Updates in Hernia Management

Advances, Techniques & Patient Outcomes

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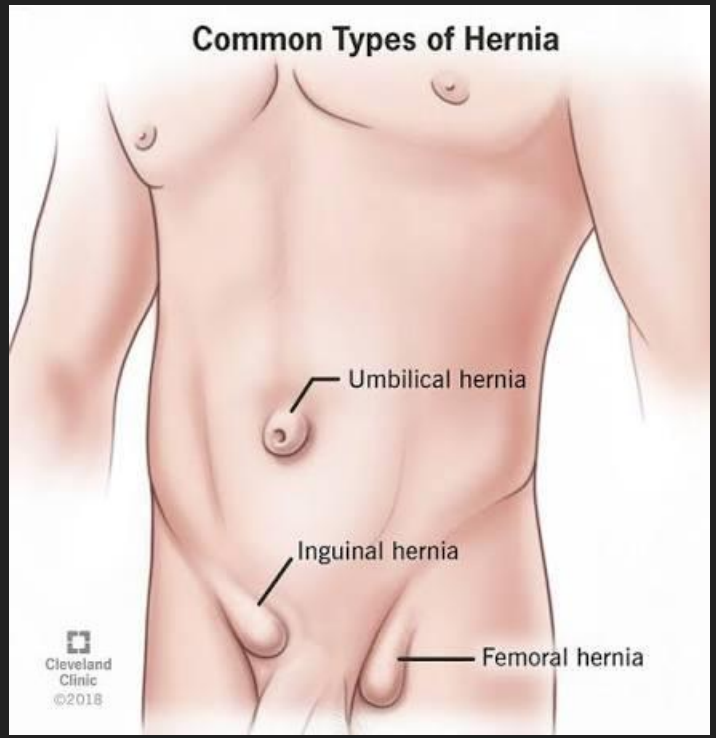
Financial Disclosures

-Intuitive Surgical: consulting and education

Hernia Types and Characteristics

Abdominal Wall Hernia Subtypes

- Inguinal
  - Direct
  - Indirect
  - Femoral–always fix
- Ventral
  - Umbilical
  - Incisional
  - Spigelian
- Unusual Subtypes
  - Subxiphoid (following sternotomy)
  - Suprapubic/Pfannenstiel
  - Flank/Lumbar



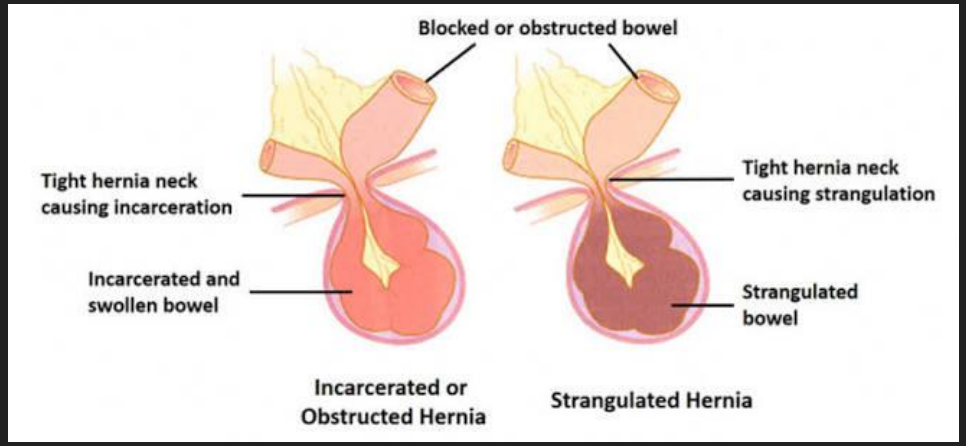
Hernia Characteristics to Consider

- Defect size
  - Relative size to abdominal wall
- Reducible vs Irreducible
  - Acutely versus Chronically Incarcerated
- Loss of Domain
- Contents of the hernia
- Prior failed attempts at repair
  - Were they done laparoscopically or open?
  - status/type of existing mesh
- Presence of stomas/tubes/fistulas

- All of these factors will influence preoperative planning and operative approach
  - Open versus MIS
  - Size/Type of mesh
  - Necessary interventions prior to surgery
    - Tissue expanders
    - Botox

Classifying the Hernia

- Primary versus recurrent
  - Technique for prior repair
- Reducible
  - supine/bent knees
- Incarcerated (possible emergency)
  - This is not a radiographic diagnosis
- Strangulated (surgical emergency)
  - Can be seen on imaging, sometimes see skin changes on exam or radiographic findings on CT. Elevated lactate/WBC.




Diagnostic Imaging

Ultrasound

- Advantages
  - Dynamic test
  - Lower cost
  - No contrast required
  - Can perform with valsalva
- Drawbacks
  - Limited by body habitus
  - Doesn’t give 3d anatomy for operative planning
  - Operator dependent
  - Images can be limited by prior mesh placement



Computerized Tomography (CT)

- Advantages
  - Gives accurate 3D anatomy
  - Can help with choosing operative technique for complex abdominal wall pathology
  - Can also identify additional underlying pathology
  - Can be (but is rarely) done with valsalva
    - Need to communicate with radiology department
  - Eliminates problems with previously placed mesh
- Disadvantages
  - Expensive
  - Contrast (if needed) is nephrotoxic
  - Insurance authorization can be problematic without obtaining ultrasound beforehand



Choosing the Right Operation

- Patient Selection
- Operative Technique
- Prehabilitation
- Surgeon Skill Set
- Know when to refer



Patient Selection

- Overall Suitability for Surgery
  - Diabetes
  - BMI
  - Cigarette Smoking
  - Compliance
  - Social Situation
  - Anesthesia-related Comorbidities
  - Anticoagulation status/ability to pause/bridge

Operative Techniques/Algorithm

- Open vs Lap/Robotic
  - Defect size, patient size
  - Tissue Quality
  - Prior attempts at repair
  - Urgent/Emergent Repairs
    - Contaminated fields
  - Size of the hernia sac
  - Need for flaps/complex techniques

Non-Starters

- Complex hernias in cigarette smokers
  - Data not really there for simple inguinals but still encourage cessation
  - 6 weeks minimum
  - Nicotine testing?
- A1C> 8% (7%?)
- BMI>40 (35?)
  - BMI is suboptimal and requires a nuanced look at the patient as a whole.
- Active hard drug use
  - Coughing from smoking marijuana
  - Preop UDS in known drug users

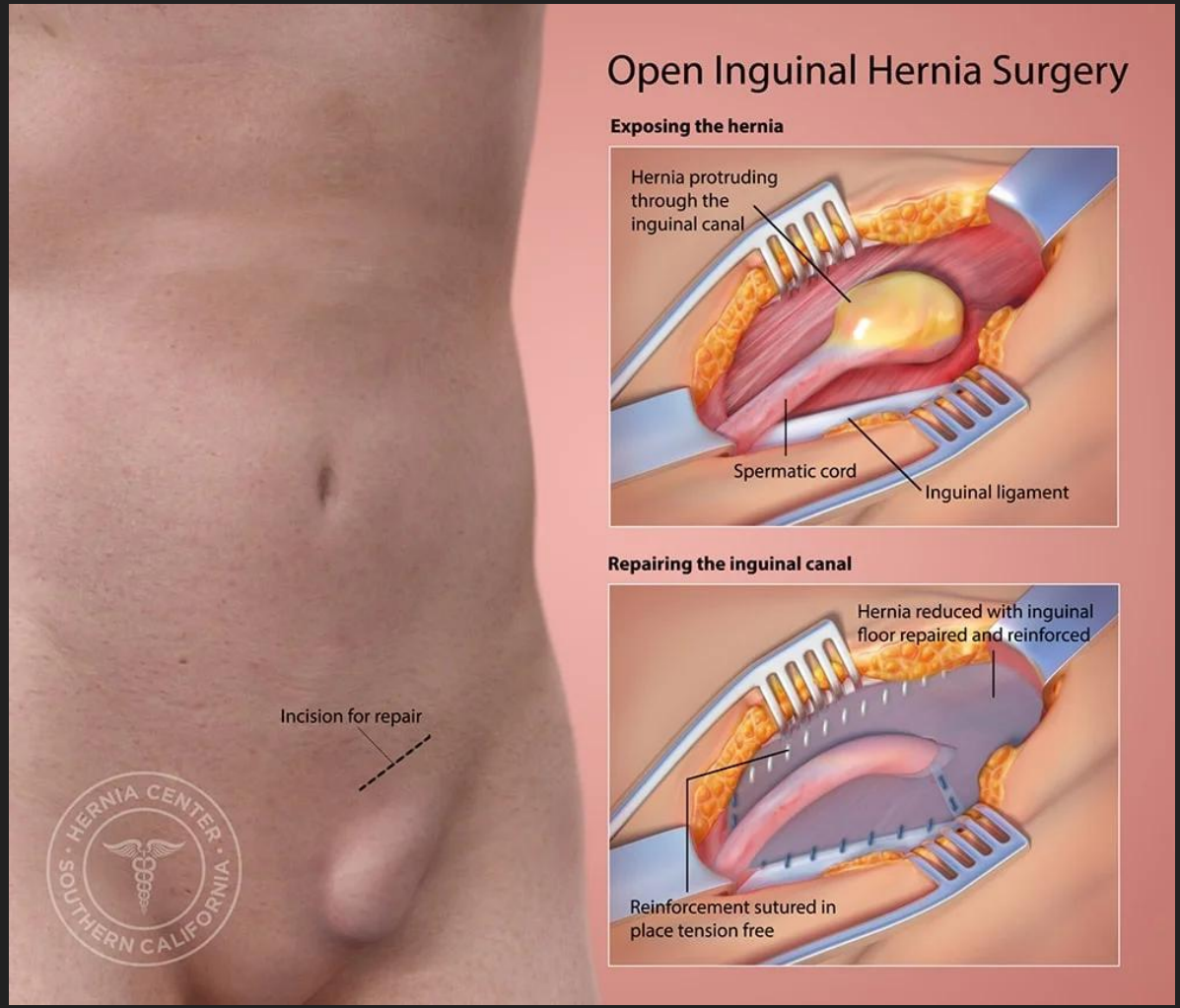

Operative Techniques

Inguinal Hernias

- Open
  - Lichtenstein (Mesh)
    - Many mesh options are available
  - Tissue-only repair
    - McVay, Bassini, Shouldice
- Lap
  - Totally extraperitoneal (TEP)
  - Trans-Abdominal preperitoneal (TAPP)
- Robotic
  - Predominantly TAPP

- Surgeon Experience and Training
  - Learning curve ~ 150 cases for lap/robotic
- Postoperative Pain is a consideration
- Prior attempts at repair are a consideration
- Prior abdominal/pelvic surgeries/radiation
- Body Habitus
- Anticoagulation/risk for postoperative bleeding

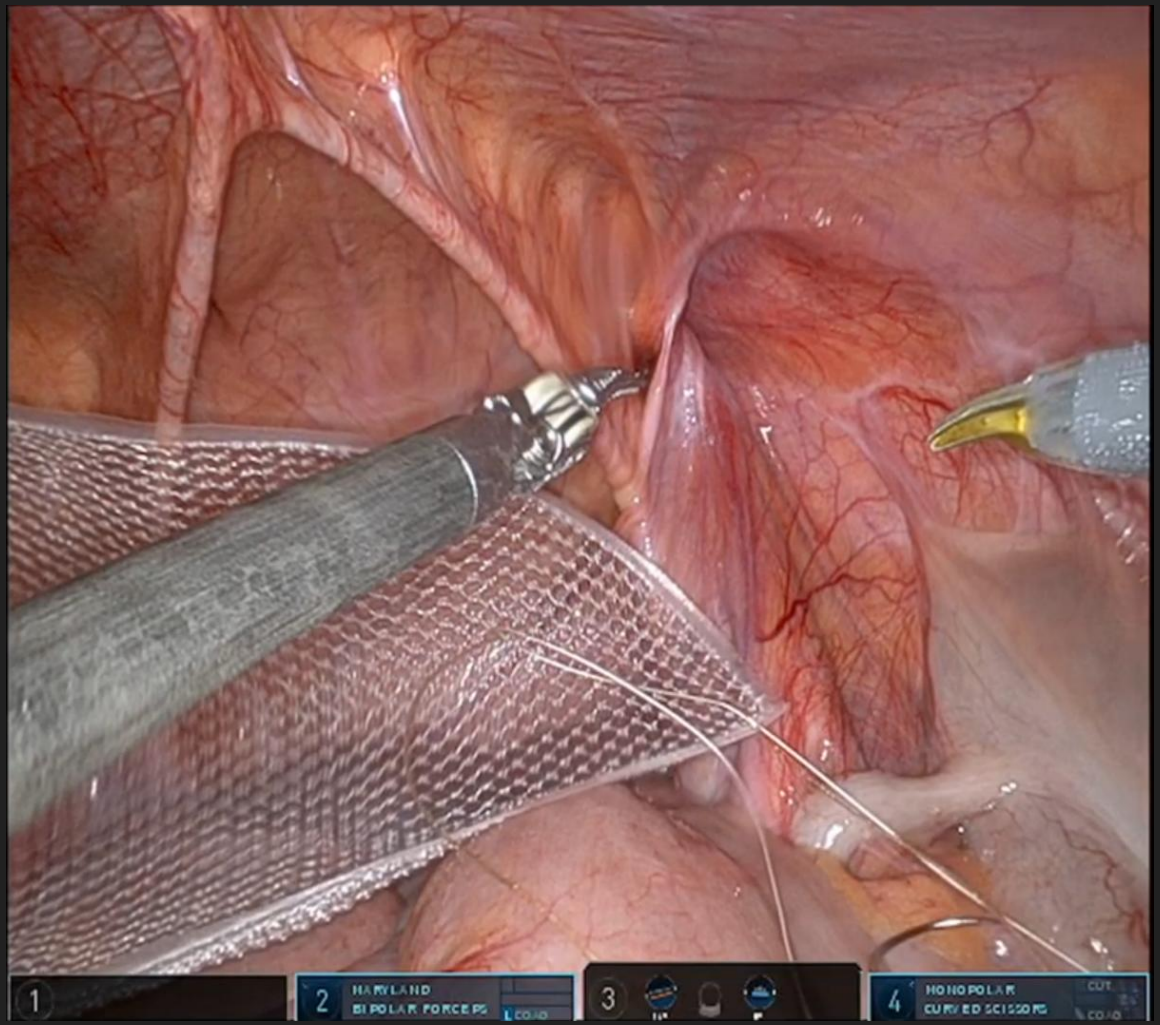
Open Inguinal Hernia Surgery

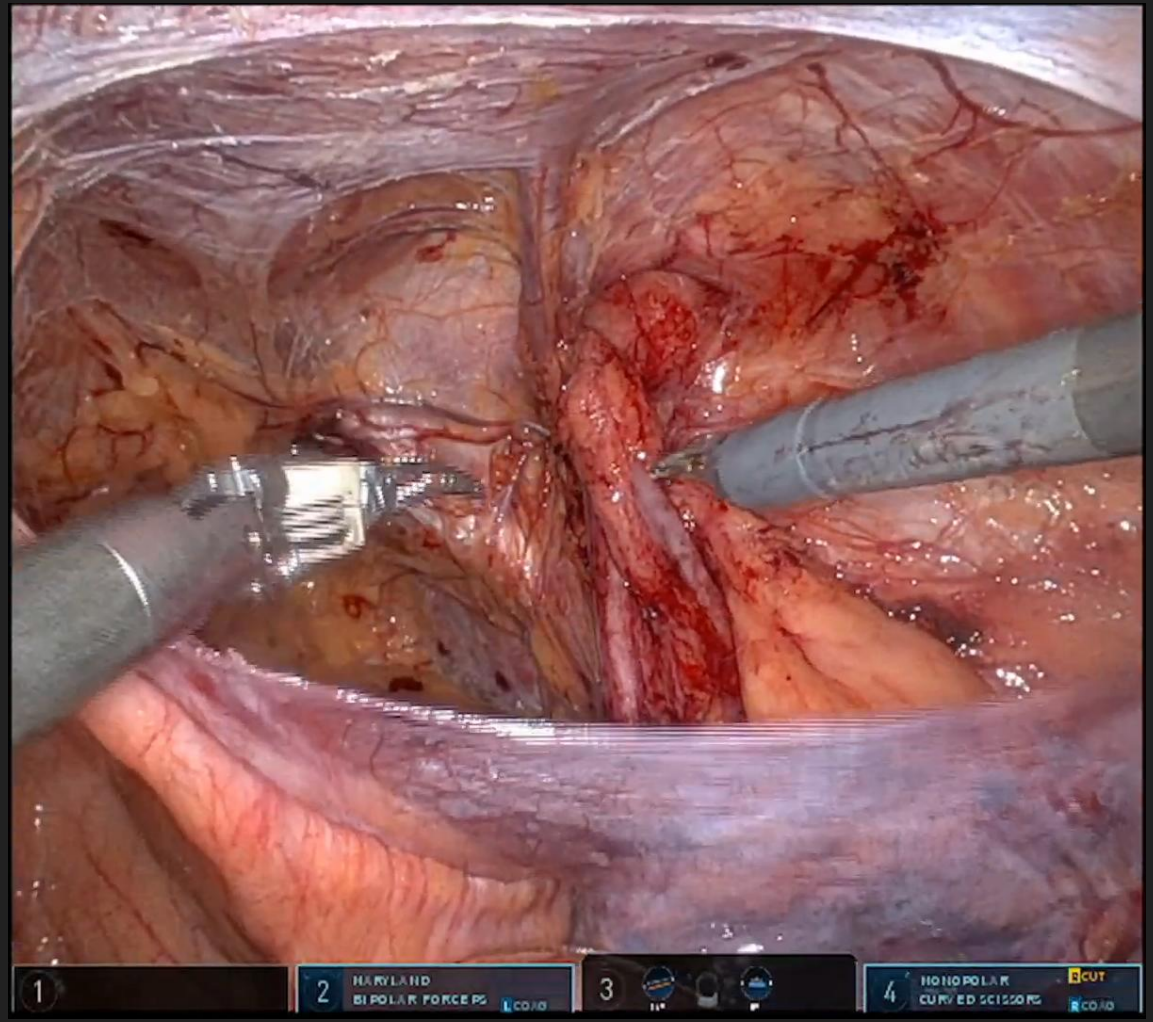


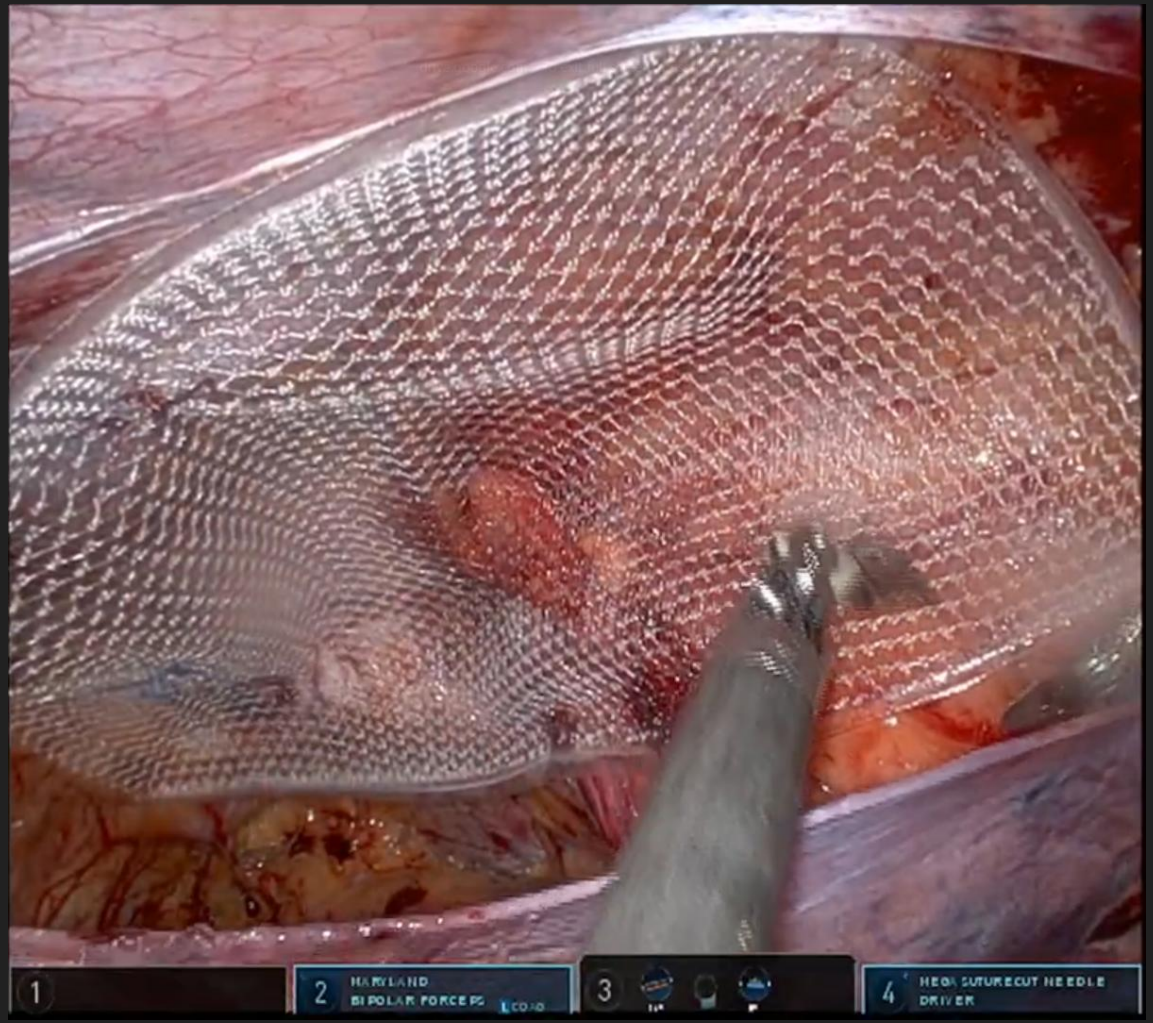
Exposing the hernia

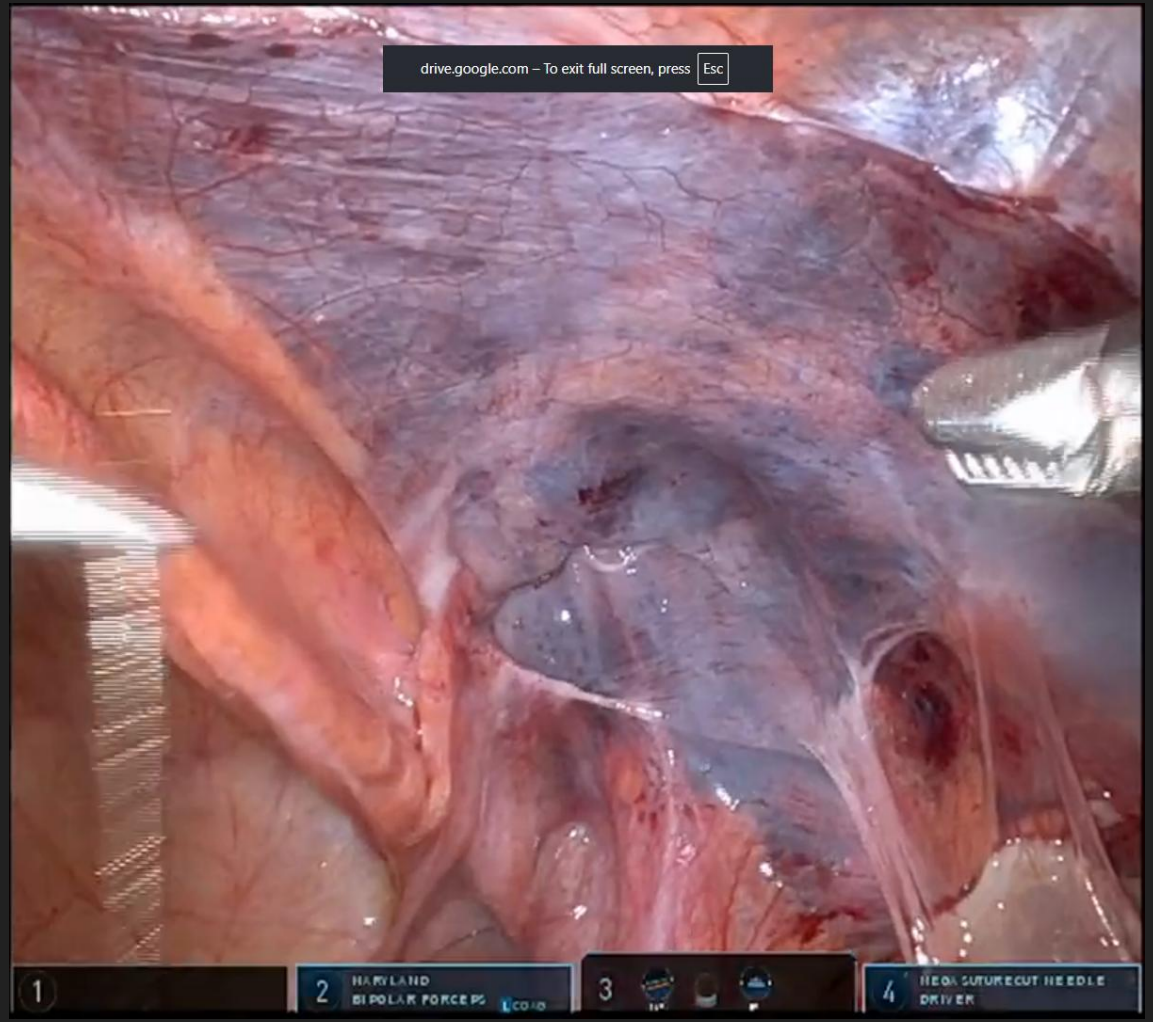
Repairing the inguinal canal


Dr. Shambhav Chandra


1
2
HARVLAND
BIPOLAR FORCEPS
3
4
MONOPOLAR
CURVED SCISSORS
CUT
COAG


1
2
BIPOLAR FORCEPS
3
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MONOPOLAR
CURVED SCISSORS
CUT
COAG


1
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1
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HARYLAND
BIPOLAR FORCEPS
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NEOSUTURECUT NEEDLE
DRIVER

Open versus Lap/Robo Umbilical/Ventral Hernia

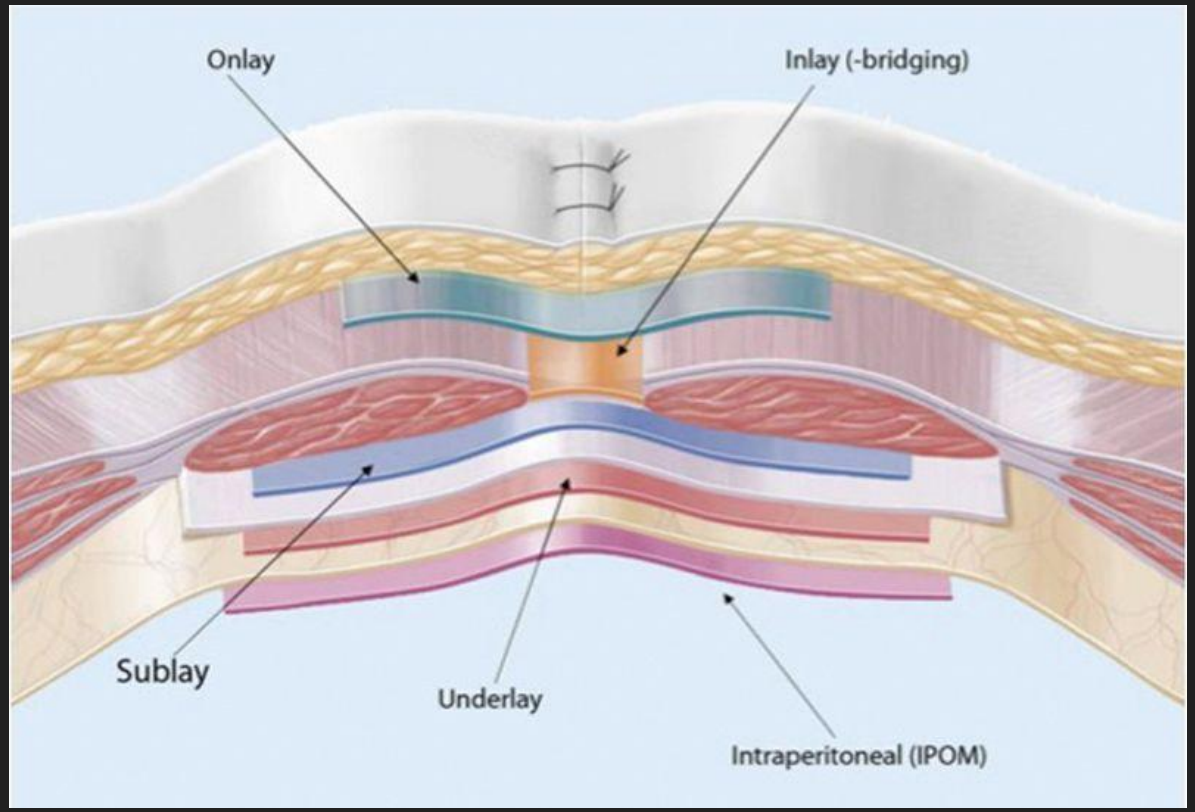
- Open Primary repair
  - <2.5cm
  - Good fascia
  - BMI < 30
- Open with mesh
  - >2.5cm
  - Weak fascia/diastasis
  - Prior failed repair
- Lap-Open-Lap Hybrid repair (LOL)
  - Large hernia sac but small defect
- Lap/robotic with mesh
  - BMI>30
  - Defect > 2.5cm
  - Failed prior open repair

Complex Ventral Hernias

- “Swiss-cheese” type defects
- Loss of domain
- Multiple prior failed repairs
- Presence of Stomas
- Cirrhosis/Ascites
- Known Hostile Abdomen
- Difficult Anatomic Location
  - Subxiphoid (post-CABG)
  - Suprapubic (post c-section)
  - Sub-costal (open chole/spleen)
  - Flank/Lumbar

- ❏ Important to know your skill set and comfort with techniques
- ❏ Complex fixation modalities
  - ❏ Bone Anchors/fiber-wire
- ❏ Know when to refer to complex abdominal wall surgery specialists
- ❏ MELD>15 should be managed at a transplant center
  - ❏ Medical optimization preoperatively
  - ❏ Ascites drain
  - ❏ Primary repair vs mesh–-debatable
  - ❏ Open vs MIS–debatable

Types of Ventral Repair



Pros

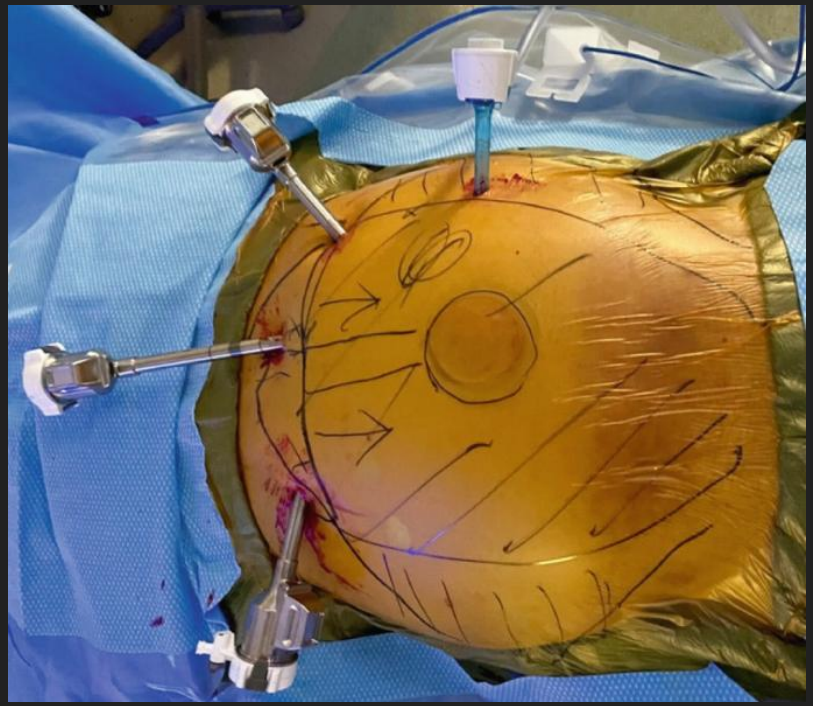
- IPOM: easy to learn, fast
- TAPP: mesh protected from bowel
- Sublay (retro-rectus repair): can repair diastasis, mesh protected from bowel, can use a very large mesh for bigger defects
- Inlay (bridging repair): easy, good bail-out maneuver in a hostile abdomen
- Onlay: don’t have to enter abdomen

Cons

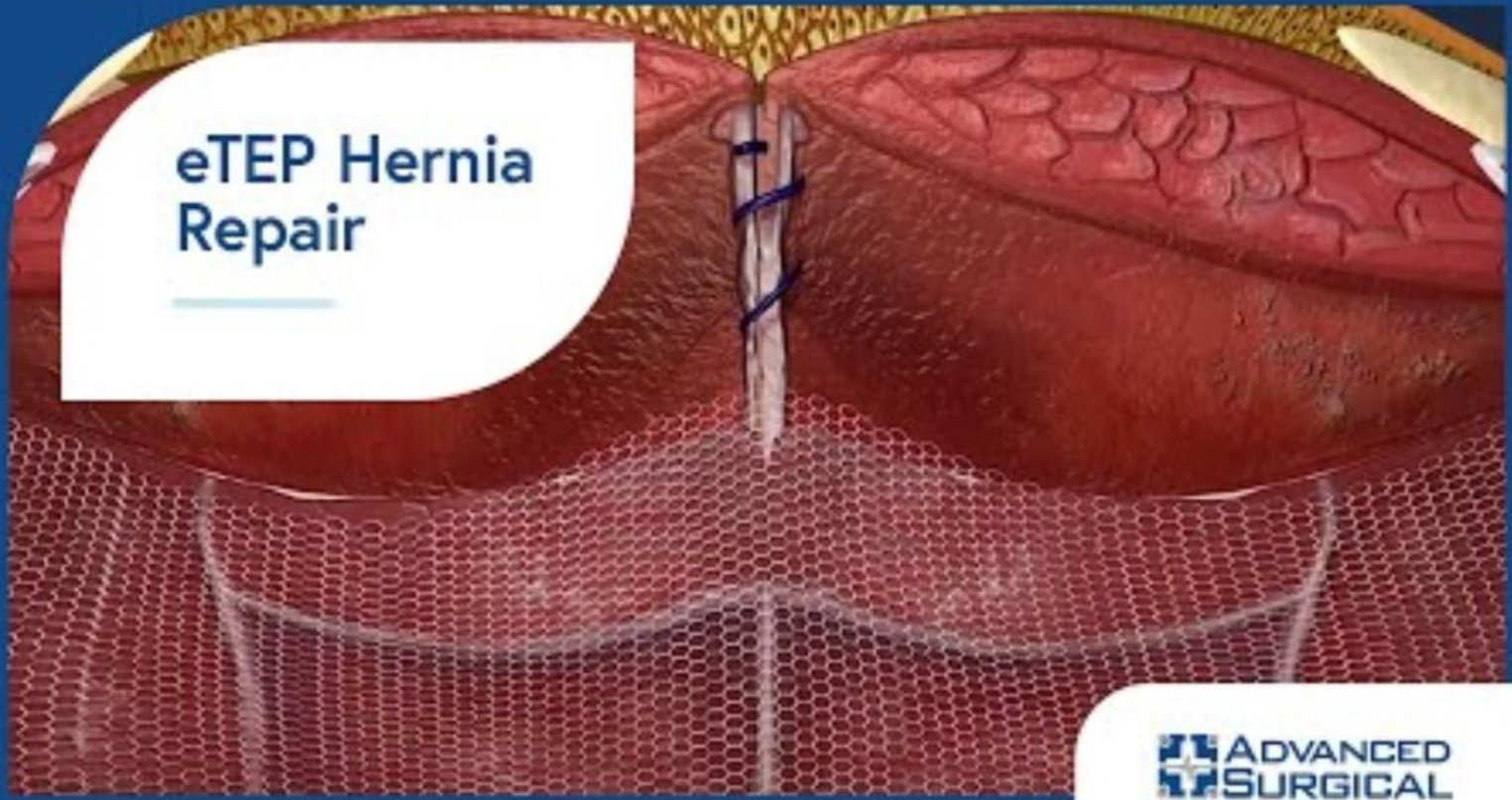
- IPOM: mesh in contact with bowel
- TAPP: technically challenging, thin flap
- Sublay: wound morbidity, potential to denervate muscle, bleeding risk, pain. Time consuming. More complex for MIS
- Inlay: high recurrence rate, persistent bulging
- Onlay: mesh infection/erosion through skin

eTEP

- Avoids entering the peritoneal cavity
- Can tackle large defects
- Can repair associated diastasis
- Difficult to learn
- Technically demanding
- Time consuming



eTEP Hernia Repair



ADVANCED SURGICAL & BARIATRICS OF NJ, PA

MESH

Mesh Materials

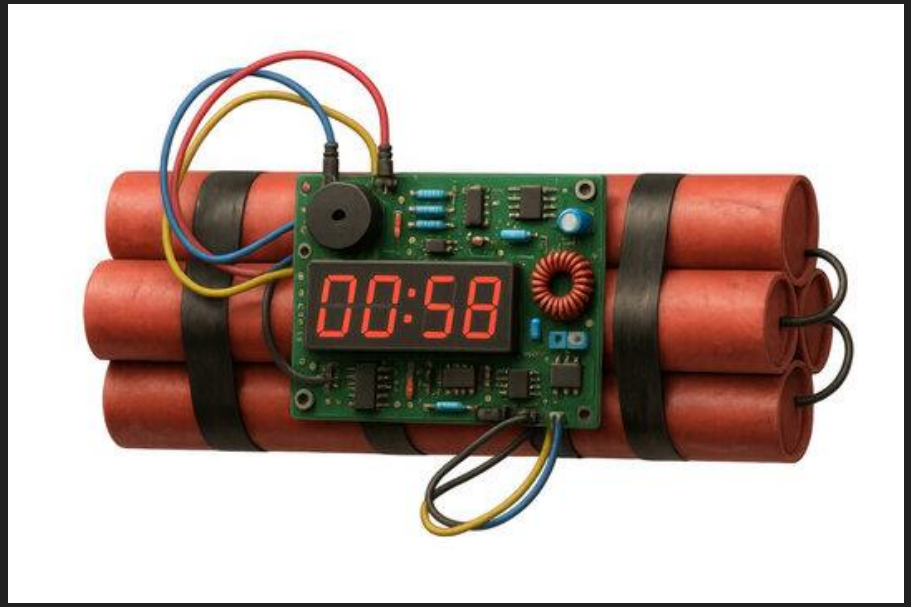
- Polyester:
  - flexible, lightweight. Available as self-fixating/barrier coated
  - More inflammatory reaction, infection/erosion issues. Significant contracture
- Polypropylene:
  - Flexible, lightweight. Available as self fixating/barrier coated
  - Less inflammation, can get brittle. Less contracture than polyester
- Bioresorbable:
  - Resistant to infection. Barrier coated, but not self-fixating. More rigid.
  - $$$$. Newer product, long-term data are limited.
- Biological
  - Acellular human/porcine dermis. Resistant to infection. Thick. Mixed data on recurrence
  - $$$$$. Good for infected fields or specialized applications.

Mesh Materials

- PTFE (Gore-tex)
  - Very, very strong.
  - Creates an intense inflammatory reaction and extensive scarring.
  - Has use in specialized applications (diaphragm repair, etc)
  - Causes great amounts of surgeon misery during reoperation.
- Absorbable synthetic mesh (Polyglactin/L-Lactide)
  - broken down and absorbed by the body over time (typically within 60 to 90 days) through hydrolysis
  - Good for bridging repairs in disaster abdomens, typically covered by skin graft at a later date

Watchful Waiting

- Inguinal hernias watchful waiting has been extensively studied
- 1%/year risk of incarceration requiring emergency surgery
  - No increase in mortality
- 30% become symptomatic in 5y
- 60% become symptomatic in 10y
- More and more we are watching asymptomatic ventral hernias
- Always fix femorals



Summary Points

- Preoperative imaging not always necessary
  - Ultrasound is a good starting point, CT for complex/recurrent hernias
  - MRI typically not useful
- Prehabilitation to ensure the best outcomes
  - Smoking cessation, weight loss, glycemic control
- Choices matter
  - Patient selection, technique, and mesh is a nuanced decision
- Watchful waiting is a reasonable strategy in asymptomatic or minimally symptomatic patients
  - Educate them on signs/symptoms of incarceration/strangulation and advise them to seek immediate medical attention


Questions?