Management of the Difficult Patient with a Hiatal Hernia

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Clinical Scholar
Background: Hiatal Hernia

- Present in 20-25% of the population
- Prevalence increases with age
- 2 basic types, sliding and paraesophageal
Hernia Types: Sliding

Type I (most common)

Hutter M and Ratner DW. Shackelford’s 6th Ed
Hernia Types: True PEH

Type II (uncommon)

Hutter M and Ratner DW. Shackelford’s 6th Ed
Hernia Types: PEH

Type III / IV (Increasing)

Hutter M and Ratner DW. Shackelford’s 6th Ed
Indications for Repair

- **Type I**
  - GERD and complications of GERD
  - Alternative is medical therapy for reflux
  - QOL should be driving factor in decision
  - Hernia important only in that it contributes to GERD

- **Types II, III and IV**
  - Potential for serious / catastrophic complications
  - No medical alternative
  - Repair indicated in all symptomatic patients
  - The hernia is the problem driving surgery
PEH: Life-threatening Complications

- Incarceration
- Gangrene / Necrosis
- Ulceration
- Perforation
- Acute bleeding
- Anemia

Risk: Approximately 1% per year

Types of Volvulus with PEH

Organo-axial

Meso-axial

Hutter M and Ratner DW. Shackelford’s 6th Ed
Critical Steps in Repair

- Reduce stomach, remove sac
- Mediastinal esophageal mobilization
- Crural repair
- Fundoplication
Reduce Stomach and Mobilize Sac
Mediastinal Mobilization
Crural Closure
Dealing with Crural Tension
Relaxing Incisions (Right, Left or Both)
Relaxing Incision on the Right
Relaxing Incision on the Right
Crural Relaxing Incisions

- 15 patients
  - Right side in 13
  - Left side in 1
  - Bilateral in 1

- No complications intra-op

- Post-operative chest x-ray showed 1 mildly elevated left hemi-diaphragm after left-sided relaxing incision in asymptomatic patient

Wedge Fundectomy Collis Gastroplasty

Wedge Fundectomy Collis Gastroplasty
Collis Gastroplasty at USC

- 1998-2012, 150 Collis gastroplasties
- 85 wedge fundectomy Collis gastroplasties
  - 74 primary procedures, 11 redos
  - 78 laparoscopic, 7 trans-abdominal
  - Collis-Nissen in 66%, Toupet in 34%
- No leaks or complications related to Collis
- Dysphagia significantly improved in majority post-op, new onset in 2 patients
- 54 patients had EGD at 3 months, esophagitis in 4 (9%)

Fundoplication

- None
  - Allison repair (20 year review)*
    - Recurrence 33% with PEH and 49% with sliding HH
    - Rate increased annually
    - Majority of recurrences associated with symptoms

- Prospective study, 60 patients*
  - Fundoplication \((n=35)\) for those with \(\geq 2\) components present (reflux symptoms, esophagitis on EGD, \(+\) pH)
  - No fundoplication \((n=25)\) for those with 0-1 component
  - Follow-up at 12 months

*Allison PR. *Ann Surg*, 1973
## Outcome at 12 Months

<table>
<thead>
<tr>
<th></th>
<th>Fundoplication</th>
<th>No Fundoplication</th>
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</thead>
<tbody>
<tr>
<td>Dysphagia (new)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Esophagitis (new)</td>
<td>7.4%</td>
<td>27.7%</td>
</tr>
<tr>
<td>LES pressure pre-op*</td>
<td>1.0</td>
<td>2.0</td>
</tr>
<tr>
<td>LES pressure post-op*</td>
<td>1.5</td>
<td>1.1</td>
</tr>
<tr>
<td>Abnormal pH pre-op</td>
<td>97%</td>
<td>29%</td>
</tr>
<tr>
<td>Abnormal pH post-op</td>
<td>39%</td>
<td>44%</td>
</tr>
<tr>
<td>Recurrence</td>
<td>19%</td>
<td>12.5%</td>
</tr>
</tbody>
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*mmHg

Mesh at the Hiatus

- Mesh use has been beneficial for reducing recurrences at other hernia sites
- Hiatus is a dynamic area
  - Constant movement of the hiatus
  - Esophagus shortens with each swallow
- Problems with mesh
  - Shrinkage, dysphagia
  - Reoperation associated with 6.8 times increased risk of requiring major resection (Parker M, et al. Surg Endosc, 2010)
Mesh at the Hiatus

- High risk area for infection and erosion with synthetic mesh, should be avoided
- Highest risk is bridging crura with synthetic mesh...avoid at all costs
Permanent Mesh and Erosion
Permanent Mesh and Erosion
Permanent Mesh and Erosion
Gortex at the Hiatus
Gortex at the Hiatus
Permanent Mesh


Mesh Wish List

- Absorbable, no tendency to erode
- Easy to use (introduce, position, fixate)
- Effective (reduces risk of recurrent hernia)
- Does not preclude safe reoperation
Synthetic Mesh Alternatives

- Absorbable, biologic and bioresorbable mesh
  - Vicryl
  - Human and porcine dermis
  - Porcine intestinal submucosa or bladder
  - Bovine pericardium
  - Bio-A
  - Phasix-ST
Improvement in Lap PEH Repair

What was different, then versus now:
Then: no mesh, no Collis gastroplasty, no relaxing incisions
Now: 84% mesh, 40% Collis gastroplasty, 6% relaxing incisions
Conclusions

- Hiatal hernias are common and contribute to GERD in many patients
  - Type I sliding hernias are not an indication for surgery, but are fixed as part of an antireflux operation for GERD
- Paraesophageal hernias that are symptomatic should be repaired
  - Typically done laparoscopically with very low morbidity and mortality as elective procedure
  - Excellent results depend on ability to add adjunct procedures (Collis, relaxing incision) as necessary
- Permanent mesh can erode and should be avoided around the hiatus given better absorbable options