Anatomy

• Collections of submucosal, fibrovascular, arteriovenous sinuoids
• Normal Part of the Anorectum
• Facilitate Anal Closure
• Facilitate Continence
• Protect anal sphincter from injury during defecation
• Normally right anterior, posterior and left lateral
Categorization

• Internal
  – I- No Prolapse
  – II- Reduce spontaneously
  – III- Require Manual Reduction
  – IV- Chronically Prolapsed

• External

• Mixed
Symptomatic Hemorrhoids
Why Do Hemorrhoids Develop/Become Symptomatic?

- Increased Intraabdominal pressure/Altered drainage
  - Pregnancy, Portal Hypertension, Ascites, Straining, Squatting, Obesity, Genetic Predisposition
- Weakening of supportive tissues- (Muscularis Submucosa) through abnormal mucosal descent
- Spicy Foods?

- Altomare et al Red Hot Chili pepper and hemorrhoids Dis Colon Rectum 2006
Symptoms

- Hematochezia
- Itching
- Discomfort
- Prolapse
- Difficulty with Anal Hygiene

Evaluation
Evaluation

• History
• Position
  – Prone Jackknife
  – Lateral
• Proper Technique
• Endoscopy
  – Flexible
  – Anoscope/Sigmoidoscope
• Exclude Other Processes
Treatment
Conservative Measures

• Counselling
• Topical Agents
• Fiber
• Sitz Baths

• Alonso et al Laxatives for the treatment of hemorrhoids Cochrane Database Syst Rev 2005
• Shakik, A. Role of warm-water bath in anorectal conditions J Clin Gastroenterol 1993
## Topical Agents

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
<th>Products</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Local Anesthetics</strong></td>
<td>Temporarily relieve pain, burning, and itching by numbing the nerve endings.</td>
<td>Benzocaine, Benzyl alcohol, Dibucaine, Dyclonine, Lidocaine, Pramoxine, Tetracaine</td>
</tr>
<tr>
<td><strong>Vasoconstrictors</strong></td>
<td>Make the blood vessels become smaller, reducing swelling.</td>
<td>Ephedrine sulfate, Epinephrine, Phenylephrine</td>
</tr>
<tr>
<td><strong>Protectants</strong></td>
<td>Forms a physical barrier on skin from aggravating liquid or stool.</td>
<td>Aluminum hydroxide gel, Cocoa butter, Glycerin, Kaolin, Lanolin, Mineral oil, White petroleum, Starch, Zinc oxide (calamine), Cod liver oil</td>
</tr>
<tr>
<td><strong>Astringents</strong></td>
<td>Promotes dryness of the skin, which helps relieve burning, itching, and pain.</td>
<td>Calamine, Zinc oxide, Witch hazel</td>
</tr>
<tr>
<td><strong>Antiseptics</strong></td>
<td>Inhibit the growth of bacteria and other organisms.</td>
<td>Boric acid, Hydrastis, Phenol, Benzalkonium chloride, Cetylpyridinium chloride, Benzethonium chloride, Resorcinol</td>
</tr>
<tr>
<td><strong>Keratolytics</strong></td>
<td>Cause the outer layers of skin or other tissues to disintegrate.</td>
<td>Aluminum chlorhydroxy allantoinate (alclox), Resorcinol</td>
</tr>
<tr>
<td><strong>Analgesics</strong></td>
<td>Relieve pain, itching, and burning by depressing receptors on pain nerves.</td>
<td>Menthol, Camphor, Juniper tar</td>
</tr>
<tr>
<td><strong>Corticosteroids</strong></td>
<td>Reduces inflammation, relieves itching, but chronic use can cause permanent damage to the skin.</td>
<td>Only products with weak corticosteroid effects are available over-the-counter.</td>
</tr>
</tbody>
</table>
Fiber
Office Based Procedures

• Rubber Band Ligation
• Sclerotherapy
• Infrared Coagulation
Rubber Band Ligation

- Forceps, Wall Suction, Endoscopic
- Grade I, II or III are ideal
- Not for external or mixed hemorrhoids
- Contraindications- Anticoagulation
- Complications 3-8%
  - Pain, Urinary Retention, Infection, Thrombosis, Delayed Hemorrhage
Sclerotherapy

- Create submucosal fibrosis
- Ideal for patients with I, II but could be used for higher stage
- May be used in patients on anticoagulants
- Can be repeated over time
- Agents
  - Morhuate
  - Sotradechol
- Complications Uncommon but may be severe
Infrared Coagulation

- Probably only for grades I and II
- Infrared Waves results in protein necrosis
- Complications are rare
Office Procedures

Results

• Rubber Band vs. Sclerotherapy and IR
  – Rubber band more effective
  – Less need for repeat treatments
  – Long term (6 month) success- 90% vs 30% for sclerotherapy
  – More Pain and complications
  – Results for IR similar or worse than for sclerotherapy

External Thrombosis

• Symptoms usually resolve in 72 hours
• Excisional therapy preferred over incision/clot extraction
• Can be done in the office
Indications for Surgical Therapy

• Symptoms refractory to conservative measures
• Unable to tolerate office procedures
• Large or severely symptomatic external
• Symptomatic Grade III, IV, or Mixed internal
• Large skin tags
• Patient choice
Preparation for Surgery

• Manage anticoagulation
• Cleansing enemas
• Antibiotics probably not needed
  – With possible exception of immunosuppressed patient
Choices
Position/Anesthesia

• Prone
• Supine Lithotomy
• Lateral
• General
• Regional
• Local

• Joshi, GP Prospect Collaboration. Evidence-based management of pain after haemorrhoidectomy. Br J Surgery 2010
Goals of Conventional Hemorrhoidectomy

- Removal of Symptomatic and Redundant tissue
- Avoid damage to the sphincters
- Avoid taking too much anoderm
Hemorrhoidectomy
Conventional Hemorrhoidectomy Complications

• Urinary Retention (30%)
• UTI (5%)
• Fecal Impaction
• Fecal Incontinence (2-10%)
• Surgical Site Infection (<1%)
• Delayed Hemorrhage (1-2%)
• Anal Stricture (0.1-1%)
Conventional Hemorrhoidectomy Complications

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- Wound Dehisence
Devices

- Scalpel
- Scissors
- Electrocautery
- Ligasure
- Harmonic Scalpel
- Laser
Devices
Does It Make a Difference?

• Energy Based Devices vs Conventional/Diathermy
  – Faster
  – Less Pain

• Chung Double blind, randomized trial comparing Harmonic scalpel hemorrhoidectomy, bipolar scissors hemorrhoidectomy and scissors excision:ligation technique Dis Colon Rectum 2002

• Nienhuijs Conventional versus LigaSure hemorrhoidectomy for patients with symptomatic hemorrhoids Cochrane Database Syst Rev. 2009

• Abo-hashem Harmonic scalpel compared with bipolar electro-cautery hemorrhoidectomy: a randomized controlled trial Int J Surg 2010
Devices
Does it Make a Difference?

• Ligasure vs Harmonic
  – Ligasure faster and Less Pain
  – ?Cost

• Kwok, Y Double Blind, randomized trial comparing Ligasure and Harmonic Scalpel hemorrhoidectomy. Dis Colon Rectum 2005
Open (Milligan-Morgan) vs Closed (Ferguson)

- Open performed more frequently
- Open preferred for acute gangrenous hemorrhoids
- Semi Open Technique
Open vs Closed
Does It Made a Difference?

• Semi Open vs Open
  – More rapid wound healing

• Reis Open versus semi-open hemorrhoidectomy: a random trial Int Surg 1992

• Closed vs Open
  – Less pain at first bm
  – Faster wound healing at three weeks (79 vs 18%)

• You, SY Open vs. closed hemorrhoidectomy. Dis Coln Rectum 2005

• Absence of High Quality Evidence-Surgeon Discretion

• Arbman G Closed vs. open hemorrhoidectomy- is there a difference? Dis Colon Rectum 2000
Stapled Hemorrhoidopexy

- Modified EEA stapler is introduced transanally
- Mucosa and submucosal are drawn into the anvil
- All three columns are treated simultaneously
- Excises redundant tissue
- Fixes remaining tissue
- Interrupts portion of blood flow
Conventional vs. Stapled

- Stapled more expensive
- Short term- stapled less pain and faster recovery
- Stapled not for external hemorrhoids
Conventional vs. Stapled

• At one year Recurrence and prolapse higher with stapled but no difference in terms of pain, pruritus and urgency
  
  – Jayaraman,S Stapled hemorrhoidopexy is associated with higher long-term recurrence rate of internal hemorrhoids compared with conventional excisional hemorrhoid surgery. Dis Colon Rectum 2007

• Overall complications
  
  – Complication rate Stapled 20.2% Conventional 25.2 (P=.06)
  
  – Some unique and serious complications from stapled - anovaginal fistula, pelvic sepsis, staple line bleeding, persistent post defecatory pain

  – Trjandra JJ Systematic review on the procedure for prolapse and hemorrhoids (stapled hemorrhoidopexy)
    Dis Colon Rectum 2007
Doppler-Guided Dearterialization

- Ultrasound used to identify arterial supply to each hemorrhoid
- Special Anoscope used to suture the feeding arteries

- Pucher, PH Clinical outcome following Doppler-guided hemorrhoidal artery ligation: a systematic review Colorectal Dis 2013
- Elmer, SE A randomized trial of transanal hemorrhoidal dearterialization with anooopexy compared with open hemorrhoidectomy in the treatment of hemorrhoids Dis Colon Rectum 2013
Doppler Guided Dearterialization

- Post op hemorrhage 5%
- Increased fecal soiling when compared with open hemorrhoidectomy
- Recurrence rates bet 3-60%
Summary - Excise, Ligate, Burn, Staple?

- Most symptomatic hemorrhoids can be managed conservatively
- Various office procedures are available - rubber banding - lowest recurrence but most complicated
- Surgery offered for higher grades and external - Most effective but most complicated and painful
- Conventional Hemorrhoidectomy is considered the gold standard
Happy in the End