OBTURATOR HERNIA

Irina Kovatch, MD
Brooklyn VA Hospital
Morbidity and Mortality
September 22nd, 2011
Case Presentation – 8/6/11

- Xxyo M c/o abdominal pain, constipation, N/V x 4 days
- PMH: Afib, HTN, ESRD (last HD 8/4/11), COPD
- PSH: RIHR x2, LUE AV fistula
- Meds: ASA, plavix, etc
- All: ACE inhibitors
Case Presentation – 8/6/11

- VS: 97.6, 183/113, 118, 19
- PE: mild respiratory distress; dry oral mucosa; bilateral crackles; afib; abd soft, mildly tender, distended; b/l LE edema
- Labs:
  - CBC 13.6/ 12/ 36.7/ 140
  - Chem 142/ 4/ 105/ 25/ 4.1/ 117
  - LFTs, Coags – wnl

www.downstatesurgery.org
AXR

SBO, b/l pleural effusions
CT Abdomen

Small bowel obstruction secondary to right obturator hemia, bibasilar pneumonia, bilateral pleural effusions
CT Abdomen

Small bowel obstruction secondary to right obturator hernia, bibasilar pneumonia, bilateral pleural effusions
Hospital Course 8/6 – 8/8

- Admission to ICU
- NGT, NPO/IVF
- Dialysis
- Cardizem drip for afib
- Abx for PNA
- Refused surgical intervention
- No improvement of SBO
OR 8/9/11

- Exploratory laparotomy
- Reduction of right obturator hemia
- Clear transition point
- Circumferential bowel ischemia/necrosis without perforation
- Small bowel resection with primary anastomosis
- Repair of obturator hemia with biologic plug (Flex-HD)
Hospital Course 8/10 – 8/30

- 8/11 – extubated
- 8/15 – clear diet, thoracentesis (1500cc)
- 8/16 – full liquids, transfer to floor
- 8/19 – tolerating regular diet
- 8/20 – 8/29 awaiting subacute rehab
- 8/30 – discharged
Questions
Obturator Hernia

- Protrusion of sac through obturator foramen and canal along the obturator nerve and vessels
- Represents <0.1% of all hernias
- High incidence of strangulation
- “the skinny old lady hernia” - thin, frail, multiparous elderly woman with SBO of unclear etiology
Obturator Hernia

- Female-to-male ratio is 6:1
- Female preponderance is due to the larger and more oblique incline of the obturator canal in the female pelvis
- Occurs more frequently on the right side (sigmoid colon overlying obturator foramen on the left side)
- Bilateral hemias in 6% of cases
Predisposing Factors

- Increased intra-abdominal pressure
  - Constipation
  - COPD
  - Multiparity
  - Ascites
- Rapid weight loss with a decrease in fatty tissue surrounding the obturator foramen
Anatomy of Obturator Foramen

- Located within the anterolateral aspect of the pelvis
- Formed by the ischial and pubic rami
- Obturator membrane covers the majority of the foramen space, except for a small portion for obturator vessels and nerve to pass
- Obturator vessels and nerve traverse the canal and enter the medial aspect of the thigh
Inguinal lig.

Most common
Inguinal hernia
(anatomically weakest)

Less common
Femoral hernia
(anatomically less weak)

Rare
Obturator hernia
(anatomically least weak)

Pectineus m.
Obturator Canal

- 2-3 cm long tunnel
  - begins in the pelvis
  - exits through the obturator foramen
  - passes obliquely downward to the obturator region of the thigh

- The canal is bounded
  - superiorly and laterally by the pubic bone
  - inferiorly by the obturator membrane and obturator muscles
Obturator Anatomy

The direction of the obturator hernia through the obturator canal.
Obturator Canal Contents

- Obturator nerve, artery, and vein enter the canal through an opening in the anterosuperior aspect of the obturator membrane.
- Obturator nerve lies superior to the obturator artery and divides immediately on exiting the canal into anterior and posterior branches.
Obturator Nerve

- Anterior branch emerges between the adductor longus and adductor brevis muscles
  - supplies sensory innervation to the medial aspect of the thigh, hip and knee joints and motor innervation to the adductor longus/brevis, gracilis, and pectineus muscles

- Posterior division emerges between the adductor brevis and adductor magnus muscles
  - supplies motor innervation to the obturator externus and adductor magnus muscles
Ant. division
- Articular br. for hip joint
- Articular br. for knee joint
- Pectineus m.
- Adductor longus m.
- Adductor brevis m.

Post. division
- Obturator externus m.
- Adductor magnus m.
- Articular br. for knee joint
- Gracilis m.
- Obturator foramen

L2
L3
L4
Potential Hernia Pathways

- Most common - sac lies in front of the obturator externus and underneath the pectineus, accompanied by the anterior division of the obturator nerve.
- Hernia emerges between the middle and superior fasciculi of the obturator externus along with the posterior division of the nerve.
- Most rare - sac emerges between the internal and external obturator muscles and membranes.
- Recognition of the three variants is important when repair is attempted through the thigh.
Obturator Hernia Formation

- Consists of three stages:
  - Prehemia stage - which involves preperitoneal fat, or “pilot tags”
  - Second stage - formation of a true sac
  - Third stage - hemia becomes clinically significant
- Diagnosis during the first two stages is uncommon
Clinical Manifestations: Small Bowel Obstruction

- Up to 80% of cases present with obstruction, either intermittent or acute and complete.
- Intestinal obstruction results from involvement of the jejunum or ileum within the hemia sac.
- Approximately 50% of patients have an incomplete obstruction secondary to a Richter-type hemia.
- History of repeated episodes of bowel obstruction that pass quickly and without intervention is present in up to 30% of cases.
Clinical Manifestations: Obturator Neuralgia

- Obturator neuralgia is manifested as cramping or as hypoesthesia or hyperesthesia extending from the inguinal crease to the anteromedial aspect of the thigh
Clinical Manifestations: Howship-Romberg Sign

- Pain radiating down the medial aspect of the thigh to the knee and less often to the hip
- Result from compression of the anterior division of the obturator nerve
  - relieved by flexion and external rotation of the thigh
  - exacerbated by extension, adduction, and medial rotation of the leg
- Considered pathognomonic
- Present in up to 50% of patients
Clinical Manifestations: Hannington-Kiff Sign

- Absence of the obturator reflex in the thigh, caused by compression on the obturator nerve
- Reflex can usually be elicited by percussing over an extended index finger placed across the adductor muscle approximately 5 cm above the knee
- If the patellar reflex of the ipsilateral side is present in the absence of an obturator reflex, it is highly likely that the obturator nerve is compressed
Clinical Manifestations: Palpable Mass

- In 20% of cases a palpable mass is found in the proximal medial aspect of the thigh at the origin of the adductor muscles.
- The mass is best palpated with the thigh flexed, abducted, and rotated outward or laterally on a vaginal exam.
- In rare cases, ecchymoses may be noted in the upper medial thigh due to effusion from the strangulated hemia contents.
Modalities Used to Assist in Diagnosis

- Both CT and ultrasound (transvaginal or inner thigh views) are useful in the diagnosis of obturator hemia
- MRI is as good as but not superior to CT
- AXR may show air in the obturator region
- Laparoscopy may be used as a diagnostic tool, as well as a treatment modality
Obturator hernia on AXR

Abdominal radiograph in a patient with small bowel obstruction caused by an incarcerated obturator hernia. There is a gas shadow in the obturator foramen (arrow).
Treatment

- In >50% of cases an obturator hemia is found intraoperatively during a diagnostic laparoscopy or laparotomy for SBO.
- When diagnosis is made preoperatively, alternative approaches for repair include:
  - Abdominal extraperitoneal
  - Anterior thigh exposure
  - Laparoscopic
Transperitoneal Approach

- Lower mid line laparotomy
- Run bowel, reduce hemia
- Incise obturator membrane in antero-posterior direction
- Avoid injury to small bowel, obturator vessels and nerve
- Make counter-incision in the medial groin
- Bowel resection required in 25% of cases
Transperitoneal Approach

- Close hernia opening around the obturator vessels with a running non-absorbable suture
- Closure should include the periosteum of the superior pubic ramus and the fascia on the internal obturator muscle
- In a clean case, a piece of mesh can be placed over the obturator foramen (may be sutured to Cooper's ligament)
Extraperitoneal Approach

- Lower midline incision
- Enter preperitoneal plane, peel bladder from the peritoneum
- Expose superior pubic ramus and the obturator internus muscle
- Identify the hernia sac (projection of peritoneum passing inferiorly into the obturator canal)
- Reduce the hernia
- Close the internal opening to the obturator canal
- Preperitoneal mesh may be placed
Thigh Approach

- Vertical incision in the upper medial thigh along the adductor longus muscle
- Retract the muscle medially to expose the pectineus muscle
- Cut pectineus muscle across to expose the sac
- Reduce hernia, excise the sac (if viable contents)
- Close hemial opening

If the bowel contents within the hernia sac do not appear viable, midline laparotomy is usually performed
Laparoscopic Approach

- Both totally extraperitoneal (TEP) and transabdominal preperitoneal (TAPP) laparoscopic approaches are highly effective in the treatment of obturator hernia.
- During laparoscopy, the defect is repaired with a prosthetic mesh.
Transabdominal preperitoneal repair for obturator hernia.

Yokoyama T, Kobayashi A, Kikuchi T, et al
First Department of Surgery, Shinshu University School of Medicine, 3-1-1 Asahi, Matsumoto, Nagano, 390-8621, Japan.

- **Objective:**
  - to assess the effectiveness of laparoscopic transabdominal preperitoneal (TAPP) repair for obturator hernia (OH)

- **Methods:** 659 patients (2001 – 2010) with inguinal hernia underwent TAPP repair, among which were 8 patients with OH

- **Results:**
  - 3/8 had occult OH, and 5/8 - diagnosed preoperatively (US or CT) with strangulated OH
  - 4/5 – TAPP, 1/5 – 2 stage hernia repair

- **Conclusion:**
  - TAPP is an adequate approach to the treatment of both occult and acutely incarcerated OH
References