Surgery Symposium 2012

The Complex Ventral Hernia:
How to patch a Hole When It’s
Bigger Than Your Finger

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No Disclosures
Objectives

1) Discuss patient factors that can complicate ventral hernia repair

2) Evaluate the pre-operative work up including imaging, lab, and examination of domain

3) Discuss the various repair options available and how those can be applied to our patients

Disclosure

- None
Goals of Any Hernia Repair

- Restore Function
- Reduce Pain
- Increase Activity
- Avoid Complications
  - Perforation
  - Panniculitis
  - Obstruction
Not All Hernias are Created Equally
Complex Abdominal Wall Reconstruction

- Morbid Obesity
- Limited mobility
- Diabetes
- Cardiac issues
- Respiratory compromise
- Prior Repairs
- Ostomies
- Chronic Loss of Domain
Why do we need to optimize patients?

- **Reduce Morbidity**
  - Wound complications
    - 10%–30% after prosthetic mesh repair
    - 10%–70% if component separation is needed
  - Seroma Formation
  - Mesh Infection
  - Hernia Recurrence (10-60%)

- **Reduce Mortality**
  - Reduce Pulmonary Complications
    - PE, Pneumonia, Loss of Capacity
  - MI and Cardiac Stress
  - Sepsis relating to perforation, re-herniation, or strangulation
Preoperative Optimization

- **Nutrition optimization**
  - Check albumin (>3) and pre-albumin (>20)
  - Multivitamin +
  - Pre-operative supplementation

- **Blood Glucose control (65 to 110 mg/dL in fasting state)**

- **Demand smoking cessation**

- **Weight reduction (obesity increases risk of recurrence)**
Preoperative Optimization

- Nutrition optimization
- Blood Glucose control (65 to 110 mg/dL in fasting state)
  - diabetic
  - obese
  - Steroids
  - Chronic stress/infection
- Demand smoking cessation
- Weight reduction (obesity increases risk of recurrence)
Preoperative Optimization

- Nutrition optimization
- Blood Glucose control (65 to 110 mg/dL in fasting state)
- Demand smoking cessation
  - Major modifiable risk factor for wound and mesh complications
    - Infection
    - Skin necrosis
    - Dehiscence
  - Urine test to prove nicotine-free pre-op
- Weight reduction (obesity increases risk of recurrence)
Preoperative Optimization

- Nutrition optimization
- Blood Glucose control (65 to 110 mg/dL in fasting state)
- Demand smoking cessation
- Weight reduction (obesity increases risk of recurrence)
  - Ideal BMI would be <28
  - Goal BMI is <50
  - bariatric referral
  - medical weight loss program
Preoperative workup

- Comorbidities management is combined effort of PCP & specialists
  - pulmonary function
  - cardiac function
  - renal function
  - decrease inflammatory state and contamination containment
  - medication review
  - OSA

- DVT prophylaxis for hypercoagulable state
- Discussion of patient’s expectation and informed consent
- Infection control (bacterial and yeast infections in skin folds)
Intraoperative Optimization

- Epidural anesthesia for pain control
- 24 hr Antibiotic prophylaxis
- Patient Normothermia
- DVT prophylaxis
- Glucose monitoring
- Patient safety and positioning in OR
- Tissue handling and wound closure
- Placement Mesh – Reduce recurrence rate by >50%
  - synthetic
  - biologic
- Place Drains - Limit Seroma
  - drains are removed after 5 days (prosthetic) or if output is less than 30 ml/24 h (biologic)
- Excision of excess skin & subQ to decrease mechanical stress
Abdominal reconstruction techniques are designed to provide tension-free repair of ventral hernia

- Tension-free repair is a prerequisite to prevent recurrence
- Laparoscopic and Open options
- Component separation (recurrence rates of 0%–28%)
  - Open
  - Endoscopic
- Use of Mesh
  - Synthetic or biologic
- Suprapubic, subxiphoid, lumbar, flank hernia repairs
- Parastomal hernia repair
- Retromuscular ventral hernia repair for recurrent complicated abdominal wall reconstruction
Abdominal Anatomy and Component Separation

Dissection of skin and subcutaneous fat

Transaction of aponeurosis of external oblique muscle and separation of internal oblique muscle

Mobilization of posterior rectal sheath and closure in the midline up to 20 cm advancement

Abdominal Anatomy and Component Separation
Postoperative Optimization

- Pain control with epidural or PCA
- Aggressive pulmonary toilet and incentive spirometer use
- Blood glucose control including use of insulin gtt
- Addition of supplemental drinks with meals
- DVT prophylaxis
- Early ambulation with physical therapy
- Weight restriction of 10-15 lbs x 6 weeks
- Ongoing Tobacco Cessation
- Occasional HBO for radiated or compromised wound
- Use of vasodilator for threatened skin edges
- Stoma management postop
Abdominal Wall Reconstruction
& Complex Abdominal Hernia Repair

performed by

Northwest Surgical Specialists, LLP
Large ventral hernia with significant loss of domain requiring Bilateral Component Separation

Large ventral hernia from previous mesh repair with incarcerated bowel

Ventral hernia adjacent to ileal chimney neobladder
Large ventral hernia with significant Loss of Domain requiring Bilateral Component Separation

Before

After
Large ventral hernia from previous mesh repair with incarcerated bowel
Ventral hernia adjacent to ileal chimney
Right Abdominal Wall Reconstruction

for

Failed mesh repair for right abdominal wall hernia

status post right TRAMS FLAP breast reconstruction

following mastectomy for breast cancer
Missing right abdominal wall
status post right TRAMS FLAP breast reconstruction

Before

After
Missing right abdominal wall
status post right TRAMS FLAP breast reconstruction

Before

After
Complex Incarcerated Ventral Hernia Repair

and

Panniculectomy
Patient with ventral hernia & incarcerated colon in panniculus
Large ventral hernia with incarcerated colon into panniculus requiring panniculectomy

Before
Large ventral hernia with incarcerated colon into panniculus requiring panniculectomy

Before

Hernia with incarcerated colon

After
Patient with ventral hernia & incarcerated colon fistula in panniculus
Ventral hernia repair after colon perforation into abdominal panniculus

6 months after debridement and wound care
Ventral hernia repair after colon perforation into abdominal panniculus

Intraoperative
Ventral hernia repair with panniculectomy

Postoperative
Patient with recurrent ventral hernia & incarcerated stomach and colon
Recurrent giant ventral hernia with incarceration requiring retrorectus repair and panniculectomy

Before

Postop Day 4
Summary

- Complex Abdominal Wall Reconstruction is possible and available
- Requires intense Preoperative, Intraoperative, and Postoperative care
  - Smoking Cessation
  - Weight Loss
  - Nutrition
  - Blood Glucose control
  - Comorbidities management
Thank You