Anorectal Disorders

Review of anorectal anatomy, disease conditions, and management

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Common anorectal disorders

- Altered defecation
  - Constipation
  - Incontinence
- Prolapse
- Hemorrhoids
- Anorectal suppuration
- Anal fissure
Anorectal Anatomy
Anorectal Anatomy
Anorectal Anatomy

- Anal sphincter complex
  - 2-4 cm in length
  - From anal verge to anorectal junction
  - Both internal and external sphincter muscles are contracted at rest
  - Puborectalis sling is contracted at rest, creating anorectal angle
- Internal sphincter
  - Sympathetic (L-5) and Parasympathetic (S-2, S-3, S-4)
  - Smooth muscle, no conscious control
- External sphincter
  - Inferior rectal branch of the Pudendal nerves (S-2, S-3)
  - Perineal branch of S-4
  - Skeletal muscle, some conscious control
- Hemorrhoids contribute 15% of normal sphincter pressure
Anorectal Anatomy
Anorectal Anatomy

- Dentate line
- Transition zone
  - Insensate columnar (colorectal-type) mucosa above
  - Sensate (squamous) mucosa below
- Columns of Morgagni, anal glands
Normal defecation

- Requires complex interaction of colonic motility, rectal sensation, and pelvic floor relaxation

- Rectoanal inhibitory reflex (RAIR)
  - Distention of rectum causes reflex relaxation of internal sphincter

- Sampling reflex
  - RAIR allows stool to descend to level of sensate mucosa
  - Sensory epithelium distinguishes between solid stool, liquid stool, and gas
Normal defecation

• Accomodation response
  • If defecation is delayed, the rectum relaxes and the urge
to defecate passes.

• Defecation proceeds:
  • Abdominal pressure increases (abdominal wall, diaphragm
  • Puborectalis sling relaxes, resulting in anorectal angle
straightening
  • Rectum contracts
  • Anal canal relaxes, opens
Normal defecation

Holding
Puborectalis, external and int anal sphincter contracted

Initiation
Pubo rectalis and ext an. Sphincter Relax
Levator, abdominal and diaphragm contract

Completion
Int and ext anal sphincter Relax
Rectum contracts
Constipation

- Multifactorial, overlap
- Slow transit (motility disorders)- colonic inertia
- Irritable bowel syndrome, constipation subtype
  - Abdominal pain
  - Irregular bowel movements
  - Pain relieved by defecation
- Obstructed defecation (ODS), pelvic floor dysfunction/ dyssynergia
  - Prolonged repeated straining
  - Sensation of incomplete emptying
  - Need for digital manipulation
Constipation

- Medical conditions
  - Hypothyroidism
  - Diabetes
  - Lupus, scleroderma, connective tissue disorders
  - Neurologic disorders
  - Immobility
  - Hirschsprung’s disease, Chagas disease
  - Inflammatory bowel disease
  - Cancer
  - Radiation
  - Stricture
  - Endometriosis
  - Medications
  - ...
Constipation

- Dietary role
  - Affects size, consistency, and frequency of BM’s
- Fiber intake is significantly correlated with stool bulk
- Colonic distention triggers peristalsis, rectal distention triggers defecation
- Bulky stool is a much more effective stimulation for bowel elimination
Constipation Evaluation

- History and physical exam
- Lab testing
- Colonoscopy
- Contrast imaging
- Transit studies, Sitz mark
- Defecography
- Anorectal physiology testing
  - Manometry
  - Pudendal nerve testing
  - EMG
  - Balloon expulsion test
Defecography

Resting

Squeezing

Straining

Defecating
Normal female pelvic anatomy

Uterus  Rectum
Bladder
Urethra
Vagina

Rectocele

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Anal Manometry
Constipation

Treatment

• Medical management
  • Dietary: fiber, fluids
  • Lifestyle changes: activity, toileting habits
  • Medications

• Pelvic floor physical therapy

• Surgery
  • Pelvic floor repair (rectocele repair, prolapse repair)
  • Rectopexy (prolapse repair)
  • Colectomy
  • Sacral Nerve Stimulation
Fecal Incontinence

Classification

- Pseudo-incontinence
  - Seepage and soilage
  - Frequency
  - Urgency
- Overflow incontinence
- Diarrheal states
- Sphincter disruption
  - Obstetrical injury
  - Anorectal procedures
  - Trauma
- Pelvic floor denervation
- Pudendal neuropathy
Fecal Incontinence
Evaluation

- History and physical
- Physiologic workup
  - Anal manometry
  - Endoanal ultrasound
  - Anal EMG
  - Pudendal nerve testing
  - Cine defecography
Fecal Incontinence Evaluation
Fecal Incontinence

Treatment

• Medical management of underlying conditions
• Treat diarrhea
• Constipating regimens
• Pelvic floor retraining/ Biofeedback
Fecal Incontinence Treatment

SECCA- radiofrequency heat to anal canal
Fecal Incontinence

Treatment

Injectables (Solesta)

Over time, the beads adhere to the anal canal.
Fecal Incontinence

Treatment

Sacral Nerve Stimulation
(Interstim)
Fecal Incontinence

Treatment

Sphincter repair

Overlapping sphincteroplasty for incontinence from sphincter disruption. A. The external sphincter muscle with scar at site of injury is mobilized. B. The muscle edges are aligned in an overlapping fashion. C. Mattress sutures are used to approximate the muscle. D. The completed operation.
Fecal Incontinence

Treatment

Other options:

• Encirclement procedures
• Muscle transposition
• Artificial bowel sphincter
Rectal Prolapse

Prolapse

Hemorrhoids
Rectal Prolapse

Pathophysiology

- Rectal intussusception
- Deep cul de sac
- Loss of rectal fixation
- Redundant sigmoid
- Levator ani diastasis
- Patulous anal sphincter
- Pudendal neuropathy
Rectal Prolapse

**Symptoms**

- Incontinence
- Constipation
- Protrusion
- Bleeding
- Discharge
- Sensation of incomplete emptying
- Rectal pressure/tenesmus
Rectal Prolapse

Treatment

Abdominal repair
• Rectal fixation
• Sigmoid resection
• Proctectomy
• Combination of rectal fixation and sigmoid resection

Perineal repair
• Full thickness resection
• Mucosal resection with muscular reefing
• Anal encirclement
Perineal prolapse repairs
Abdominal rectopexy

Resection Rectopexy

Sutured posterior rectopexy
Hemorrhoids

Anatomy

• Vascular cushions
  • Blood vessels
  • Connective tissue
  • Smooth muscle
  • Aid in continence

• Constant position
  • Left lateral
  • Right anterior
  • Right posterior
Hemorrhoids

- Internal hemorrhoids
  - Proximal to the dentate line
  - Columnar epithelium (mucosa)
  - No nerve endings

- External hemorrhoids
  - Distal to the dentate line
  - Squamous epithelium (skin)
  - Nerve endings
HEMORRHOIDS

Etiology

- Elevated intra-abdominal pressure
- Pregnancy
- Constipation
- Weight lifting
- Chronic straining

All lead to sliding down of the cushions, stretching of the muscular support, and prolapse
EXTERNAL HEMORRHOIDS

Symptoms

• Protrusion/lump
• Pain if thrombosed
• Seepage/soilage
• Staining
• Pruritus
• Bleeding only if ruptured
EXTERNAL HEMORRHOIDS
Management

- Symptomatic relief
  - Sitz baths
  - Stool softeners
  - Pain medications
- Excision
- Thrombectomy
INTERNAL HEMORRHOIDS

Symptoms

- Bleeding
- Protrusion
- Seepage/soilage
- Staining
- Pruritus
- Rarely painful
INTERNAL HEMORRHOIDS

Grading

- Grade I: nonprolapsing
- Grade II: spontaneously reduce
- Grade III: reduce manually
- Grade IV: irreducible
INTERNAL HEMORRHOIDS

Indications for Therapy

• Failure of conservative measures
  • High fiber diet
  • Plenty of fluids
  • Fiber supplements
  • Stool lubricants/softeners

• Continued symptoms
  • Bleeding
  • Protrusion
  • Pruritus/irritation
  • Pain
  • Seepage and soilage
  • Difficulty with hygiene
INTERNAL HEMORRHOIDS

Management

• Office based procedures
  • Rubber band ligation (RBL)
  • Injection sclerotherapy
  • Infrared coagulation

• HET

• Surgical procedures
  • Excisional hemorrhoidectomy
  • Stapled Hemorrhoidopexy (PPH)
  • Ligation (with or without ultrasound guidance)
INTERNAL HEMORRHOIDS
Management Decisions

• Grade I: RBL, HET or sclerotherapy
• Grade II: RBL, HET
• Grade III: RBL or hemorrhoidectomy
• Grade IV: Hemorrhoidectomy
• Mixed Int & ext: Hemorrhoidectomy
INTERNAL HEMORRHOIDS

Management

Surgical Hemorrhoidectomy

• Grade IV
• Mixed internal and external
• Hemorrhoidal crisis
• Patient preference
• In conjunction with another procedure
INTERNAL HEMORRHOIDS

Surgical Options

- Excision
  - Closed v. Open
  - Knife/scissors
  - Laser
  - Cautery
  - Radiofrequency – LigaSure
  - Ultrasonic Scalpel

- Ligation - with or without ultrasound guidance

- Stapled hemorrhoidopexy (PPH)
HEMORRHOIDS

Surgical Options — Excisional

Cold Scissors, Electrocautery, Laser, Harmonic Scalpel, LigaSure
INTERNAL HEMORRHOIDS

Surgical Options -- PPH
ANORECTAL SUPPURATION

Acute abscess
ANORECTAL SUPPURATION

Abscess: Symptoms

- Pain
- Swelling
- Drainage
- Bleeding
- Constipation
- Urinary difficulties
ANORECTAL SUPPURATION

Chronic fistula
ANORECTAL SUPPURATION

Etiology

- Cryptoglandular
- Carcinoma
- Crohn’s disease
- Foreign body
- Trauma
- Surgery

- Radiation
- Tuberculosis
- Actinomycosis
- LGV
ANORECTAL SUPPURATION

Etiology
ANORECTAL SUPPURATION

Abscesses: Classification
ANORECTAL SUPPURATION

Abscess: Symptoms

- Pain
- Swelling
- Drainage
- Bleeding
- Constipation
- Urinary difficulties
ANORECTAL SUPPURATION

Fistulae: Classification
ANORECTAL SUPPURATION
Management

• Abscess
  • Drainage

• Fistula
  • Fistulotomy
  • Staged fistulotomy
  • Mucosal advancement flap
  • LIFT (Ligation of Intersphincteric Fistula Tract)
  • Anoplasty
  • Fistula plug
ANAL FISSURE

Anatomy

- Females
  - 90% posterior
  - 10% anterior

- Males
  - 99% posterior
  - 1% anterior

- Distal to dentate line
ANAL FISSURE

Anatomy

• Atypical location
  • Crohn’s disease
  • Malignancy
  • Tuberculosis
  • Syphilis
  • CMV
  • HIV
  • Trauma
ANAL FISSURE

Etiology

• Trauma
  • Large hard stool
  • Diarrhea

• Hypertonic/hyperspastic internal sphincter

• Diminished blood flow/Ischemia
ANAL FISSURE

Etiology

Trauma

IAS Tone

Blood Flow

IAS Irritation

Ischemic Ulcer
ANAL FISSURE

Symptoms

• Pain
• Spasm
• Bleeding
• Seepage/soilage
• Difficult evacuation
ANAL FISSURE

Chronic

- Sentinel skin tag
- Hypertrophic papilla
- Exposed IAS
- Hyperspastic IAS
- Anal stenosis
- Fistula
ANAL FISSURE Management

• Symptomatic relief
  • Sitz baths
  • Stool softeners
  • Pain medications
• Topical nifedipine, diltiazem, or nitroglycerin
• Botox injection
• Lateral internal anal sphincterotomy
• Anoplasty
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