Obturator Hernia

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Downstate Medical Center
December 10, 2015
Case presentation

- 87F with one week of midline abdominal pain radiating to RLQ, nausea and vomiting
- PMHx: HTN, hx of TB
- PSHx: s/p L pneumonectomy for TB
- ROS: recent weight loss, not intentional
Case presentation

- **Vitals:** T 98.3, P 85, BP 163/90
- **PE:**
  - Abd: soft, mildly tender in RLQ, distended; no palpable hernias
  - Hanington-Kiff Sign neg, howship-romberg sign neg
  - Thigh: no palpable masses, no motor or sensory deficit
- **Labs**
  - BUN/Creat: 44/1.76
  - CBC: 10.54>10.9/33<142, neut: 76.1%
  - U/a: neg
• What is the next step???
CT Abd/Pelvis
CT Abd/Pelvis
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Plan:

- Foley, NGT placement
- IVF resuscitation
- OR for exploratory laparotomy, repair of obturator hernia
OR course

- Exploratory laparotomy
- Reduction of small bowel loop from R obturator canal
  - Local perforation
  - Small bowel resection with primary anastomosis
- Evaluation of remainder of small bowel
- Repair of obturator hernia
  - Purse string suture around canal
  - Re-enforced with broad ligament
Hospital Course

- Extubated on table
- POD 1-3
  - awaiting bowel function
- POD 4
  - 2 bowel movements, tolerating PO intake
  - Creatinine normalized (13/0.93)
- POD 5
  - Discharged home
Questions?
Obturator hernia

- “little old lady hernia”
  - Usually 7th or 8th decade of life
- Recent weight loss
- Raised intra-abdominal pressure
  - COPD
  - Ascites
  - Chronic cough
- Generally asymptomatic, unless…
  - Compression of obturator nerve
  - Incarcerated bowel
- Account for 1% of all abdominal hernias
Obturator Hernia

- Female: male ratio 6:1
- Broader pelvis
- Wide obturator canal
- Bilateral obturator hernias in 6% of cases
Clinical signs

• Howship-Romberg Sign
  • Present in ~50% of cases, more commonly present in anterior type I hernias
  • Pain along MEDIAL surface of thigh when leg is abducted and extended or internally rotated

Internally rotate the leg ➔ PAIN

Moritz Heinrich Romberg
Clinical signs

• **Hanington-Kiff Sign**
  - Loss of the thigh adductor reflex
    - Percuss over adductor muscle approximately 5 cm above the knee
  - Intact patellar tendon reflex on same side
Clinical signs

- **Howship-Romberg Sign**
  - Present in ~50% of cases, more commonly present in anterior type I hernias
  - Pain along MEDIAL surface of thigh when leg is abducted and extended or internally rotated

- **Intestinal obstruction**
  - Occurs in >80% of patients
  - Hernia strangulation
    - Repeated bowel obstructions that resolve quickly without intervention
      - 30%
    - Palpable mass in proximal medial aspect of thigh at origin of adductor muscles
      - 20%
Clinical signs

- **Howship-Romberg Sign**
  - Present in ~50% of cases, more commonly present in anterior type I hernias
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- **Intestinal obstruction**
  - Occurs in >80% of patients
  - Hernia strangulation

- **Repeated bowel obstructions that resolve quickly without intervention**
  - 30%
  - **Richter type hernia**

- Palpable mass in proximal medial aspect of thigh at origin of adductor muscles
  - 20%
Clinical signs

- **Howship-Romberg Sign**
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- **Palpable mass in proximal medial aspect of thigh at origin of adductor muscles**
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3 types

- Type I – anterior branch type **most common**
- Type II – posterior branch type
- Type III – intermembranous type **rare**
  - Sac enters space between the internal and external obturator membranes

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Anatomy

Muscles:
- Obturator externus
- Adductor brevis
- Adductor longus
- Adductor Magnus (adductor part)
- Gracilis

Skin: small area of medial side of thigh.

Injury: limb tends to swing out during walking.
Anatomy

- Borders of obturator canal
  - Superior: Obturator groove on superior pubic ramus
  - Inferior: upper edge of the obturator membrane
- 3 cm in length
- Hernia lies deep to pectineus muscle → difficult to palpate on exam
• Obturator foramen
  • Ischial rami
  • Pubic rami
  • Obturator membrane covers the foramen except to allow the obturator vessels and nerves

• Neurovascular bundle usually lie **posterolateral** to hernia sac
Treatment

- Once diagnosis is made, SURGERY is the treatment
  - High risk of incarceration and strangulation

- Three open approaches
  - Lower midline transperitoneal approach
  - Midline extraperitoneal approach
  - Thigh approach

- Can consider laparoscopic TEP or TAPP repair
1. Laparotomy

2. Follow dilated small bowel to point of incarceration at obturator canal, **reduce** with gentle traction
   a. If unable to reduce, incise obturator membrane from **anterior to posterior**
   b. If unsuccessful, make counter-incision in medial groin -- attempt reduction from both sides of the canal

3. Assess viability of bowel, resect if needed

4. Close hernia opening around obturator neurovascular bundle
   a. Running suture, **monofilament**, encircling inner circumference of canal
   b. If no contamination, placement of **mesh** can be considered
      a. Consider attaching to cooper’s ligament to prevent migration
Midline extraperitoneal approach

- Midline incision: umbilicus to pubis
- Enter pre-peritoneal plane
  - deep to rectus muscle
  - free bladder from peritoneum
- Open space to reveal superior pubic ramus and obturator internus muscle
- Hernia sac: projection of peritoneum passing inferiorly into obturator canal

- Incise sac at its base, reduce contents, transect the neck of the sac
- Close internal opening of obturator canal with a continuous suture as described previously
  - Include periosteum of sup pubic rami, fascia of internal obturator muscle
  - **avoid injury to obturator vessels**
  - Can also use mesh to cover defect
Thigh approach

- Vertical incision in upper medial thigh
  - Made along adductor longus muscle

- Retract muscle medially
  - Exposes pectineus muscle \(\rightarrow\) cut this to expose hernia sac

- Open sac, examine contents CAREFULLY, and reduce if viable
  - Resect sac
  - If contents not viable, will need midline laparotomy to address this

- Close hernia opening with continuous suture layer

Thigh Approach
Laparoscopic management of incarcerated obturator hernia

Kwok Kay Yau, Wing Tai Siu, Chun Han Chau, Pei Cheung Yang, and Michael Ka Wah Li

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Obturator hernias: A review of the laparoscopic approach
Samer Deeba, Sanjay Purkayastha, Ara Darzi, Emmanouil Zacharakis

- Cases reviewed in literature from 1991-2009
- Total of 28 cases, data pooled
- Laparoscopic approach to obturator hernia is SAFE and EFFECTIVE
- 2 of the emergent cases required conversion to resect necrotic bowel
  - 1 mesh repair
  - 1 direct repair
- In acute presentations, rec TAPP repair to assess viability of incarcerated bowel
Obturator hernias: A review of the laparoscopic approach

Samer Deeba, Sanjay Purkayastha, Ara Darzi, Emmanouil Zacharakis

- Elective repair: 20/28 cases
- Avg age: 53.2 years
- Avg weight: 55.3 kg
- Avg OR time: 50.6 min

<table>
<thead>
<tr>
<th>Author/Year Country</th>
<th>Type</th>
<th>Gender</th>
<th>Ave. Weight</th>
<th>Ave. Age</th>
<th>Ills. days</th>
<th>Op. time</th>
<th>Hospital Stay</th>
<th>Resections</th>
<th>Repair</th>
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<tbody>
<tr>
<td>Bryaint et al. USA</td>
<td>1 emergency</td>
<td>F</td>
<td>61</td>
<td>77</td>
<td>4</td>
<td>7 day</td>
<td>-</td>
<td>-</td>
<td>TAPP mesh</td>
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<td>Mantovani et al.</td>
<td>1 (lap)</td>
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<td>66.33</td>
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<td>8 day</td>
<td>-</td>
<td>-</td>
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<td>Singapore</td>
<td>emergency</td>
<td>F</td>
<td>39</td>
<td>84</td>
<td>-</td>
<td>1 extracorporeal</td>
<td>5 mm defect</td>
<td>5 hours</td>
<td>Bilateral TEP mesh repair</td>
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<td>Miki et al. Japan</td>
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<td>F</td>
<td>--</td>
<td>59</td>
<td>0</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Staple repair 5 mm defect</td>
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<td>Moreno-Egea et al. Spain</td>
<td>1 elective</td>
<td>M</td>
<td>68</td>
<td>56.8</td>
<td>-</td>
<td>Hours?</td>
<td>1 extracorporeal</td>
<td>-</td>
<td>Mesh TEP repair</td>
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<td>Shapiro et al. USA</td>
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<td>M</td>
<td>72</td>
<td>35</td>
<td>-</td>
<td>1 day</td>
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<td>0</td>
<td>TAPP mesh</td>
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<td>Haith et al. USA</td>
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<td>F</td>
<td>68</td>
<td>1</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<td>Wu et al. Taiwan</td>
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<td>F</td>
<td>32</td>
<td>84</td>
<td>46</td>
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<td>Yokoyama et al. Japan</td>
<td>1 elective lap/6 of the series</td>
<td>F</td>
<td>--</td>
<td>66</td>
<td>90</td>
<td>-</td>
<td>-</td>
<td>-</td>
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<td>Chang et al. Taiwan</td>
<td>1 elective bladder hernia</td>
<td>F</td>
<td>--</td>
<td>66</td>
<td>90</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>TAPP mesh repair</td>
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<td>Velasquez-Lopez et al. Colombia</td>
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<td>F</td>
<td>--</td>
<td>36</td>
<td>-</td>
<td>1</td>
<td>-</td>
<td>-</td>
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<td>Sorabella et al. USA</td>
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<td>F</td>
<td>--</td>
<td>12</td>
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<td>1</td>
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<td>M</td>
<td>--</td>
<td>40</td>
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<td>-</td>
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<tr>
<td>Hunt et al. UK</td>
<td>1 emergency</td>
<td>F</td>
<td>--</td>
<td>62</td>
<td>2</td>
<td>30</td>
<td>3</td>
<td>-</td>
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<tr>
<td>Sun et al. Taiwan</td>
<td>1 emergency</td>
<td>F</td>
<td>42.5</td>
<td>76</td>
<td>-</td>
<td>-</td>
<td>4</td>
<td>-</td>
<td>plug and reinforcement by broad ligament</td>
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<td>Wald et al. USA</td>
<td>2 elective gyn procedures</td>
<td>F</td>
<td>70</td>
<td>44</td>
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<td>-</td>
<td>-</td>
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<td>Intra-abdominal mesh plug and ovar shearing of broad ligament</td>
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<tr>
<td>Chowbey et al. India</td>
<td>1 elective incidental</td>
<td>F</td>
<td>--</td>
<td>65</td>
<td>0</td>
<td>45</td>
<td>1</td>
<td>0</td>
<td>Top mesh repair</td>
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</table>
• 104 consecutive repairs of obturator hernia
  • Mesh repair (n=24) vs nonmesh repair
  • 24 mesh repair with via polypropylene patches with a memory recoil ring (Kugel repair)
  • 5 plug mesh repairs

• Non mesh repair
  • Simple reduction n=9
  • Simple closure of sac n=15
  • Fascial closure (suture of pectineus muscle to periosteum of bone) n=4
  • Covering of defect using an adjacent organ n=47

• Laparotomy for 78% of operations
• Inguinal approach 22%
• No laparoscopic repairs
Long-term outcomes after obturator hernia repair: retrospective analysis of 80 operations at a single institution

T. Karasaki · Y. Nomura · N. Tanaka

Table 1  Patients’ characteristics and details of 80 obturator hernia operations

<table>
<thead>
<tr>
<th></th>
<th>84 (43–94)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age* (years)</td>
<td></td>
</tr>
<tr>
<td>Sex*</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>68 (97 %)</td>
</tr>
<tr>
<td>Male</td>
<td>2 (3 %)</td>
</tr>
<tr>
<td>Body mass index* (kg/m²)</td>
<td>18.1 (13.3–25.2)</td>
</tr>
<tr>
<td>No. of deliveries*</td>
<td>3 (0–7)</td>
</tr>
<tr>
<td>Duration of symptoms (days)</td>
<td>1 (0–62)</td>
</tr>
<tr>
<td>Diagnostic modalities</td>
<td></td>
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<tr>
<td>Computed tomography</td>
<td>75 (94 %)</td>
</tr>
<tr>
<td>Others</td>
<td>5 (6 %)</td>
</tr>
<tr>
<td>Hernia content</td>
<td></td>
</tr>
<tr>
<td>Small intestine</td>
<td>77 (96 %)</td>
</tr>
<tr>
<td>Others</td>
<td>3 (4 %)</td>
</tr>
<tr>
<td>Symptoms</td>
<td></td>
</tr>
<tr>
<td>Small bowel obstruction</td>
<td>67 (84 %)</td>
</tr>
<tr>
<td>Howship-Romberg sign present</td>
<td>36 (45 %)</td>
</tr>
<tr>
<td>Type of surgery</td>
<td></td>
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<tr>
<td>Emergent</td>
<td>77 (96 %)</td>
</tr>
<tr>
<td>Elective</td>
<td>3 (4 %)</td>
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<tr>
<td>Anesthesia</td>
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<tr>
<td>General</td>
<td>78 (97 %)</td>
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<tr>
<td>Spinal</td>
<td>2 (3 %)</td>
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<tr>
<td>Incision</td>
<td></td>
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<tr>
<td>Midline</td>
<td>62 (78 %)</td>
</tr>
<tr>
<td>Inguinal</td>
<td>18 (22 %)</td>
</tr>
<tr>
<td>No. of bowel resections performed</td>
<td>35 (44 %)</td>
</tr>
</tbody>
</table>

* Seventy patients with new-onset obturator hernia were analyzed.
Mesh repair n=24 (30%) Bowel resection n=35 (44%)
- Intestinal perforation n=17 (21%)
- Five patients with bowel resection without perforation were repaired with mesh (6%)

Post op complications
- N=31 (39%)
- In hospital mortality n=4 (5%)
  - None had mesh repair, all underwent bowel resection
- Surgical site infection n=16 (20%)
  - 13 underwent bowel resection (9 with perforation)
- 2/5 year survival: 74/55%
- No obturator neuralgia post op
Recurrences n=17 (16%)
  • Simple reduction n=1
  • Simple closure of sac n=2
  • Covering defect with adj organ viscera n=14

Recs:
  • If no contra-indication, mesh repair preferred
Obturator hernia – extremely rare
  • “skinny old lady hernia”

Treatment is SURGERY

Four approaches
  • Midline laparotomy
  • Extraperitoneal approach
  • Thigh approach
  • Laparoscopic TEP or TAPP

If no contamination, mesh repair is preferred
Give me some good news.

Sir, it looks like there's an abdominal weakness in sector G.

Then that's our way out.

It's risky, but it's our best shot. Good luck, sir.

I make my own luck.

Pop!
References


