2018

Dynamic Practice Guidelines for Emergency General Surgery

Committee on Acute Care Surgery, Canadian Association of General Surgeons

19

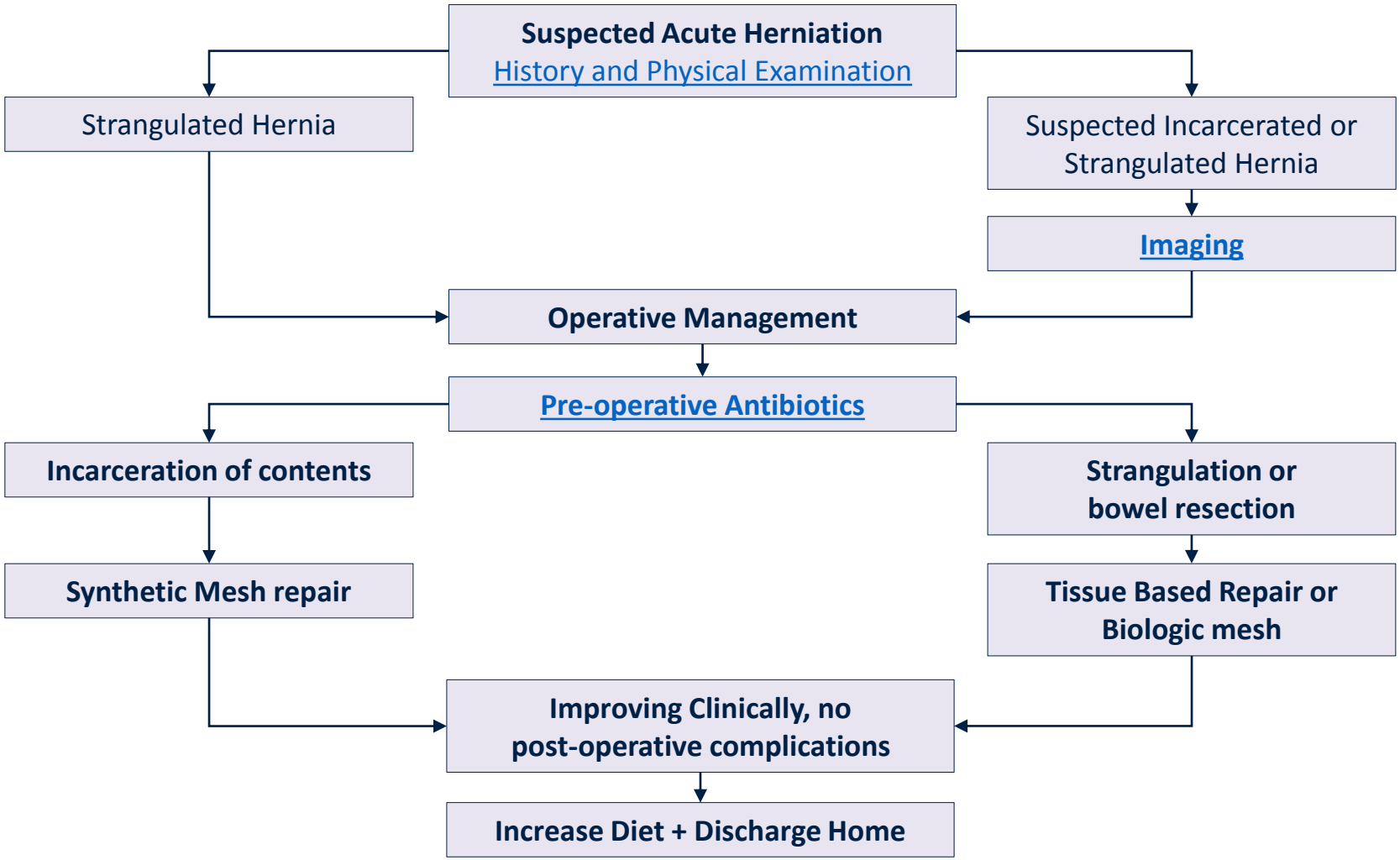
AN ACUTE PRESENTATION OF A HERNIA

Dynamic Practice Guidelines for Emergency General Surgery

Sarah Mueller MD, FRCSC, FACS
Committee on Acute Care Surgery, Canadian Association of General Surgeons

Clinical Practice Guideline

ACUTE PRESENTATION OF HERNIA

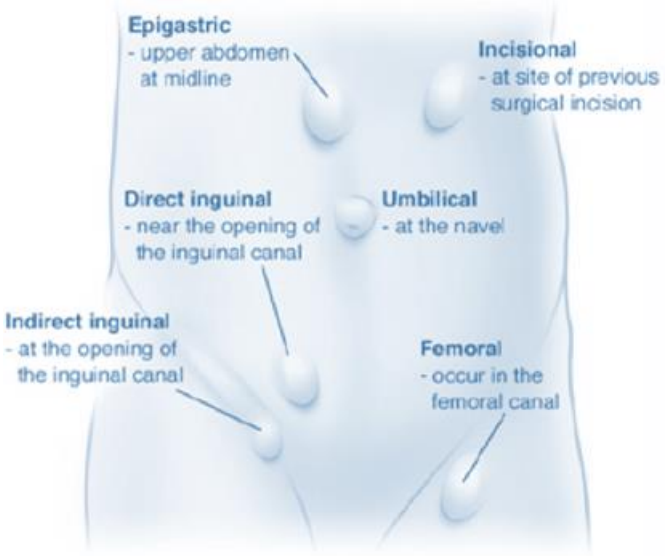


ACUTE PRESENTATION OF HERNIA

Return to CPG

BACKGROUND

- Incarceration refers to trapping of hernia contents within the hernia sac, reduction is not possible
- Strangulation occurs with reduced venous/lymphatic flow leading to edema and compromise of arterial flow to the contents resulting in ischemia and necrosis
- Risk is 0.3-3%/year



Fitzgibbons, Giobbie-Hurder, Gibbs, et al, 2006 JAMA

ACUTE PRESENTATION OF HERNIA

Return to CPG

EPIDEMIOLOGY

- 75% of all hernias are inguinal (M:F 8:1)
- 14% of hernias are umbilical
- 10% of hernias are incisional or ventral
- 5% of hernias are femoral
- Emergent hernia repair was needed in 17% of women (53% femoral) and 5% of men (7% femoral)

Eberhart, JE. The burden of digestive diseases in the United States, 2008.
Dahlstrand, Wollert, Nordin, et al, 2012 Ann Surg

ACUTE PRESENTATION OF HERNIA

Return to CPG

HISTORY OF PRESENTING ILLNESS

- Incarcerated or strangulated hernias can present as acute mechanical intestinal obstruction without obvious symptoms or signs or a hernia, particularly if the patient is obese.

- Generalized peritonitis typically does not occur since the ischemic or necrotic tissue is trapped within the hernia sac - can be present if the segment is reduced spontaneously or unwittingly.

Presenting symptoms and signs

Symptoms/signs	Number (%)
Pain	44 (80)
Irreducibility	37 (67.3)
Vomiting	18 (32.7)
Radiological evidence of obstruction	5 (9)

Davies, Davies, Morris-Stiff, and Shute, 2007 Ann R Coll Surg Engl

ACUTE PRESENTATION OF HERNIA

Return to CPG

IMAGING

- Sensitivity of 75% and specificity of 96% for a diagnosis of inguinal hernia on physical exam by surgeons.
- In absence of intra-abdominal complications groin US is the initial diagnostic modality
- High sensitivity and specificity for hernia
- Distinguishes hernia from other scrotal pathologies
- Intestinal peristalsis, thickening, edema can be observed
- Doppler US to assess the blood flow in the contents

Rosenberg, Bisgaard, Kehlet, et al, 2011 Dan Med Bull

ACUTE PRESENTATION OF HERNIA

Return to CPG

IMAGING

- In patients with clinical bowel obstruction but diagnosis is not clear, CT is the recommended imaging test
- Assess bowel dilation, thickening, ischemia
- Especially helpful in femoral and obturator incarcerated hernias with small abdominal wall defects and difficult diagnosis

Yang and Liu, 2014 Ann Transl Med

ACUTE PRESENTATION OF HERNIA

Return to CPG

OPERATIVE MANAGEMENT

- Patients should undergo emergency hernia repair when intestinal strangulation is suspected

- Morbidity is affected by delay to surgery >8 hrs., presence of co-morbid disease, high ASA score, use of GA, presence of strangulation and the presence of necrosis

Sartelli, Coccolini, van Ramshorst, et al, 2013 World J Emerg Surg

ACUTE PRESENTATION OF HERNIA

Return to CPG

OPERATIVE MANAGEMENT

PRE-OPERATIVE MANAGEMENT

- For patients with intestinal incarceration with no evidence of ischemia and no bowel resection, short term antibiotic prophylaxis is recommended.
- For patients with intestinal strangulation and/or concurrent bowel resection, 48 hours antimicrobial prophylaxis is recommended.
- Antimicrobial therapy is recommended for patients with peritonitis.

Sartelli, Coccolini, van Ramshorst, et al, 2013 World J Emerg Surg

ACUTE PRESENTATION OF HERNIA

Return to CPG

OPERATIVE MANAGEMENT

ANTIBIOTIC SELECTION

Table 2.

Recommendations for Surgical Antimicrobial Prophylaxis

Type of Procedure	Recommended Agents[a,b]	Alternative Agents in Patients with β-Lactam Allergy	Strength of Evidence[c]
Small intestine			
Nonobstructed	Cefazolin	Clindamycin + aminoglycoside[g] or aztreonam or fluoroquinolone[h-l]	C
Obstructed	Cefazolin + metronidazole, cefoxitin, cefotetan	Metronidazole + aminoglycoside[g] or fluoroquinolone[h-l]	C
Hernia repair (hernioplasty and herniorrhaphy)	Cefazolin	Clindamycin, vancomycin	A

Bratzler, Dellinger, Olsen, et al, 2013 Am J Health-Syst Pharm

ACUTE PRESENTATION OF HERNIA

Return to CPG

OPERATIVE MANAGEMENT

TECHNICAL CONSIDERATIONS

- The choice of technique (open vs laparoscopic) repair is based on the contamination of the surgical field, the size of the hernia and the experience of the surgeon.
- Repair of incarcerated hernias (groin and ventral) may be performed with a laparoscopic approach.
- Laparoscopy can be used to evaluate the viability of the herniated intestine, thus avoiding unnecessary laparotomy.

ACUTE PRESENTATION OF HERNIA

Return to CPG

OPERATIVE MANAGEMENT

TECHNICAL CONSIDERATIONS

- Choice of technique (open v. lap) repair based on the contamination of the surgical field, size of the hernia and experience of the surgeon.
- Repair of incarcerated hernias (groin and ventral) may be performed with a laparoscopic approach.
- Laparoscopy can be used to evaluate the viability of the herniated intestine, thus avoiding unnecessary laparotomy.
- Prosthetic repair with synthetic mesh is recommended for patients with intestinal incarceration and no signs of intestinal strangulation or concurrent bowel resection.
- Patients with intestinal strangulation ± concurrent bowel resection direct tissue repair is recommended. Biological mesh may be a valid option.

ACUTE PRESENTATION OF HERNIA

Return to CPG

OPERATIVE MANAGEMENT

TISSUE REPAIR

- **Shouldice repair** - multi-layer imbricated repair of the posterior wall of the inguinal canal with a continuous running suture (transversus abdominis to iliopubic tract, internal oblique to the inguinal ligament)
- **Bassini repair** - suturing the transversus abdominis and internal oblique/conjoined tendon to the inguinal ligament
- **McVay repair** - interrupted sutures between the transversus abdominis to Cooper ligament (closure of femoral hernia), when the medial aspect of the femoral canal is reached a transition stitch to the iliopubic tract

Malangoni, M. Hernias. Sabiston Textbook of Surgery, Chapter 44, 2017.

ACUTE PRESENTATION OF HERNIA

Return to CPG

OPERATIVE MANAGEMENT

SHOULDICE REPAIR

- Multi-layer imbricated repair of the posterior wall of the inguinal canal with a continuous running suture (transversus abdominis to iliopubic tract, internal oblique to the inguinal ligament)

Brunicardi FC et al. Schwartz's Priniciples of Surgery, 10E, Chapter 37. 2015.

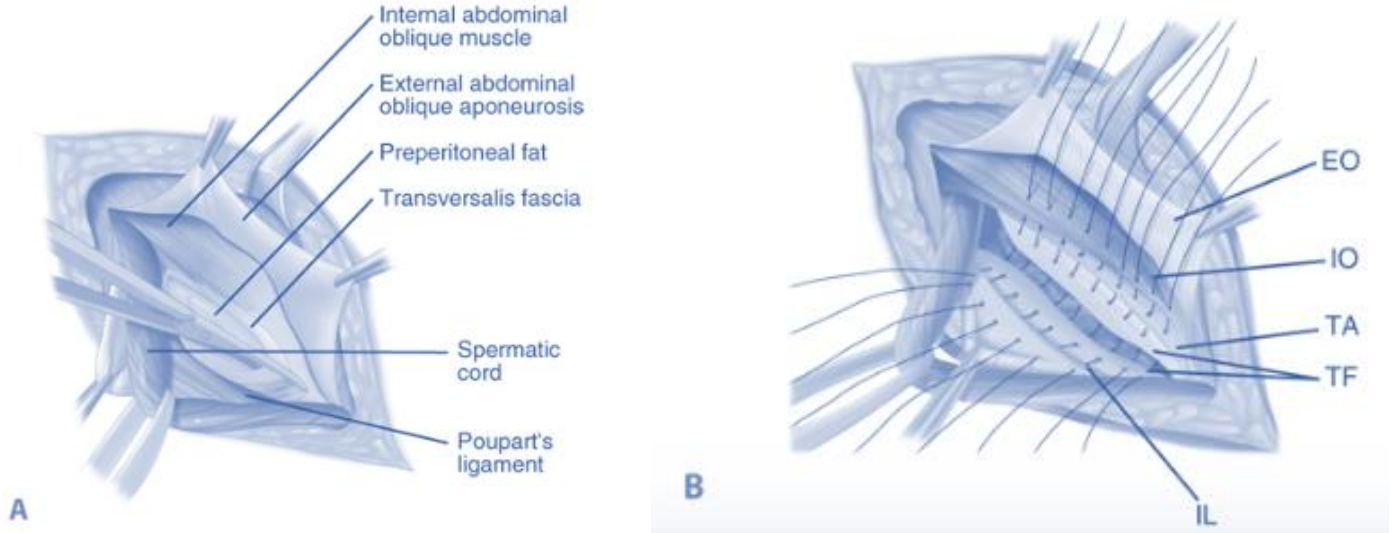
ACUTE PRESENTATION OF HERNIA

Return to CPG

OPERATIVE MANAGEMENT

BASSINI REPAIR

- Extensive reconstruction of the floor of the inguinal canal with a triple layer repair (the internal oblique, transversus abdominis and transversalis fascia are fixed to the shelving edge of the inguinal ligament).



Brunicardi FC et al. Schwartz's Priniciples of Surgery, 10E, Chapter 37. 2015.

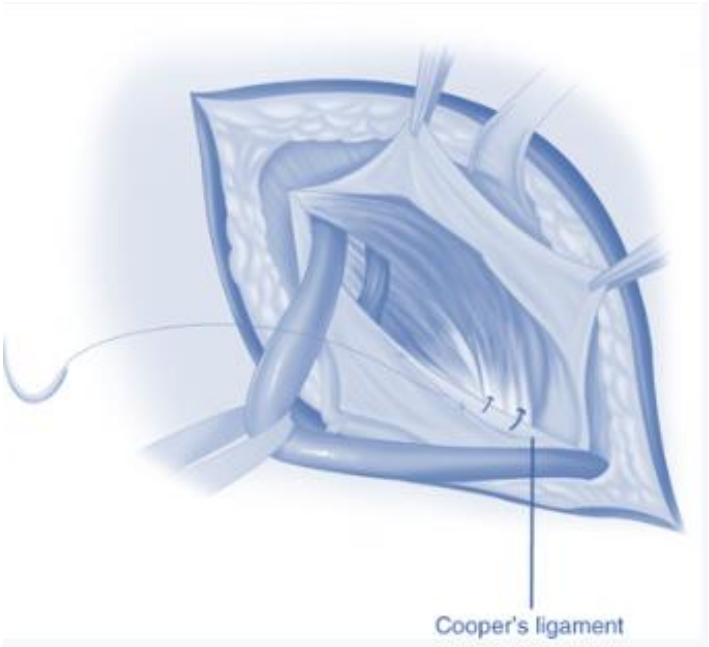
ACUTE PRESENTATION OF HERNIA

Return to CPG

OPERATIVE MANAGEMENT

MCVAY REPAIR

- Addresses both inguinal and femoral ring defects
- 2-4 cm relaxing incision is made in the anterior rectus sheath vertically from the pubic tubercle
- The transversalis fascia is sutured to Cooper's ligament, transition stitch is placed lateral to the femoral ring and then continued along the inguinal ligament



Brunicardi FC et al. Schwartz's Priniciples of Surgery, 10E, Chapter 37. 2015.