Ventral Hernia Repair in the Obese Patient

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Disclosure

NO HABLO INGLES MUY BIEN!!!!!
Estimated Overweight & Obesity (BMI ≥ 25 kg/m²) Prevalence, Females, Aged 15+, 2010


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Obesity Trends* Among U.S. Adults

BRFSS, 1990, 2000, 2010

(*BMI ≥30, or about 30 lbs. overweight for 5’4” person)

Source: Behavioral Risk Factor Surveillance System, CDC.
Run or Not to Run
Ventral & Incisional Hernia

• More than 2 million open abdominal operations are performed annually in the U.S.
• 2 – 11% of these patients will develop incisional hernias.
• Approx. 350,000 ventral and incisional hernias are repaired each year in the U.S.
What is the Problem

• Hernia patients and obesity
  Symptomatic vs Asymptomatic

• Bariatric patients with hernia
Pre OP Considerations

• Can the repair be delayed?
• What is the best surgical approach
• Bariatric Surgery
• Does the pt wants and qualifies?
  Concurrent vs Staged
  Bypass/Sleeve/Balloon/Band
• Expectations of the repair
Obesity and Ventral Hernias

• Technical Challenges
• Medical Conditions
  • Compromise Tissue handling
  • Wound Complications
Obesity is a risk factor for recurrence after incisional hernia repair

Table 1 Baseline characteristics of the 160 patients

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Mean (±SD)</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years)</td>
<td>57.8 (± 13.3)</td>
<td>21–85</td>
</tr>
<tr>
<td>Gender (men/women)</td>
<td>76/84</td>
<td>−</td>
</tr>
<tr>
<td>Height (cm)</td>
<td>169.4 (± 9.6)</td>
<td>150–196</td>
</tr>
<tr>
<td>Weight (kg)</td>
<td>80.7 (± 17.1)</td>
<td>40–170</td>
</tr>
<tr>
<td>BMI (kg/m²)</td>
<td>28.1 (± 5.3)</td>
<td>14.7–58.8</td>
</tr>
<tr>
<td>Hernia size (cm)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vertical diameter (cm)</td>
<td>6.6 (± 5.9)</td>
<td>1–38</td>
</tr>
<tr>
<td>Horizontal diameter (cm)</td>
<td>8.6 (± 5.8)</td>
<td>1–35</td>
</tr>
</tbody>
</table>
| Total area (cm²)                      | 82.5 (± 160.0) | 2–1,330| (Median 35)

Data on obesity missing for one patient, and data on hernia size missing for four patients; SD = standard deviation; BMI = body mass index
Does Obesity Matters

- Commonly cited factor for recurrence
- Technical difficulties
- Large defects Large Mesh
- Peri-OP complications
  - Surgical site
  - Systemic
Where is the DATA??
Does Obesity Matters

- Retrospective review
- 168 pts 42 pts with BMI >35
- Standard LVHR (synthetic mesh)
- 19 month F/U 12% recurrence
- Influence by defect/mesh size

Comparison of early outcomes for Lap VH between obese and non-obese patients
Ching et al, Surg Endoscopy 2008
Does Obesity Matter

• Retrospective review
  – 27 pts >BMI 35
  – Mean BMI 47

• Standard LVH
  – Synthetic 53%
  – Biologic 47%

• 15 month F/U Recurrence 18%

• Higher recurrence and pts need to be informed

Outcomes of LVH in Morbid Obese patients
Rattoupuolus et al. Surg Endo 2008
Does Obesity Matters

• 2 year retrospective review
• Retrospective review
  – Group I (n=134) BMI >40
  – Group II (n=767) BMI <40

  **Group I 8.3% recurrence**
  **Group II 2.9% recurrence**

Laparoscopic VHR between morbid obese patients
Tseretell et al, Hernia 2013
Recurrence After Laparoscopic Ventral Hernia Repair in Obese Patients

- 850 pt eval
  - Patients with BMI>40
    - Younger (47 vs 57 yrs), p<0.01
    - Female, p<0.01
    - Large defect size (167 vs 105 cm), p<0.01
    - Trend to have more complications (18% vs 16%), p=0.09
    - Four times more likely to have a recurrence (7.8% vs 2%) p<0.05

Heniford et al Annals of Surg 2003
Laparoscopic ventral hernia repair (LVHR) in morbidly obese patients

Z. Tsereteli · B. A. Pryor · B. T. Heniford · A. Park · G. Voeller · B. J. Ramshaw

Fig. 1 Overall ventral hernia recurrence rate

Fig. 2 The Kaplan-Meier curve of hernia recurrence in regard to time body mass index (BMI)

Why This High Recurrence Rate in Obese Patients
## IAP of Normal and Obese Patients

<table>
<thead>
<tr>
<th>Activity</th>
<th>Normal</th>
<th>Obese</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stairs</td>
<td>69 (40-110)</td>
<td>88.3 (55-129)</td>
</tr>
<tr>
<td>Arm Curl</td>
<td>25 (17-37)</td>
<td>64 (16-100)</td>
</tr>
<tr>
<td>Bench Press</td>
<td>7 (2-34)</td>
<td>22 (5-35)</td>
</tr>
<tr>
<td>Cough</td>
<td>81 (40-127)</td>
<td>155 (80-250)</td>
</tr>
<tr>
<td>Standing Cough</td>
<td>107 (64-141)</td>
<td>185 (80-255)</td>
</tr>
<tr>
<td>Jumping</td>
<td>171 (43-252)</td>
<td>212 (150-25)</td>
</tr>
</tbody>
</table>
What Can We Do to Reduce the Incidence of Hernia Recurrence
Choice of Strategy

• Depends on the Patient and the Surgeon
  – Symptoms
  – Urgency of the procedure
  – Best surgical approach
  – BMI of patient
  – Amount of weight loss desired
  – Comorbid conditions
Medical Treatment

• Diet – low in calories, fat and carbohydrates
• Exercise– 40 minutes 5 times per week
• Behavior Modification – eat 3 sensible meals per day, avoid snacking
• Drugs/Prescription medications
  Stimulants/appetite suppressants
• Antidepressants (Meridia®)
• Reduce fat absorption (Xenical®)
Diet

- Optifast or other diets
- Limited calories (900-1200 Kcal/day)
- Can achieve 15-25% weight loss in short period of time
- Nutrition evaluation 1-2 month
- High Cost
Disadvantages

• Most patients (95-97%) regain most or all of the weight that was lost within 2-5 years following diet or drug treatment.
  The average amount of weight loss is relatively small 10-40 pounds.

• Drug therapy may be associated with severe complications (Fen-Phen and heart disease).
Exercise

“What fits your busy schedule better, exercising one hour a day or being dead 24 hours a day?”
Which Technique

• Primary repair? (high recurrence 15-35%)
• Open VHR
  – Simple onlay vs inlay
  – STOPPA
  – Component separation
  – TAR

Laparoscopic VHR
Staged Procedure
LVHR in the Obese Patient
New standard of care?

- Retrospective review
- 163 patients
- BMI 38 (range, 30-67)
- Standard LVHR (3% conversion)
- 25 months follow up
- Recurrence 5.5%
- “LVHR may be the approach of choice”

Novitsky et al, Archives of Surgery 2006
Honey please,
just calm down.
Let me explain....
Contraindications to Laparoscopy

- Loss of Domain
- Very large (>20cm) defect
- Past or present mesh infection
- Need to remove old mesh
- Skin changes over the hernia sac
Open Component

• Retrospective Review
• 30 pts, BMI >35
  – Mean BMI 60
  – Mean defect width 12 cm (3-55)
  – No mesh placed Anterior CS
    • Additional procedures
      – RYGBP in 6 (20%) pts
      – Intestinal resection in 6 (20%) pts
      – Panniculectomy in 16 (53%) pts

Autologous tissue reconstruction of Ventral Hernias in Morbidly Obese
E. Chand et al, Arch of Surgery 2007
Open Component

• 44 month F/U
• Recurrence 3%

• Conclusions
  – Comp Separation is safe
  – Performance of panniculectomy does not improve outcomes
  – Effective technique
Stoppa

- Retrospective Review
- 90 pts BMI>30
  - Mean of 40
  - Retromuscular (STOPPA) repair
  - Synthetic mesh as sublay
- Outcomes
  - Morbidity 8%
  - Mortality 1.1%
  - F/U 50 months Recurrence 5.5%

Moore et al, The American J of Surgery
SHOULD VHR BE DELAYED IN MORBIDLY OBSESE PATIENTS
Staged Repair

- Staged Ventral Hernia repair after surgical weight loss may decrease perioperative complications and recurrence rates in Obese Patients
Comorbidity Resolution after Weight Loss Surgery

**Medical Problems Resolved After Bariatric Surgery**

- Migraines: 67% resolved
- Pseudotumor Cerebri: 96% resolved
- Dyslipidemia: 67% resolved
- Hypercholesterolemia: 67% resolved
- Non-Alcoholic Fatty Liver Disease: 90% improved
- Nephrotic Syndrome: 37% resolution of inflammation
- 20% resolution of fibrosis
- Metabolic Syndrome: 90% resolved
- Type II Diabetes Mellitus: 83% resolved
- Polycystic Ovarian Syndrome: 79% resolution of insulin resistance
- Venous Stasis Disease: 95% resolved
- Gout: 77% resolved
- Depression: 55% resolved
- Obstructive Sleep Apnea: 74-96% resolved
- Asthma: 62% improved or resolved
- Cardiovascular Disease: 62% risk reduction
- Hypertension: 52-92% resolved
- GERD: 72-95% resolved
- Stress Urinary Incontinence: 44-89% resolved
- Degenerative Joint Disease: 41-76% resolved

**Quality of Life**

- Improved in 95% of patients

**Mortality**

- 30-40% reduction in 10-year mortality

**%Remission/Resolution and/or Improvement of Obesity-related Co-morbidities at 48 weeks**

- Hypertension: 79%
- Type 2 Diabetes: 86%
- Hyperlipidemia: 57%
- Sleep Apnea: 69%
- GERD: 93%
- Depression: 71%
Staged Repair

- Restrospective Review
- 27 pts
- Mean BMI 51
- Gastric Bypass
  - Open 22, Lap in 5
  - Concurrent Hernai Repair (n=7)
    - Primary 4
    - Biolgoyc mesh in 3
      ALL Recurred

Staged hernia repair preceded by gastric bypass for the treatment of the morbid obese with complex ventral hernia
Newcome et al, Hernia 2009
Staged Repair

• One pt with bowel obstruction
• Hernia Repair 1.3 yrs later
  – LVHR in 8 (31%)
  – Open (STOPPA) in 19 (69%)

OUTCOMES
- F/U 20 months
- NO Recurrence
Ventral Hernias in Bariatric Surgery
is it Safe to Deferred VHR?

• Retrospective review
• 85 pts (65 umbilical or small ventral hernia)
• BMI >35
  – Mean 51
• LVH 3 groups
  – Primary Repair 59 (70%)
  – Mesh 12 Synthetic/Bio (14%)
  – Deferred Repair 14 (18%)

Repair of VH in Morbid Obese pts undergoing Gastric Bypass should not be deferred
Eid et al Surg Endos
• Outcomes

Primary Repair
  30 month F/U recurrence 22%
Biologic Mesh
  F/U 13 months NO recurrence
Deferred Repair
  5 pts w/SBO

• Conclusions:
  – Primary Repair High Failure Rate
  – Do NOT Deferred if LOA
Conclusion

Obesity is a risk factor for hernia failure
Medical guidance may improve outcomes
Laparoscopic is safe
  • Don’t force it - contraindications exist
Open repair is excellent option
Staged repair may improve outcomes
Primary repair high failure rates