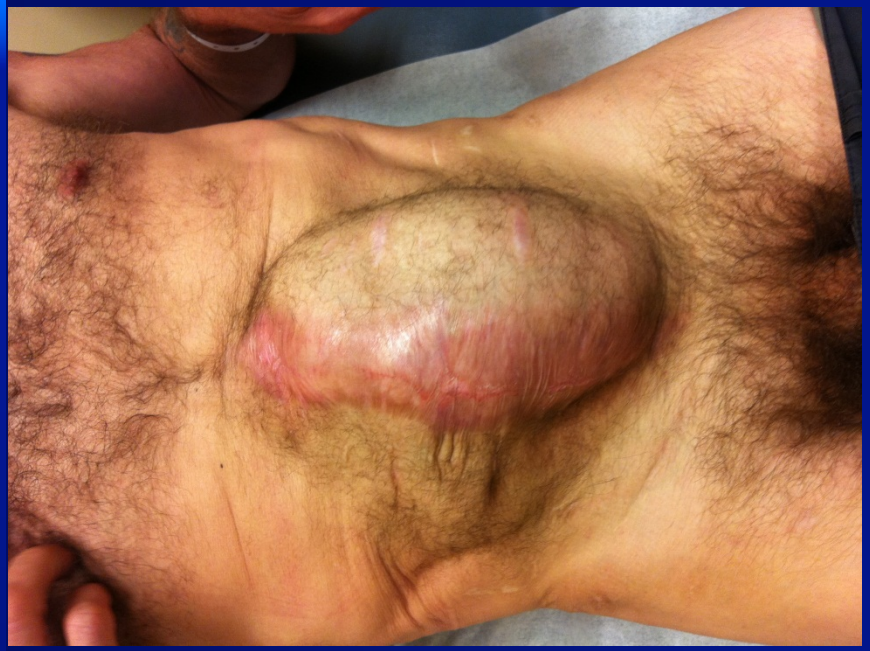
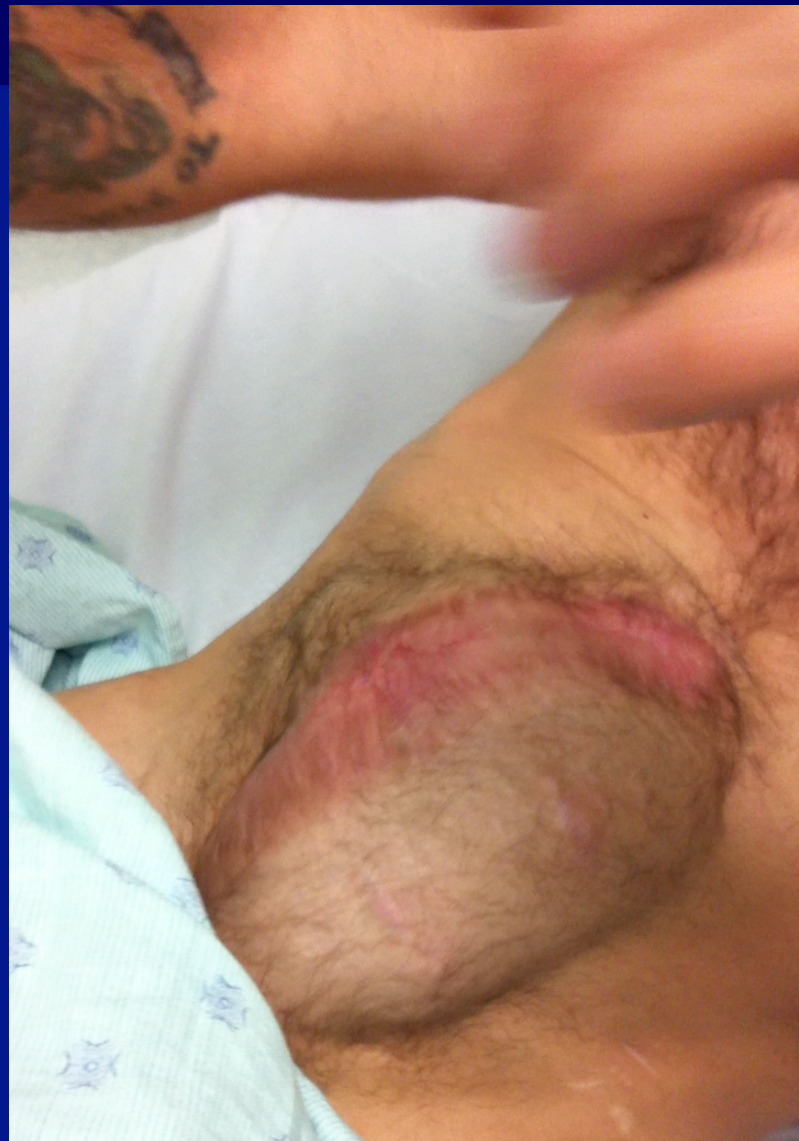
Minimally Invasive Technique: Lap Comp Separation





Minimally Invasive Technique: Lap Comp Separation





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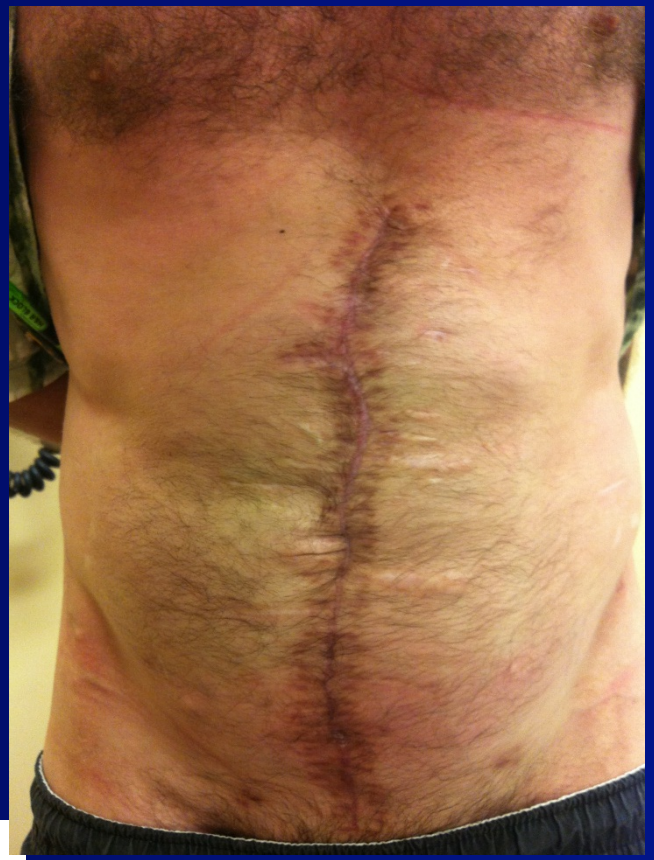
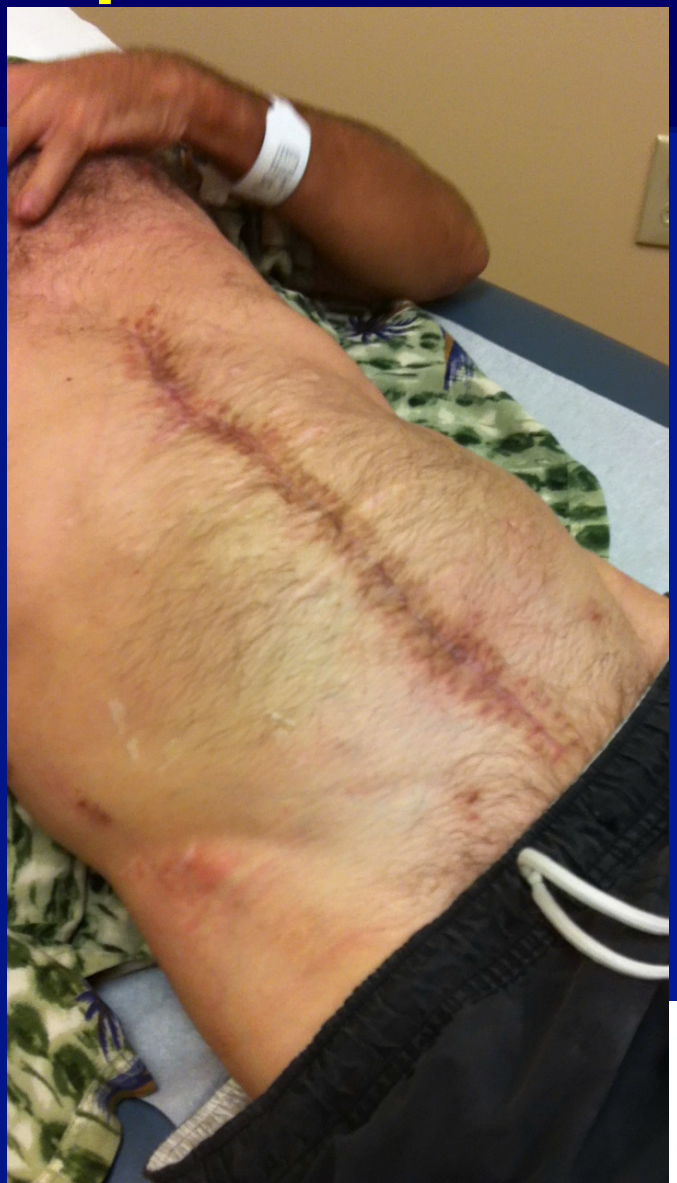
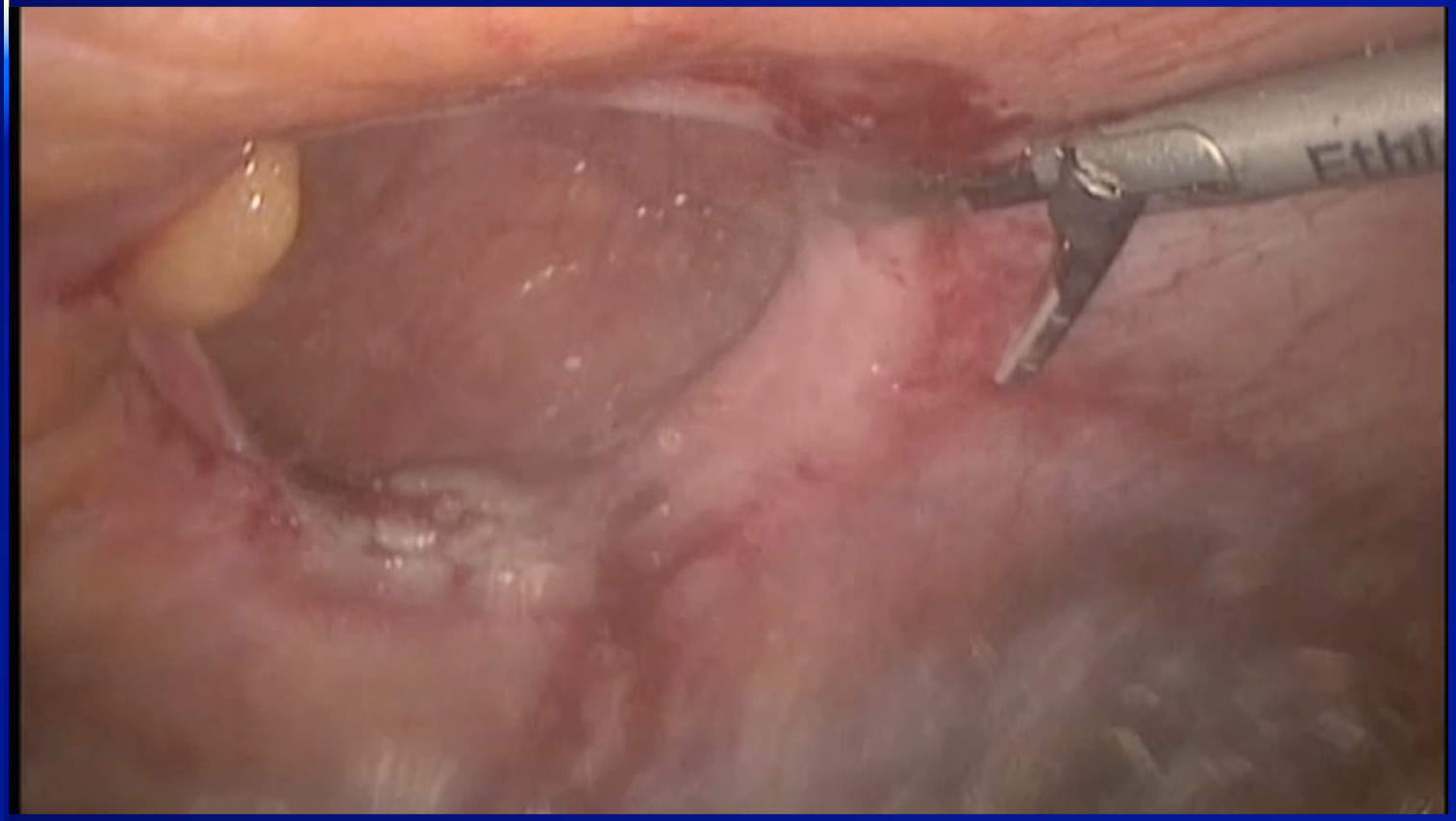
Minimally Invasive Technique: Lap Comp Separation





Hybrid Technique



Suprapubic Hernia Technique

- Bladder filled with saline
- Preperitoneal dissection mobilizes bladder inferiorly
- Expose pubic bone, Coopers ligaments, and iliac vessels

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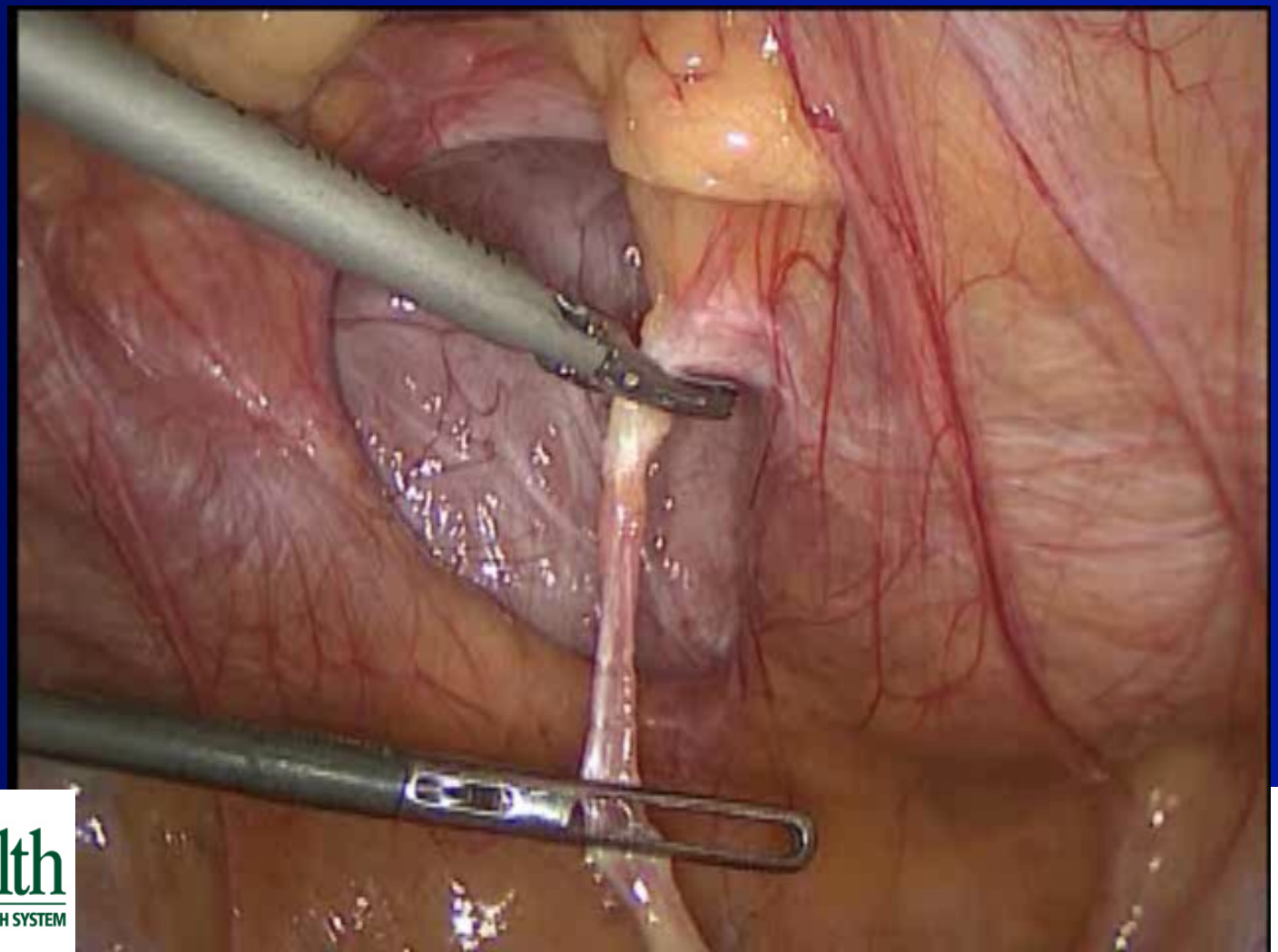
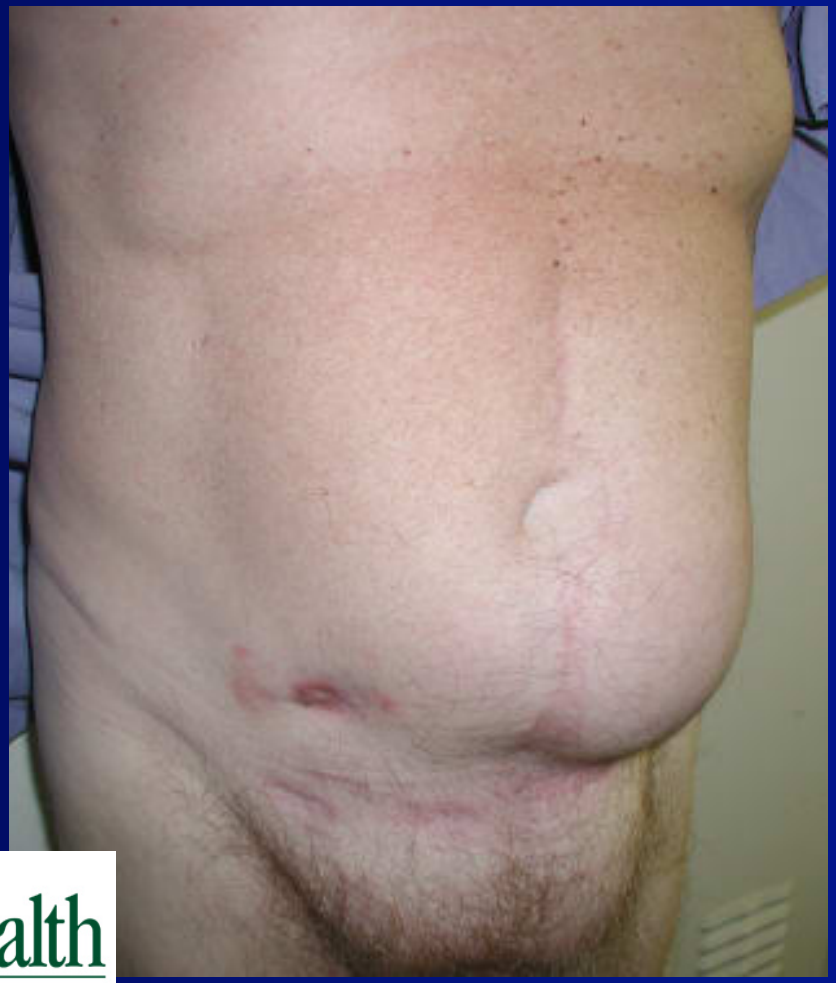
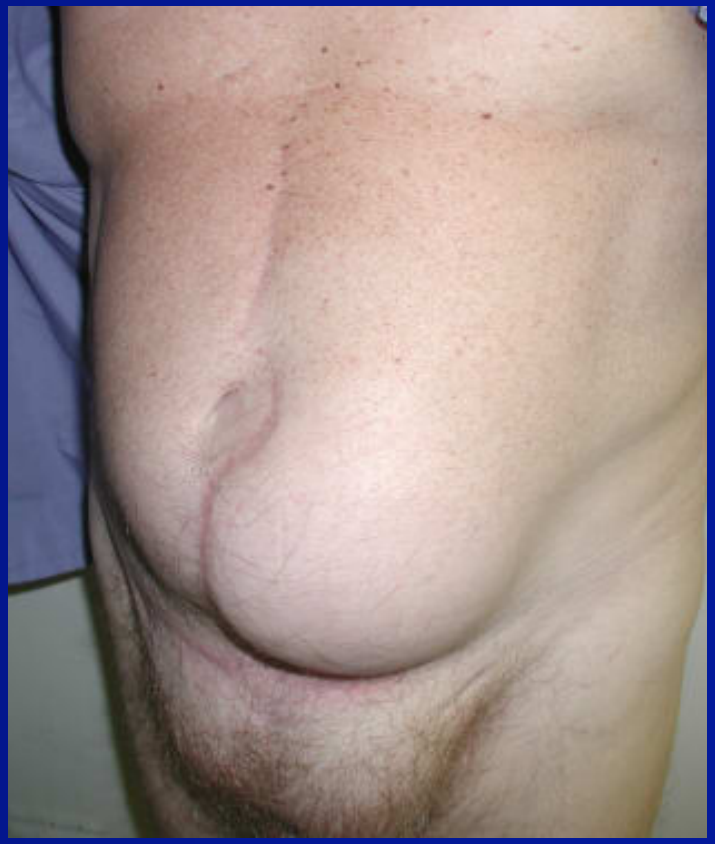
Bladder dissection

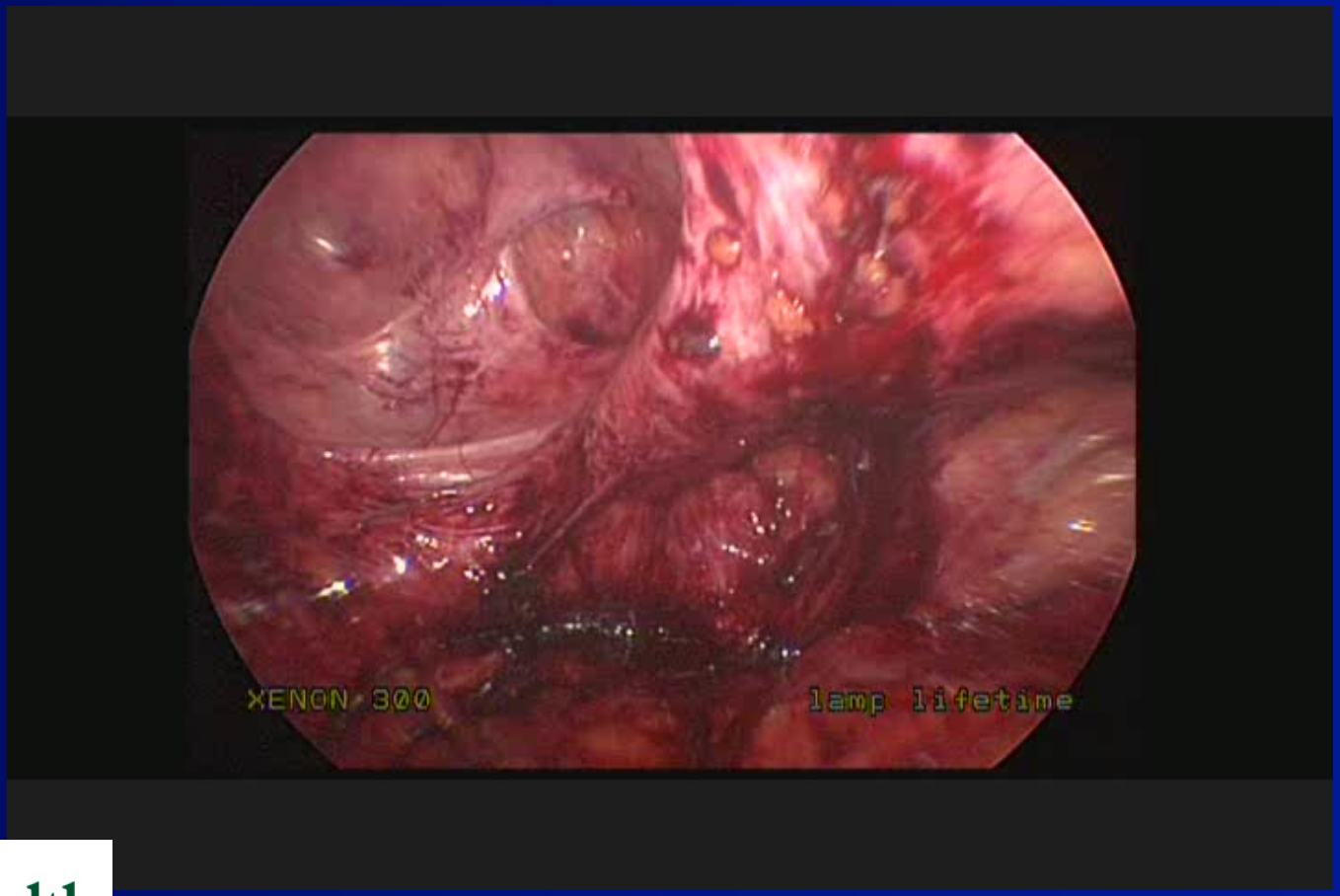


Suprapubic: Indiana pouch

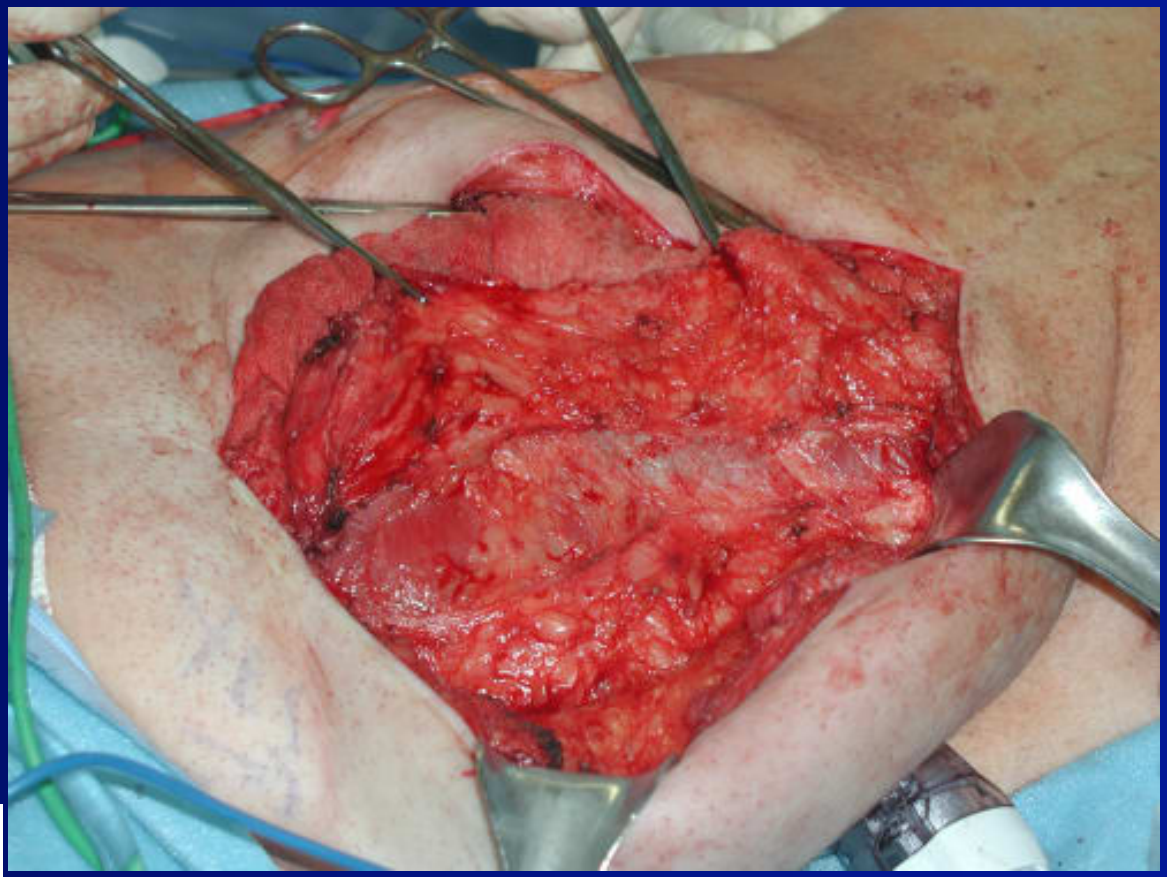




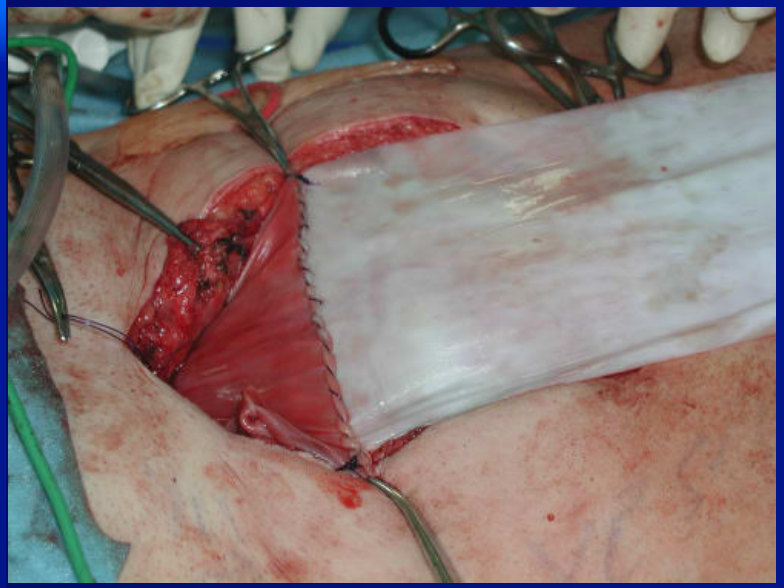
Suprapubic: Indiana pouch

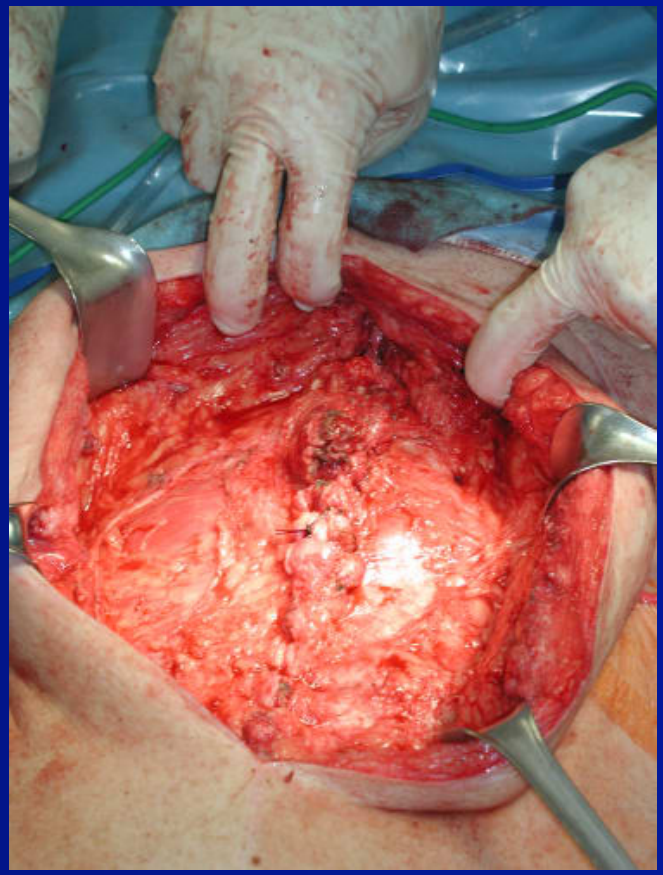


Suprapubic: Indiana pouch

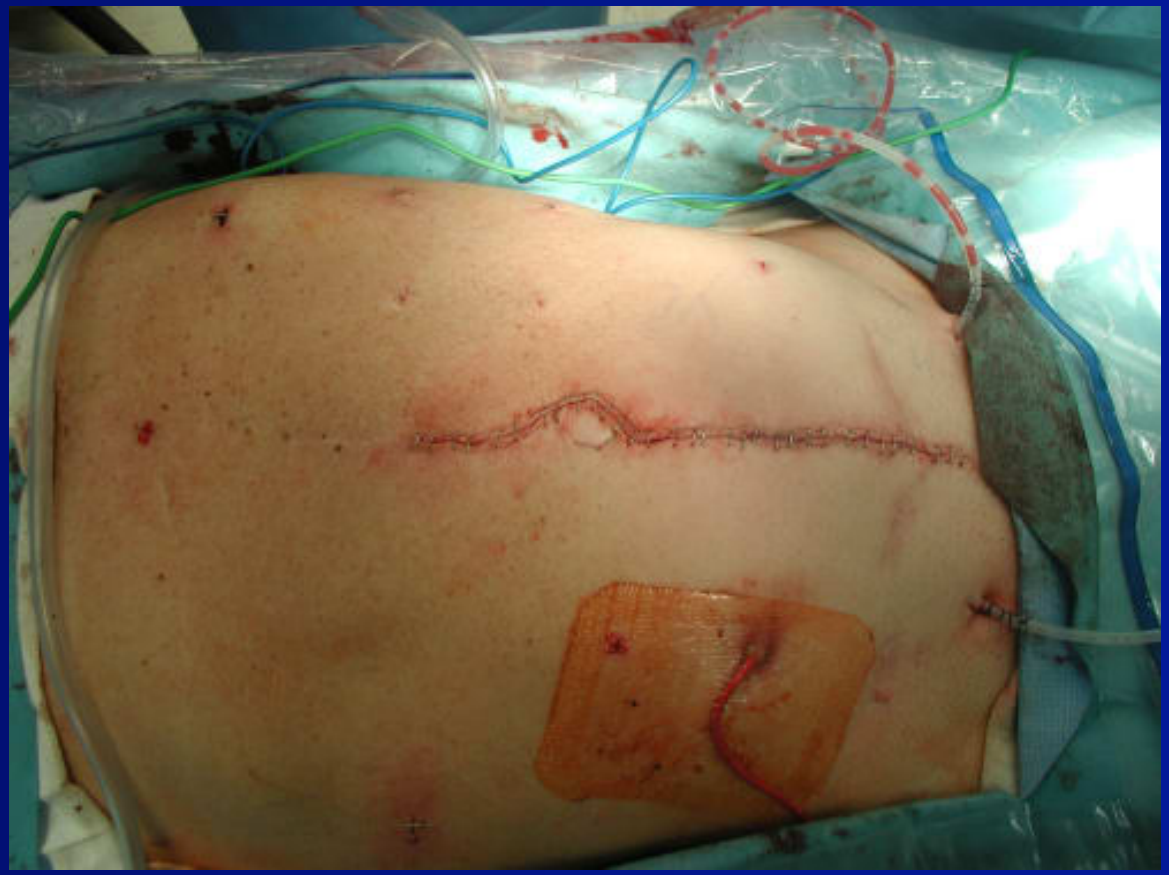


Suprapubic: Indiana pouch

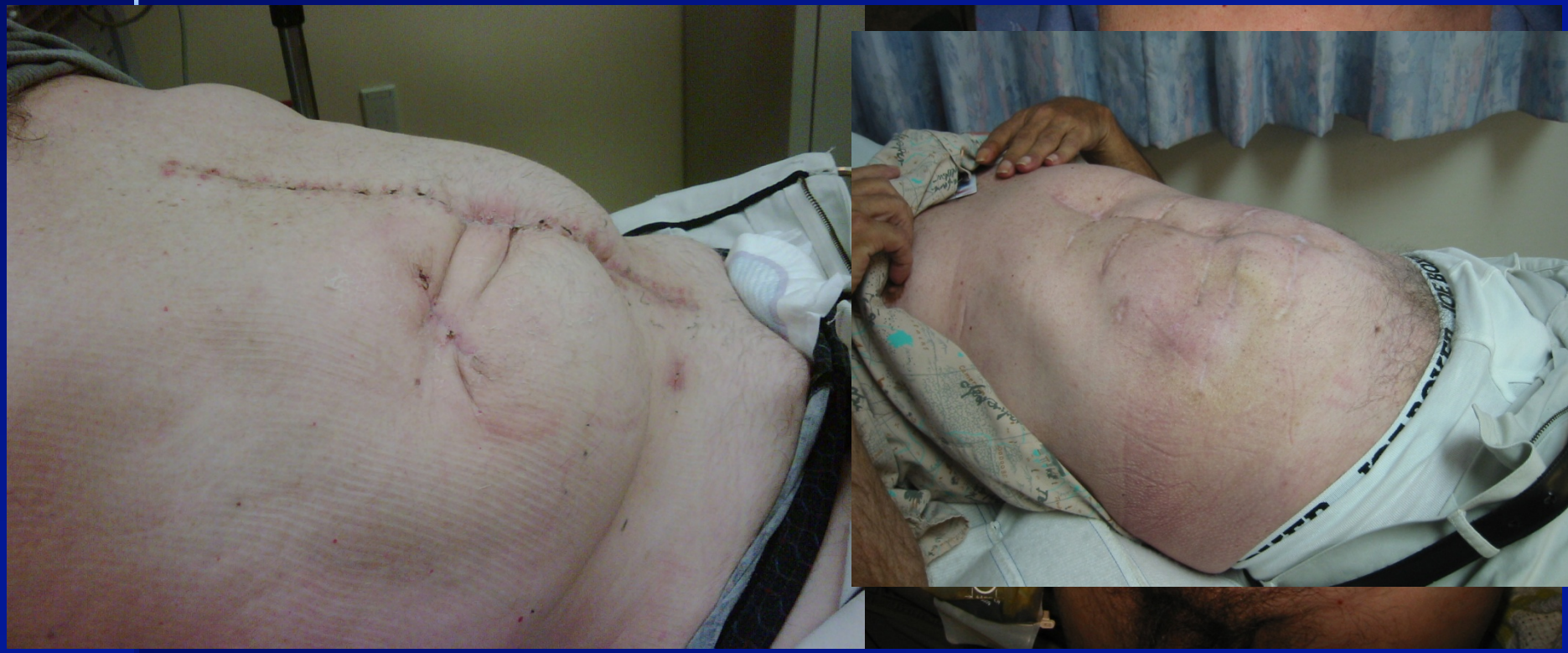




Suprapubic: Indiana pouch



Challenging Hernias: Incisional Hernia with Stoma

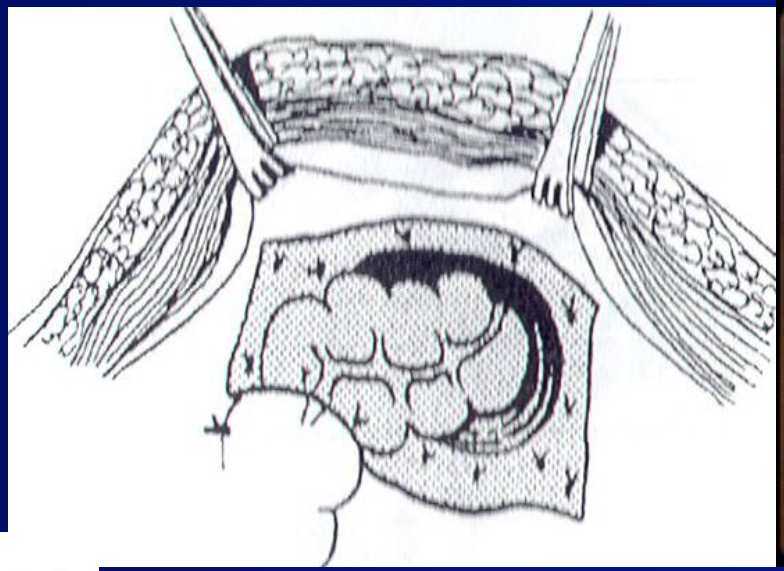


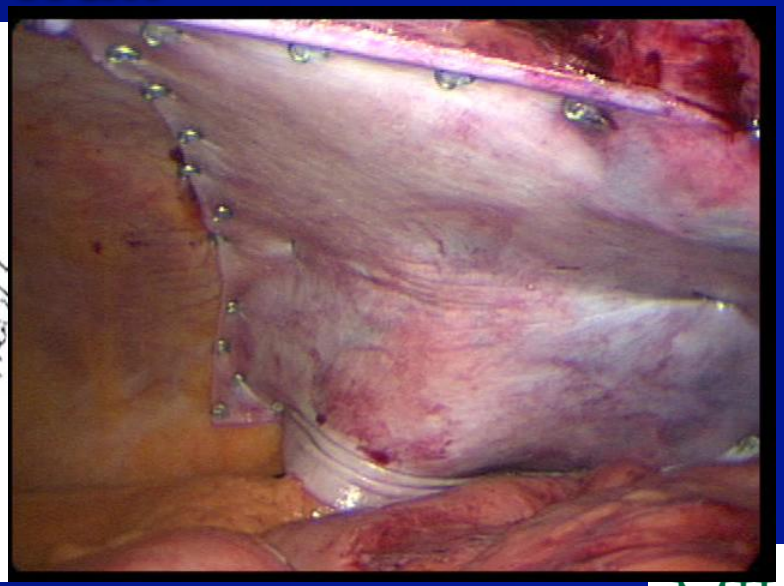
Parastomal Hernia

- Incidence reported to be 5-48%
- More frequent with colostomy than ileostomy
- Complications: Stoma care, irrigation, incarceration, cosmetic deformity.

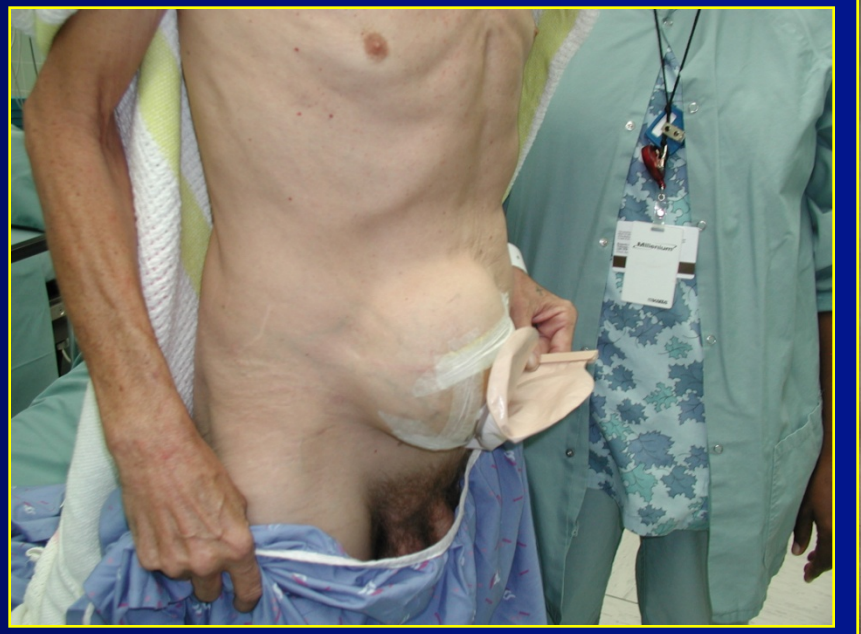
Parastomal Hernia

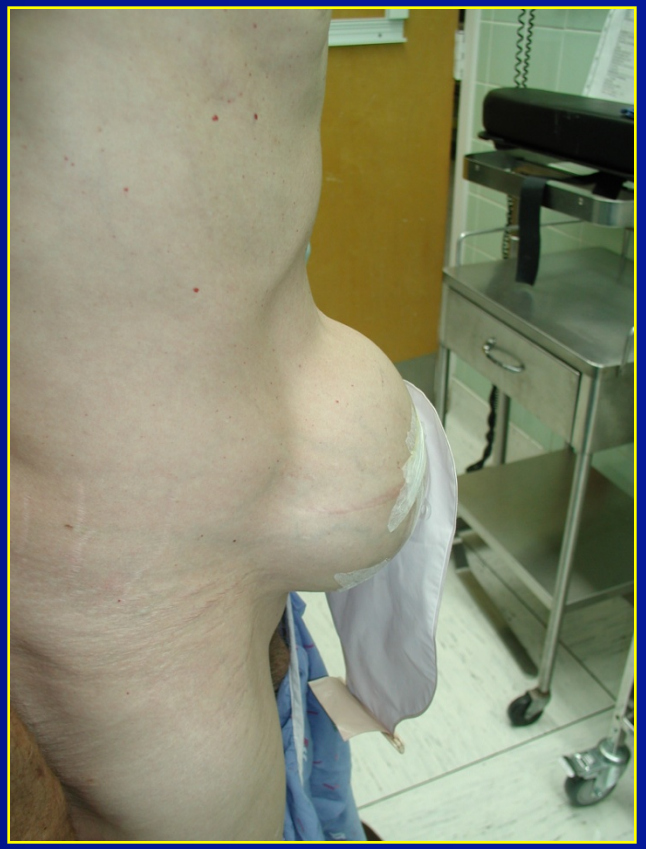
- Laparoscopic Sugarbaker Repair
  - Lateralization of intestine against abdominal side wall



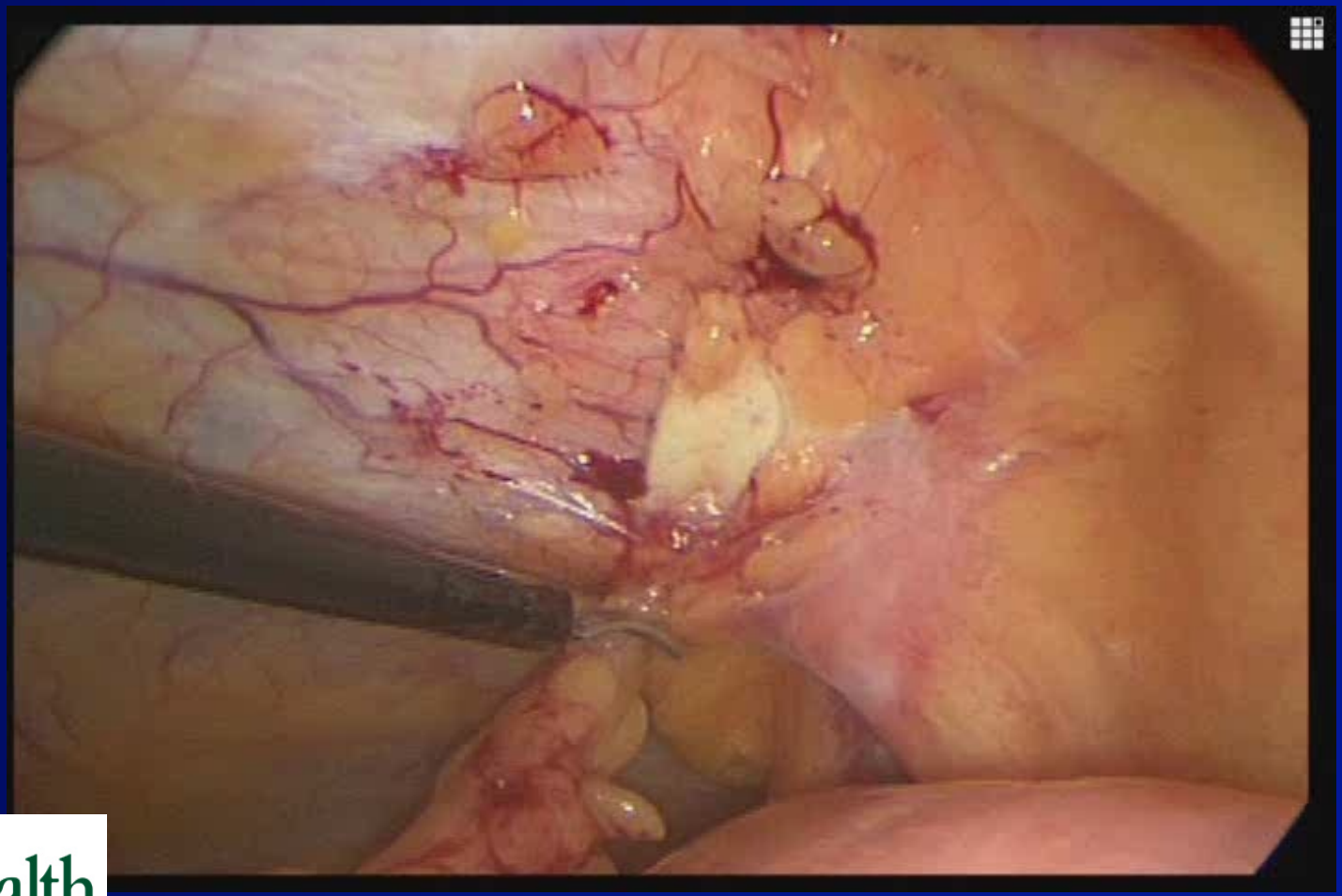


Recurrent Parastomal Hernia

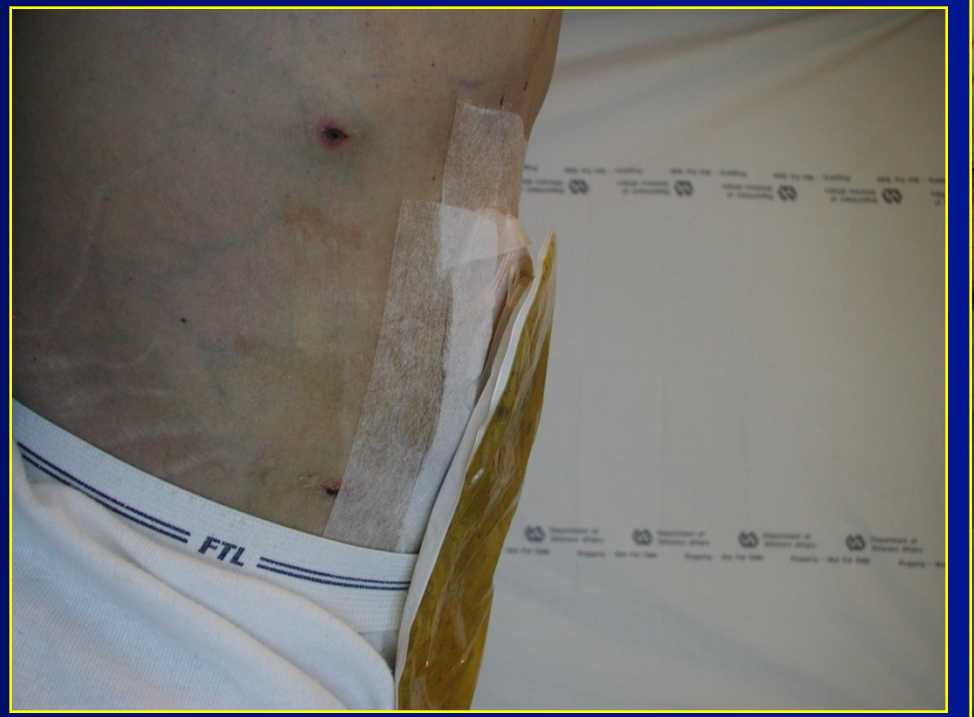




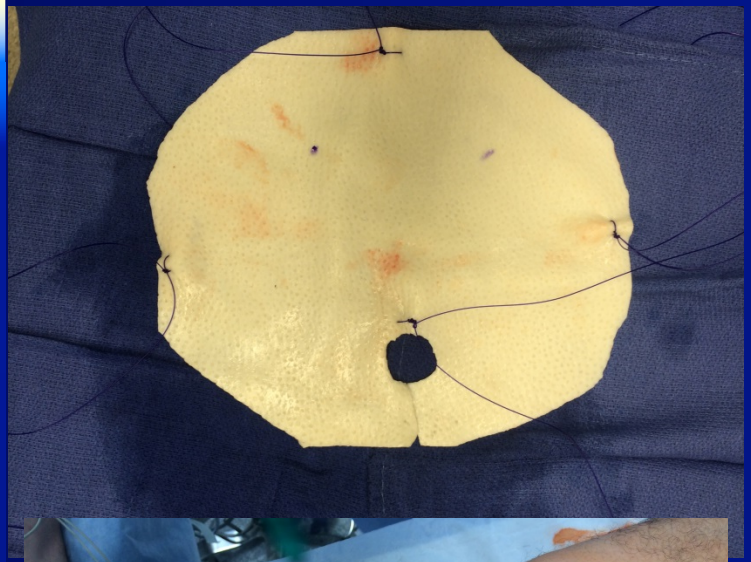
Recurrent Parastomal Hernia

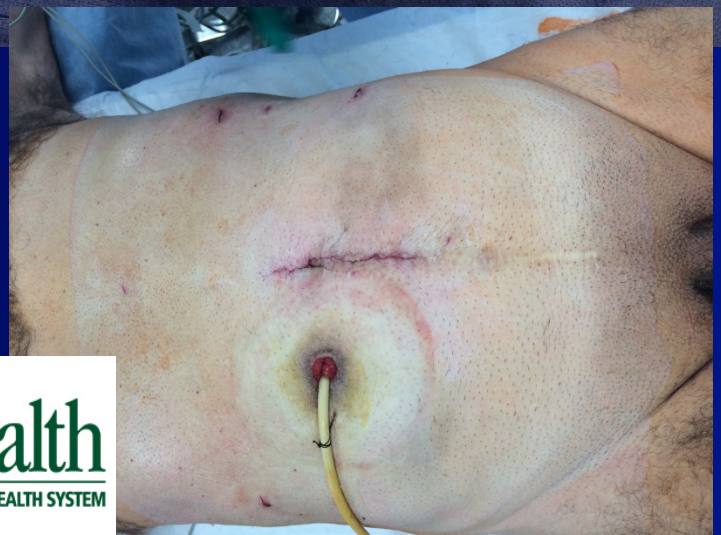


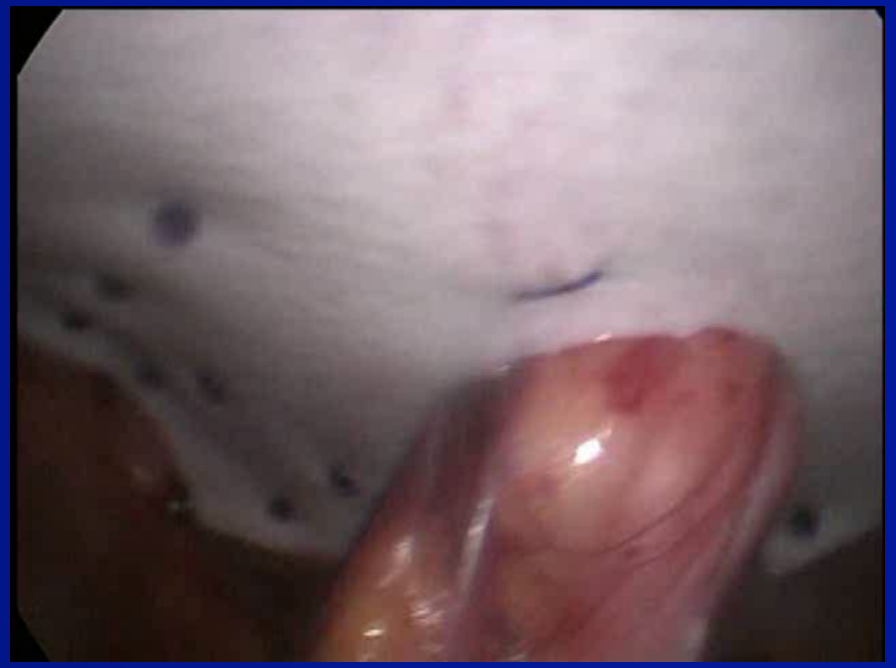
Recurrent Parastomal Hernia



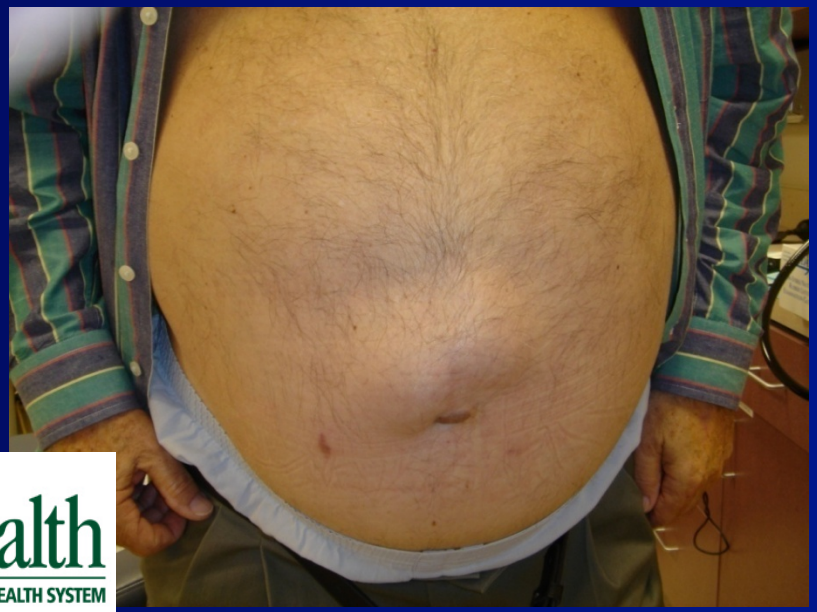
Incisional Hernia: with Stoma

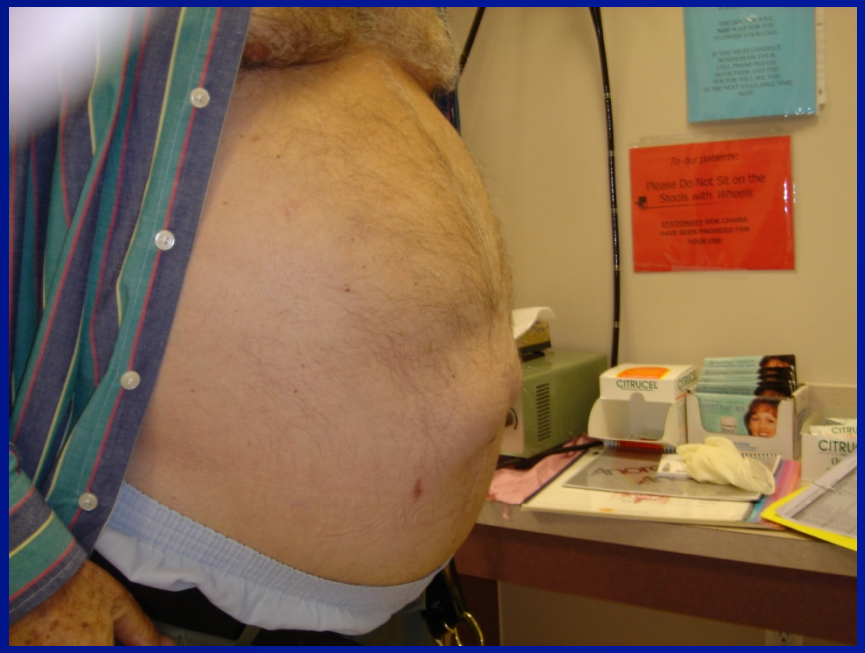




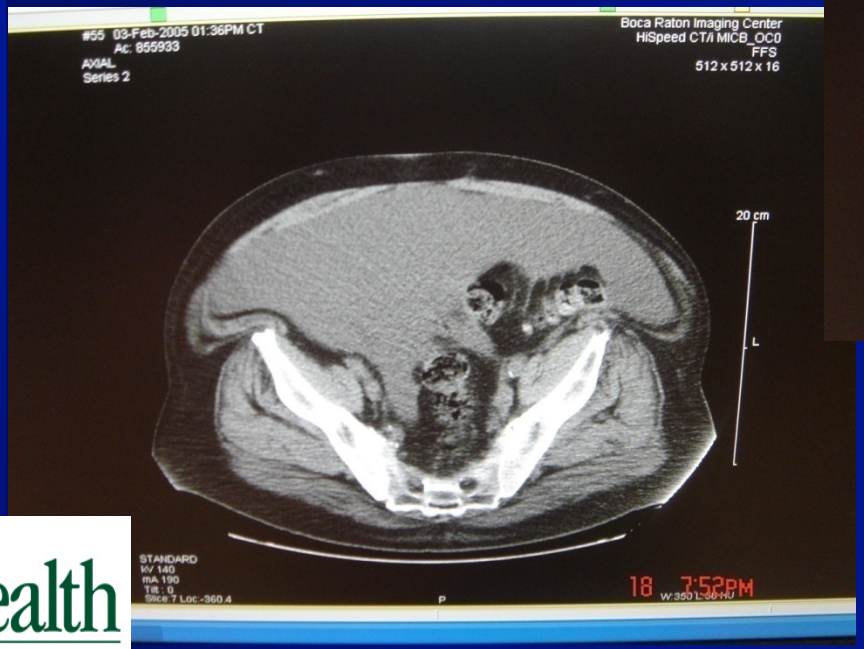


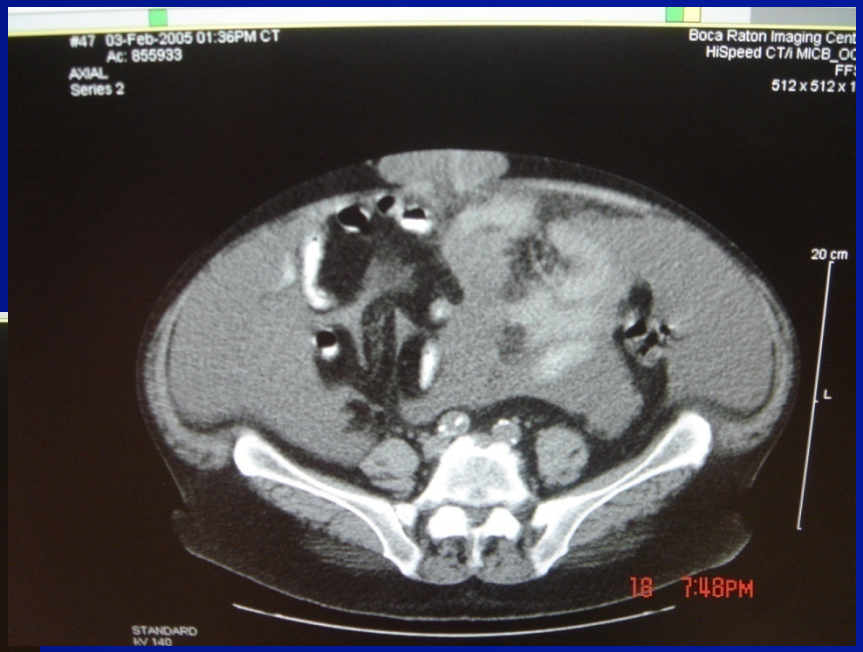
Ventral Hernia and Ascitis





Ventral Hernia and Ascitis





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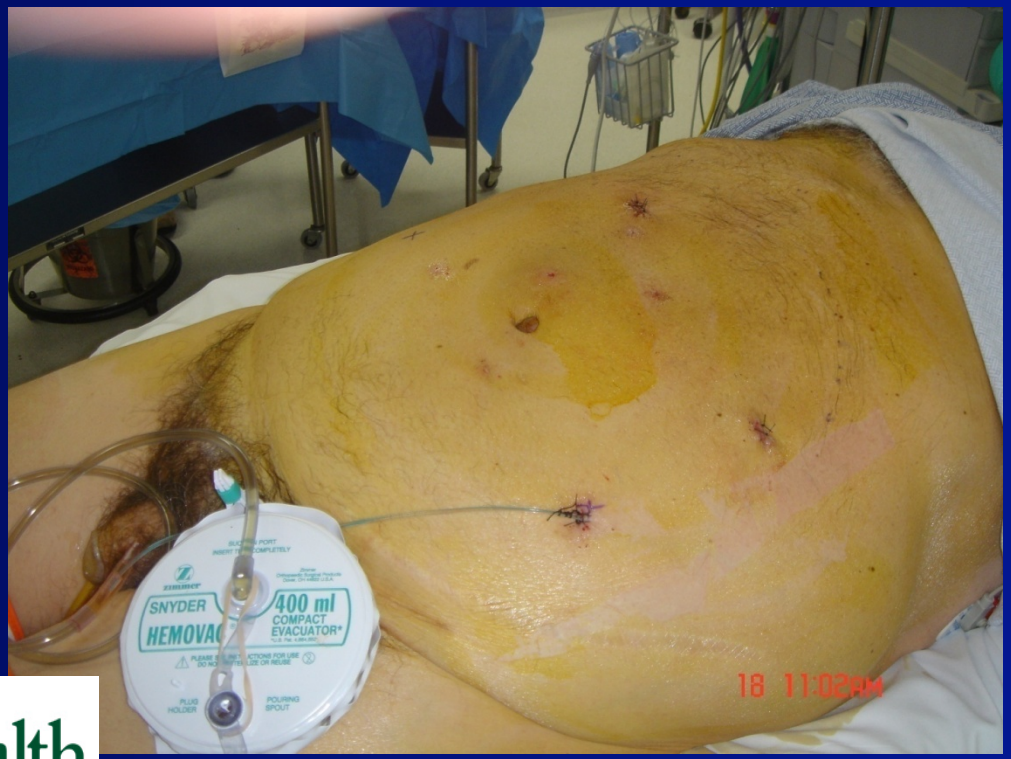
Ventral Hernia and Ascitis

Ventral Hernia and Ascitis



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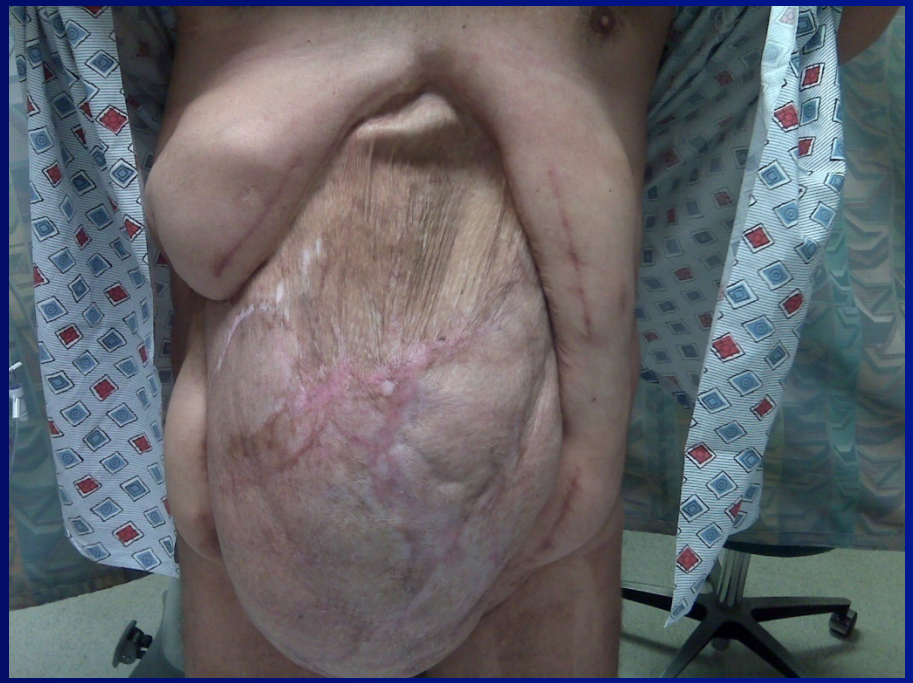

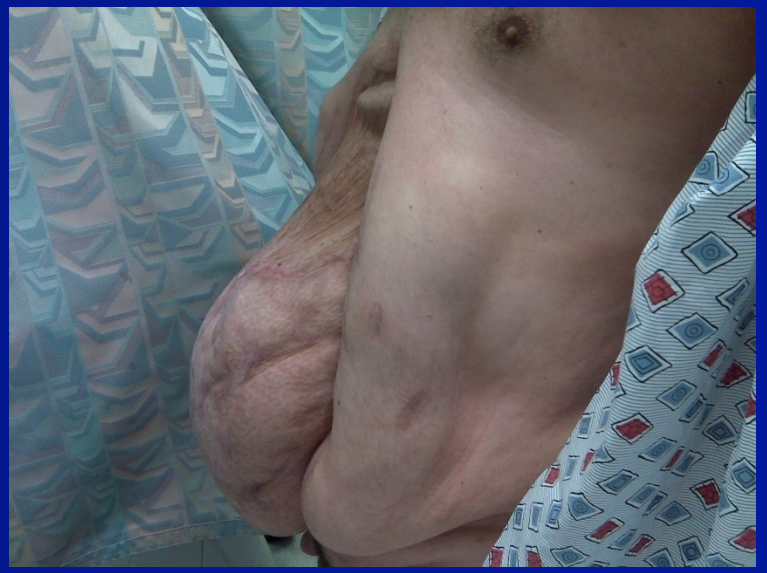

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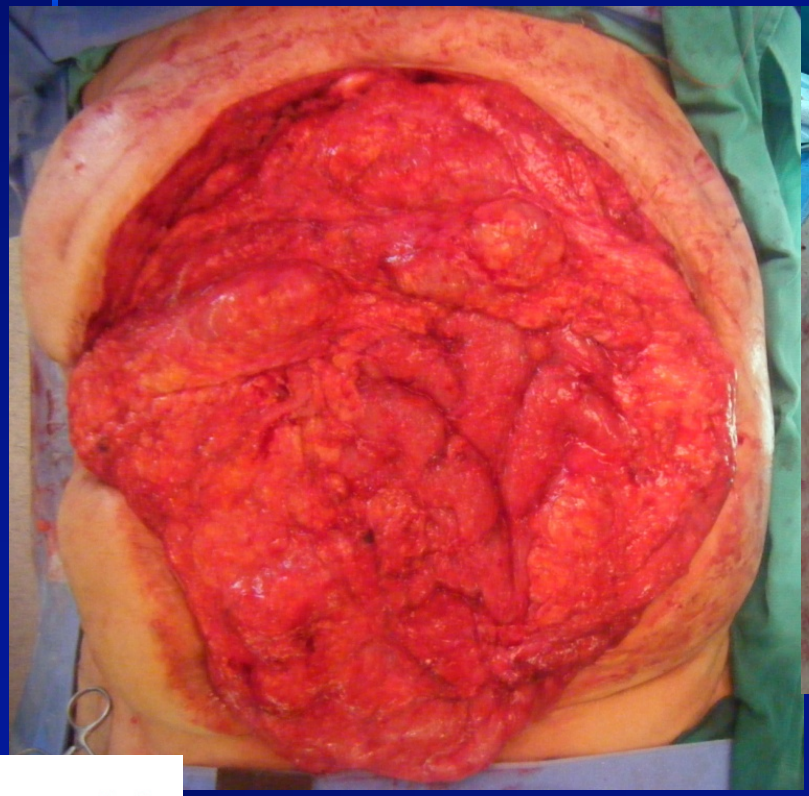

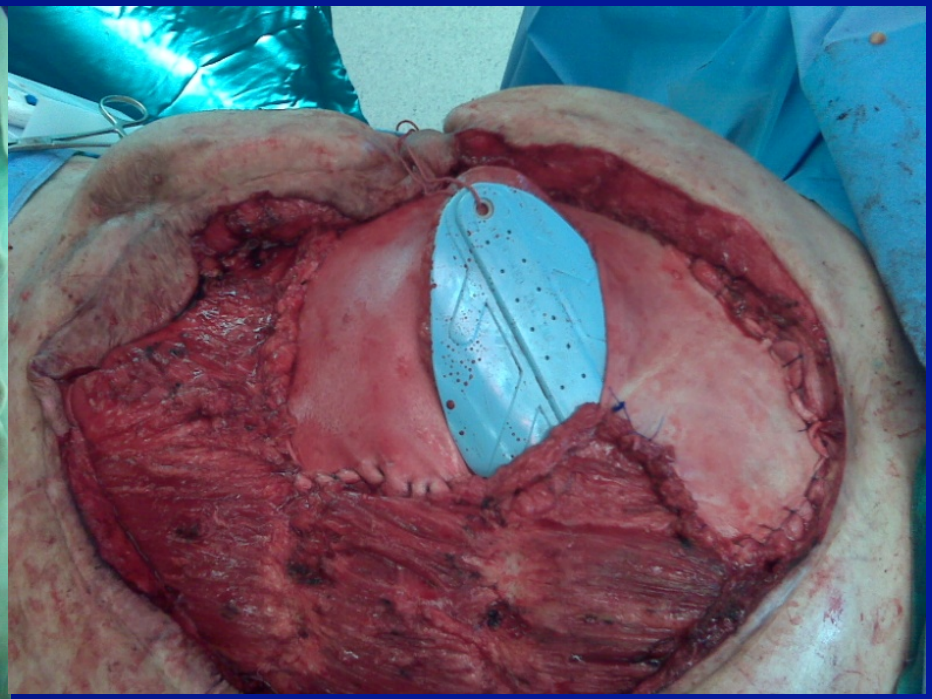

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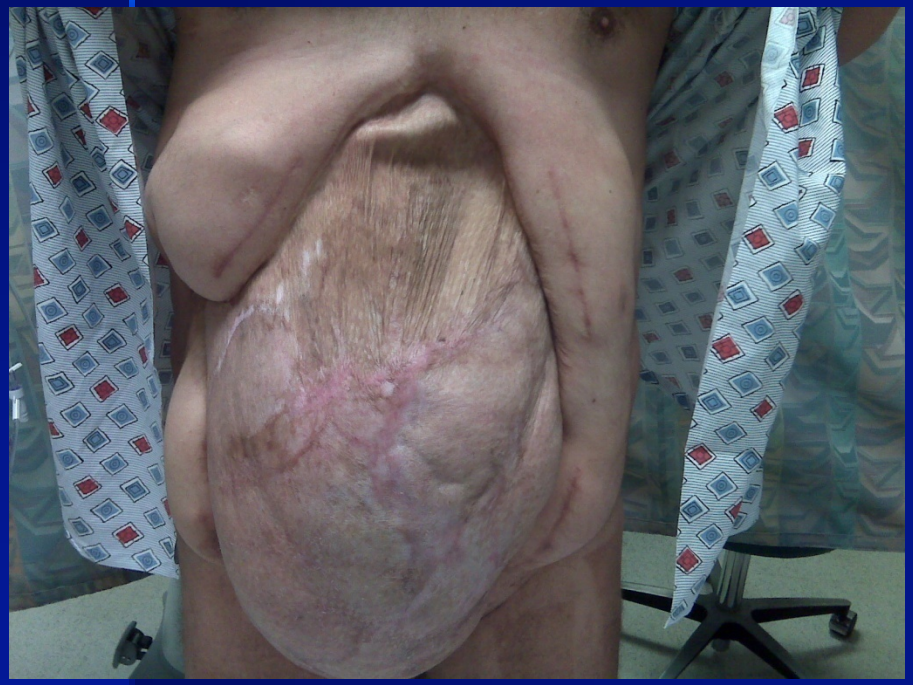
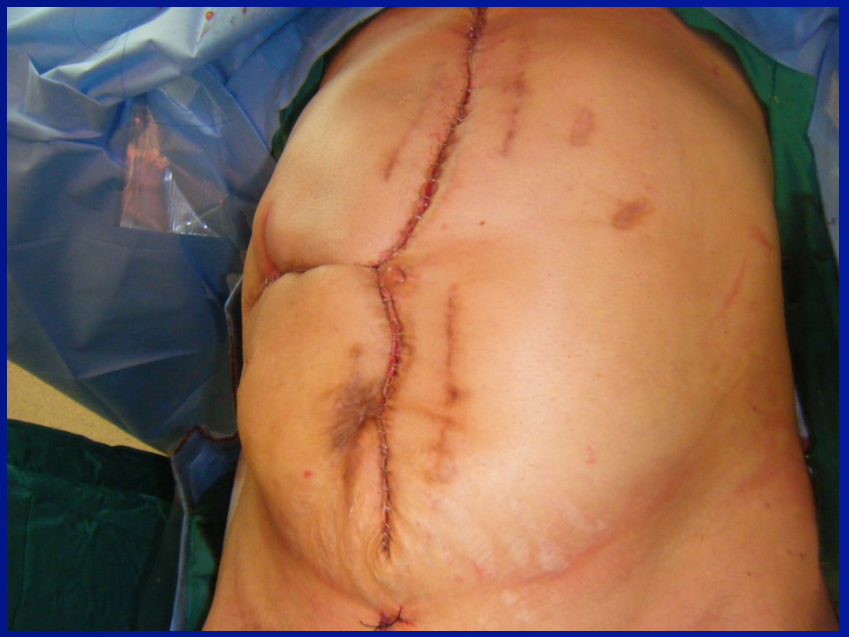
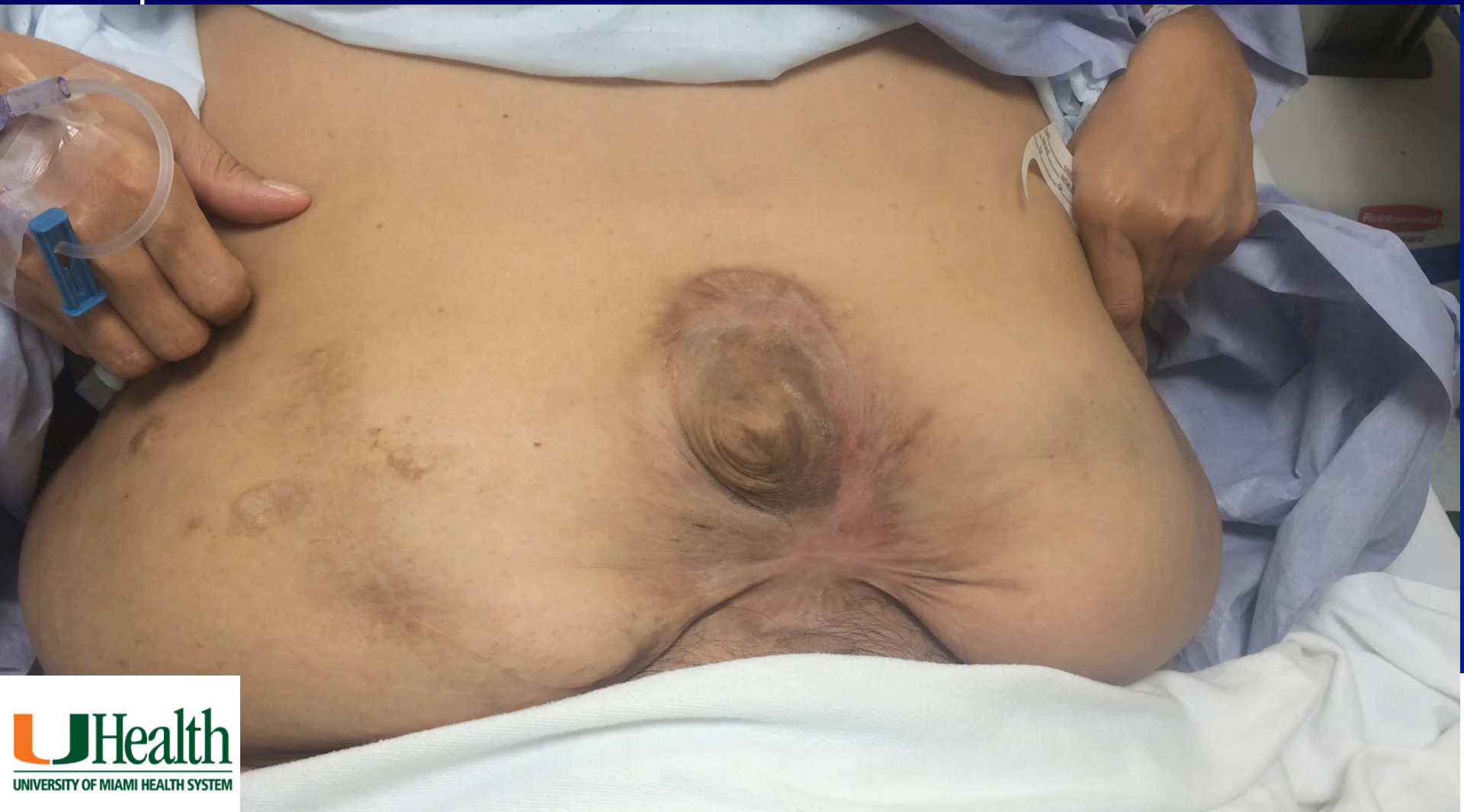




Why Do I use Biologic mesh

Complications of Hernias: Grade 2



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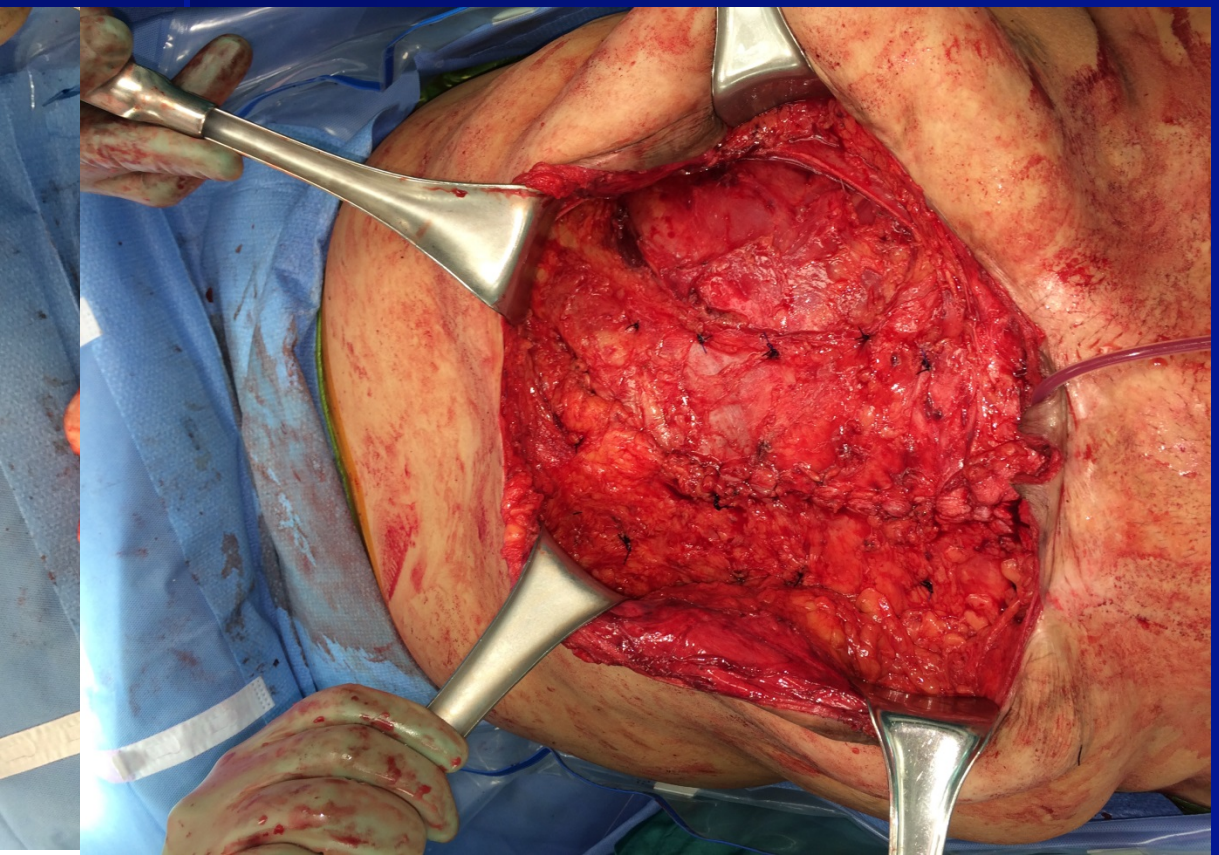
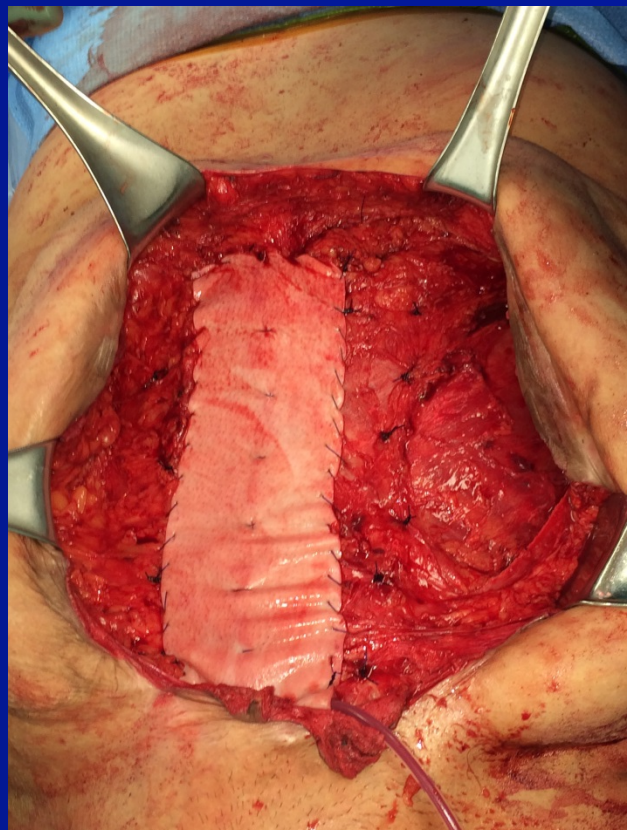
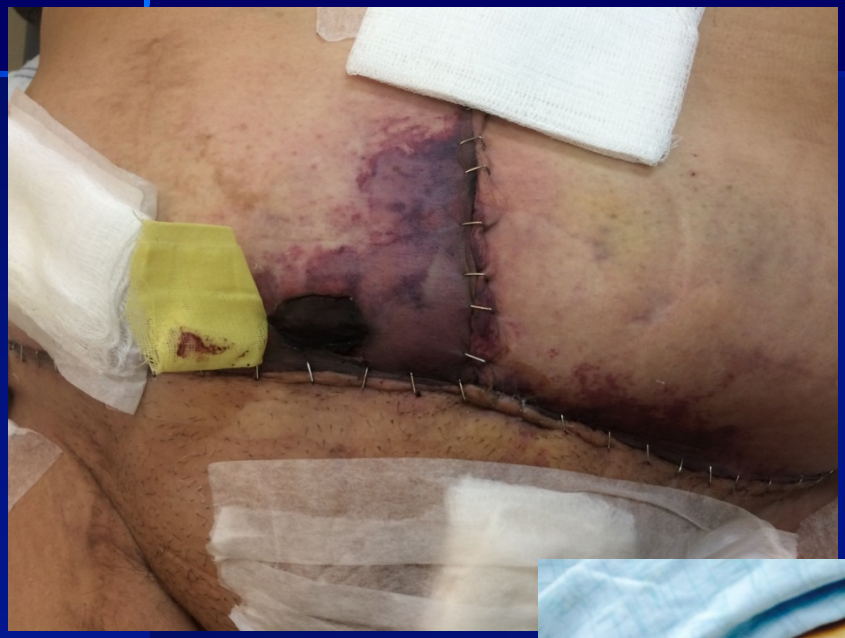
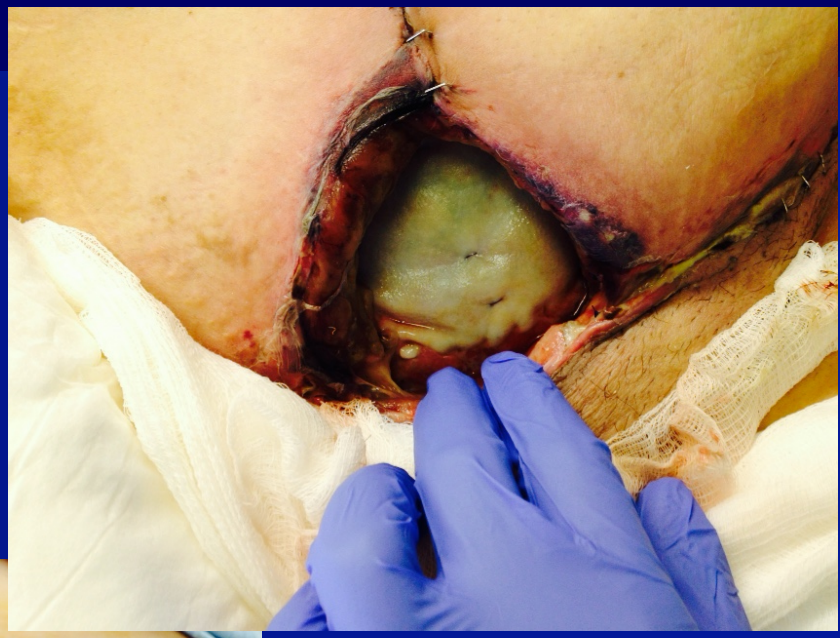
Complications of Hernias: Grade 2

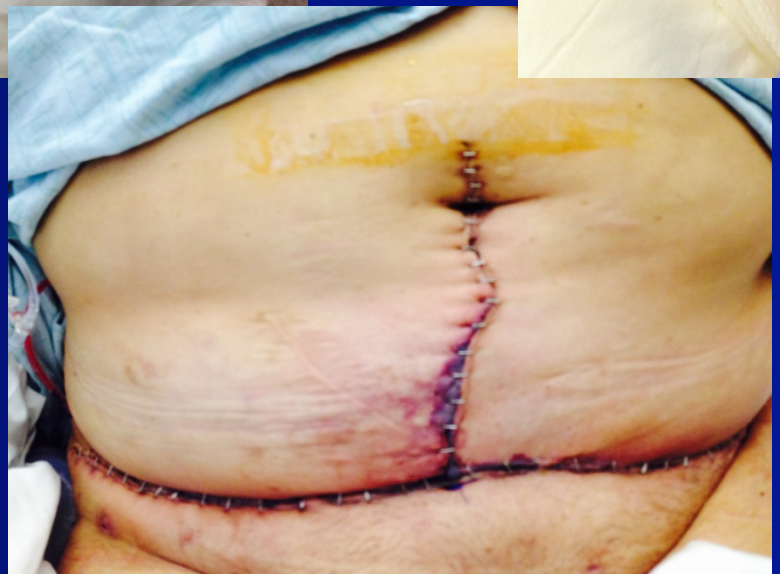




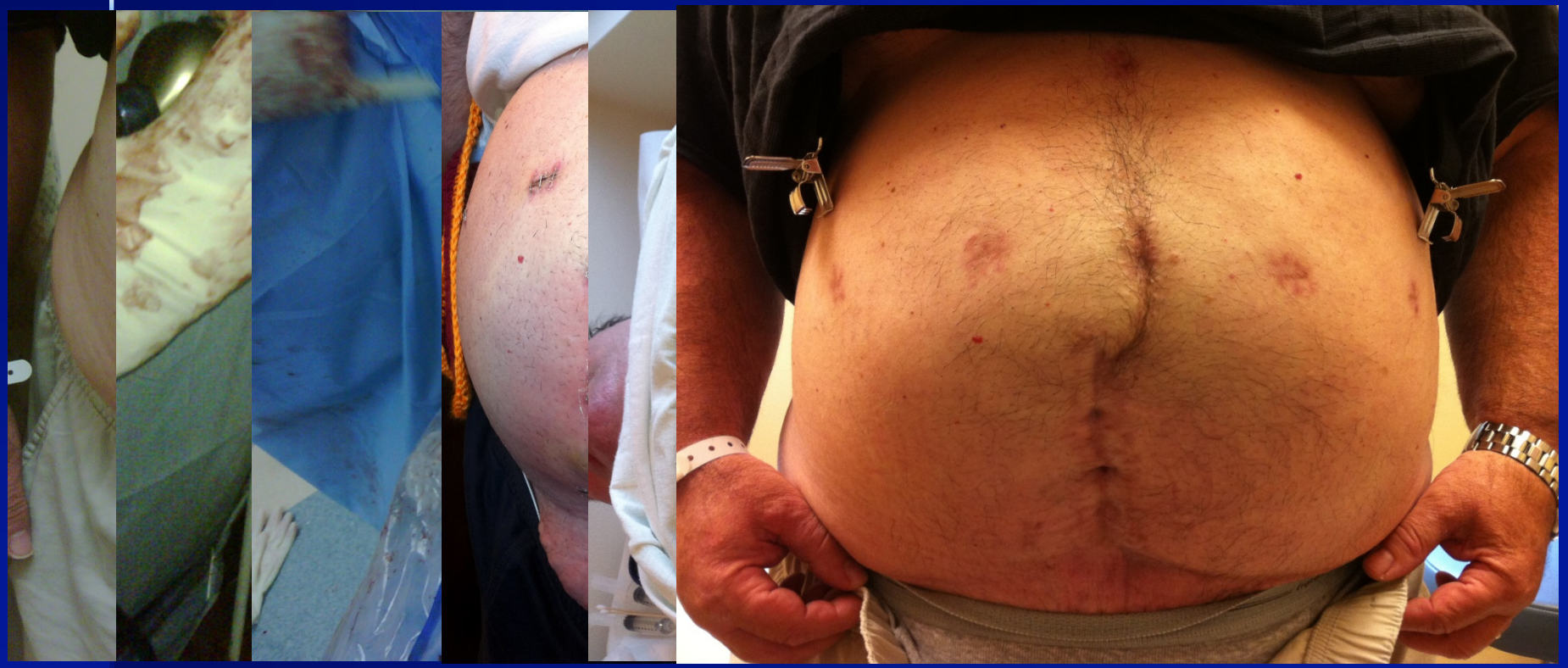
Complications of Hernias: Grade 2







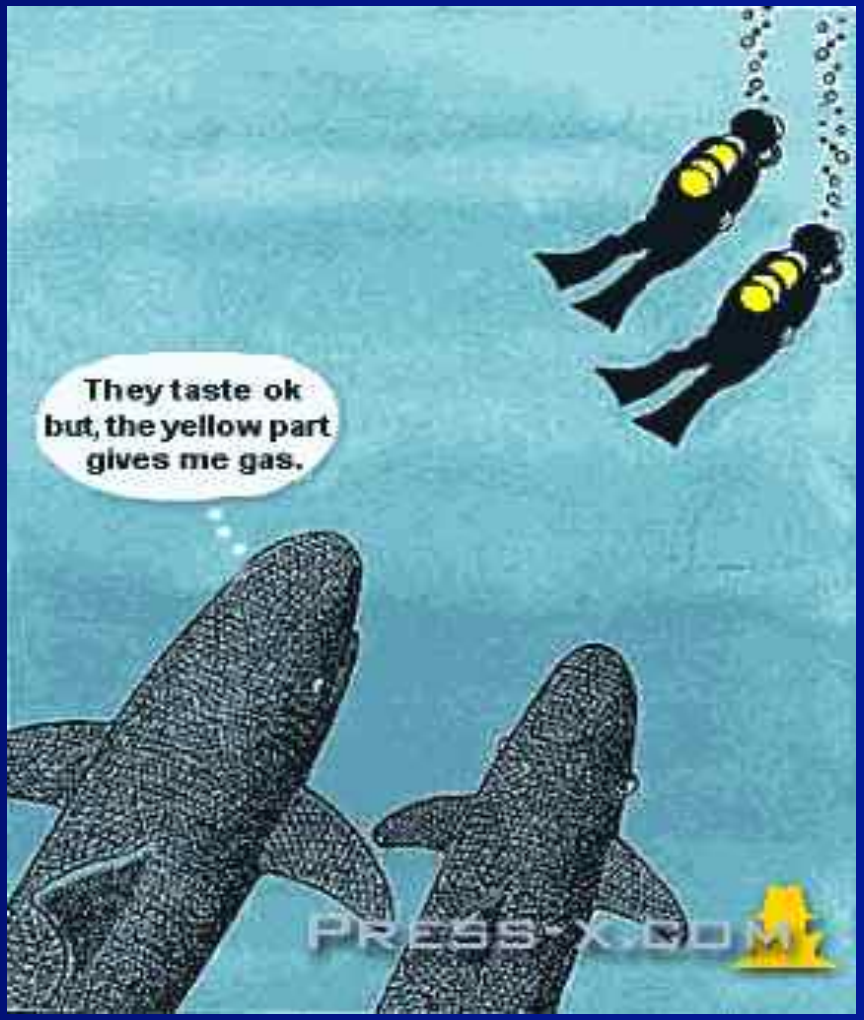
Complications of Hernias: Grade 3



Conclusions

- Reconstruction of abdominal wall with medialization and closure of fascia should be attempted in all cases
- Surgeons wishing to perform hernia repair need to be well versed in all techniques
- Open or laparoscopic hernia repair should be reinforced with mesh

•MINIMALLY INVASIVE SURGERY



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