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Saturday, August 13, 2016

(Room 4)

14:00 - 14:55 WS #115: Case Studies on GI Bleeding

15:05 - 16:00 WS #126: Case Studies on GI Bleeding (Repeated)



GI bleeding some cases

Chris Wakeman
Colorectal Surgeon
Christchurch

Case 1

- 45 female
- Iron deficient anemia and change in bowel habit ? Bleeding
- Family history of mother aged 47 with endometrial cancer, brother with bowel cancer aged 52 and maternal grandmother with bowel cancer aged 60

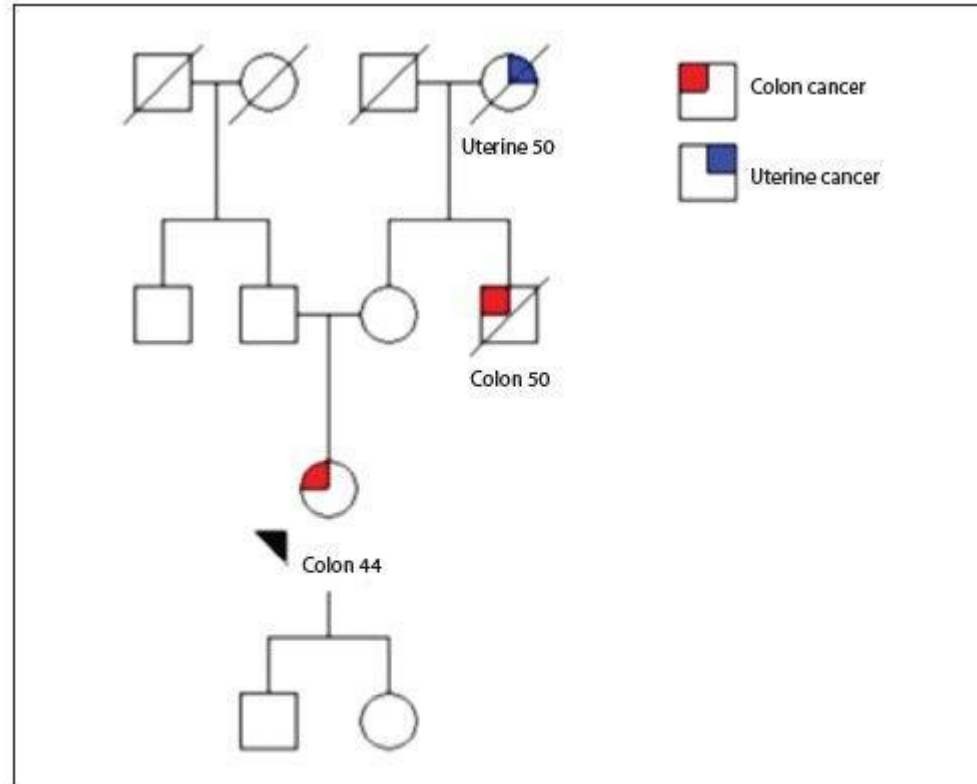


Figure 5: Pedigree of Mrs. V's Family—Squares indicate males, circles indicate females, and a diagonal line through an individual denotes that he or she is deceased. Where known, family history of cancer is indicated, with the type of cancer and age at diagnosis listed below the individual. The proband is indicated by an arrow.

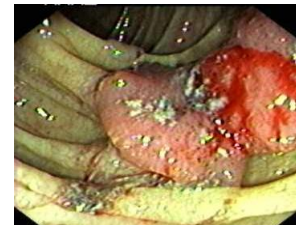
Case 1

- Questions
 - What diagnosis are we thinking?
 - What criteria does this lady make
 - What investigations needed
 - Any role for chemoprophylaxis

Lynch Syndrome - Clinical

Colorectal Cancer:

- Bowel cancer risk varies for each of the mismatch repair genes
- Median age CRC 44-49yrs
- Proximal colon
- Synchronous and metachronous tumours more common



Extra colonic cancer risks vary for the mismatch genes as well

- | | Uterine | Ovary |
|-------------|----------|----------|
| • popn risk | <2% | <2% |
| • MLH1 | 30-50% | <12% |
| • MSH2 | 20-40% | <12% |
| • MSH6 | 20-30% | pop risk |
| • EPCAM | pop risk | pop risk |
- **Other GI tract tumours** – gastric 2-6%, small bowel 4-7%, bile duct and gall bladder 2%
 - **Urological cancers** (renal pelvis, ureter): 4 -9% higher with MSH2 and in men

How to diagnose / identify families with Lynch Syndrome?

- Identification of family members carrying an MMR mutation is important
- No clear phenotype
- Criteria developed to help identify pts with a high risk of Lynch Sy in whom molecular genetic analysis should be done

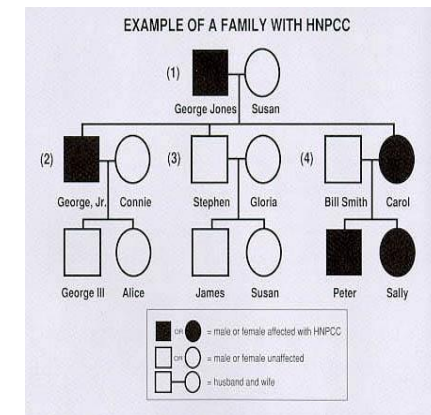
Amsterdam criteria

Amsterdam Criteria II 1999

- Three or more relatives with verified CRC or Lynch associated Ca
- One needs to be a first degree relative of the other two
- At least two successive generations affected CRC over two generations
- At least one of relatives diagnosed with CRC <50 years.
- (not FAP)

At least three relatives with a cancer associated with HNPCC ie CRC, endometrial, stomach, ovary, ureter or renal pelvis, brain. Small bowel, hepatobiliary or skin

→ Only 50 % who fulfill criteria will have Lynch Syndrome



Aspirin and bowel cancer in Lynch Syndrome

- Long-term effect of aspirin on cancer risk in carriers of hereditary colorectal cancer: an analysis from the CAPP2 randomised controlled trial
- 600 mg aspirin per day for a mean of 25 months substantially reduced cancer incidence after 55.7 months in carriers of hereditary colorectal cancer.
- Further studies are needed to establish the optimum dose and duration of aspirin treatment.

Burn et al Lancet ;378 December 2011



Case 2`

- 23 female post partum
- Was constipated and developed bright red bleeding on the toilet paper and into the bowl
- Associated with severe anal pain “like passing glass”
- Spasm like pain after passing a motion









Chronic Anal Fissure Presentation

- **Chronic Anal Fissure Presentation** Patients complain of severe pain on defecation, usually of sudden onset and often with minor bright red bleeding. The pain is of a burning nature, and patients liken the experience of defecation to “passing razor blades”, or “passing broken glass”. The pain usually eases to nothing after 1 to 2 hours, only to return with the next bowel movement.
- **Pathogenesis** In patients with a high resting anal tone, a deep split in the anoderm exposes the internal sphincter and causes it to spasm. The resulting high anal sphincter pressures result in relative hypoxia of the mucosal tissues, preventing healing and causing the pain.

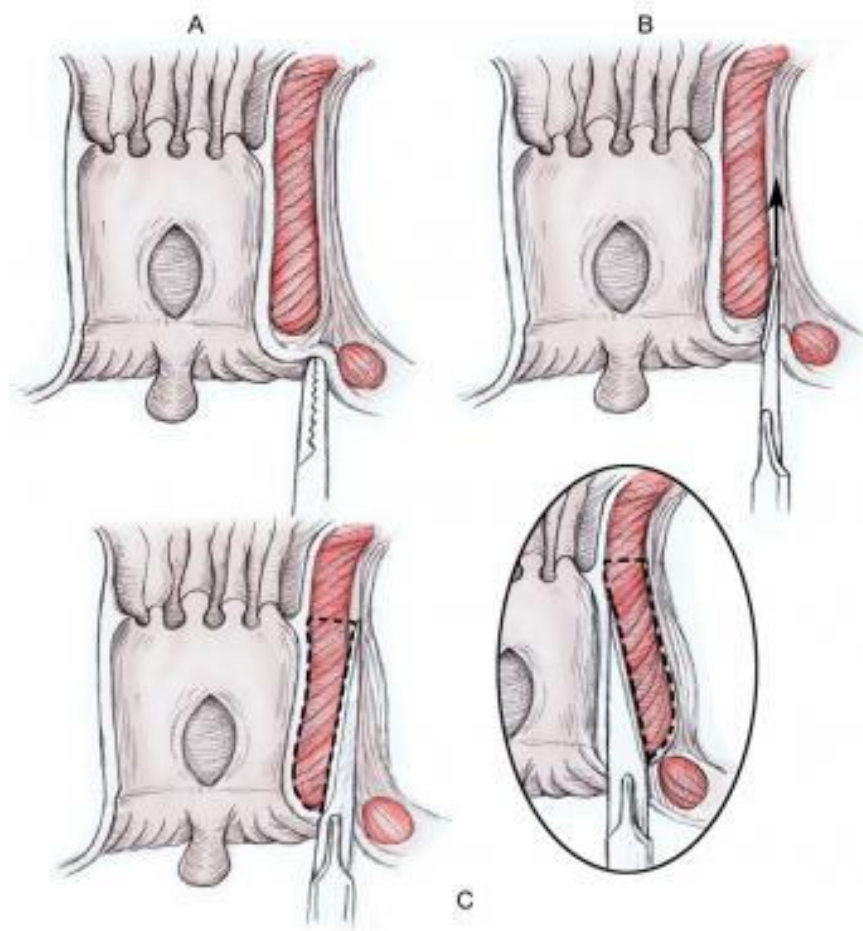
Chronic Anal Fissure Presentation

- **Examination Features** An acute fissure produces a “shy” anus. The patient has clenched buttocks and is nervous about being examined. Very gentle eversion of the anal verge may show the edge of the fissure. If it does not, referral for examination under anaesthesia is needed. Fissures are usually in the midline, either posteriorly ((66%) or anteriorly (33%). A digital rectal examination and proctoscopy should not be attempted. A chronic fissure, present for more than 3 weeks, is still painful but there is often a sentinel skin tag (external) or papilla (internal) formed due to oedema and chronic inflammation.

Chronic Anal Fissure Presentation

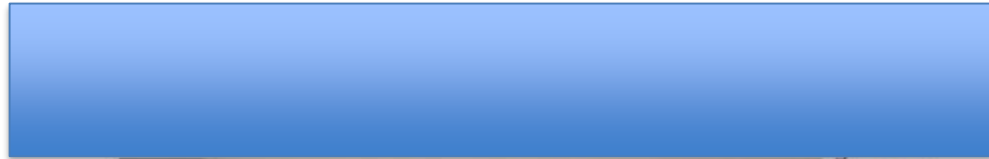
- **Natural History** If bowel habits are normal, many acute fissures heal within 3 weeks. Chronic fissures rarely heal without surgery.
- **Initial Treatment** Topical heat will relax the sphincter spasm and ease the pain. Avoid straining at stool. Topical agents such as glyceroltrinitrite or diltiazem cream reduce internal anal sphincter pressure and can heal the fissure.
- **Specialised Treatment** May include botox injection or lateral sphincterotomy





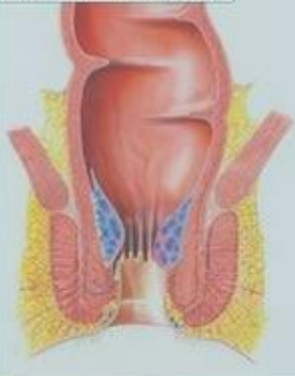
Case 3

- 53 male with a six month history of passing bright red blood and a history of an itchy bottom with mucus
- Also has a history of a prolapsing lump which self reduces

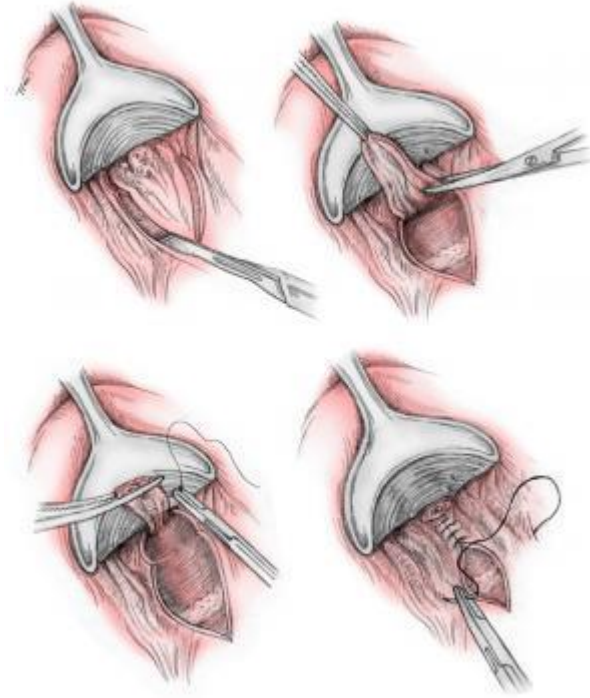
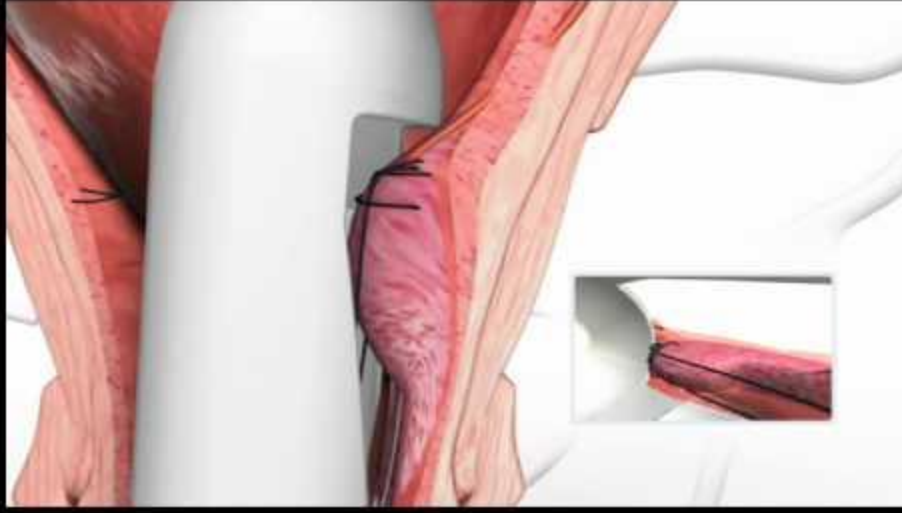


- Diagnosis
- treatment

Grading of Haemorrhoids/Piles

Stage I	Stage II	Stage III	Stage IV
No protrusion of haemorrhoids, yet.	Protruding haemorrhoids that spontaneously reduce!	Protruding haemorrhoids, possible to push back in manually!	Protruding haemorrhoids that can't be pushed back in manually anymore !
			







Internal Haemorrhoids – 3rd Degree

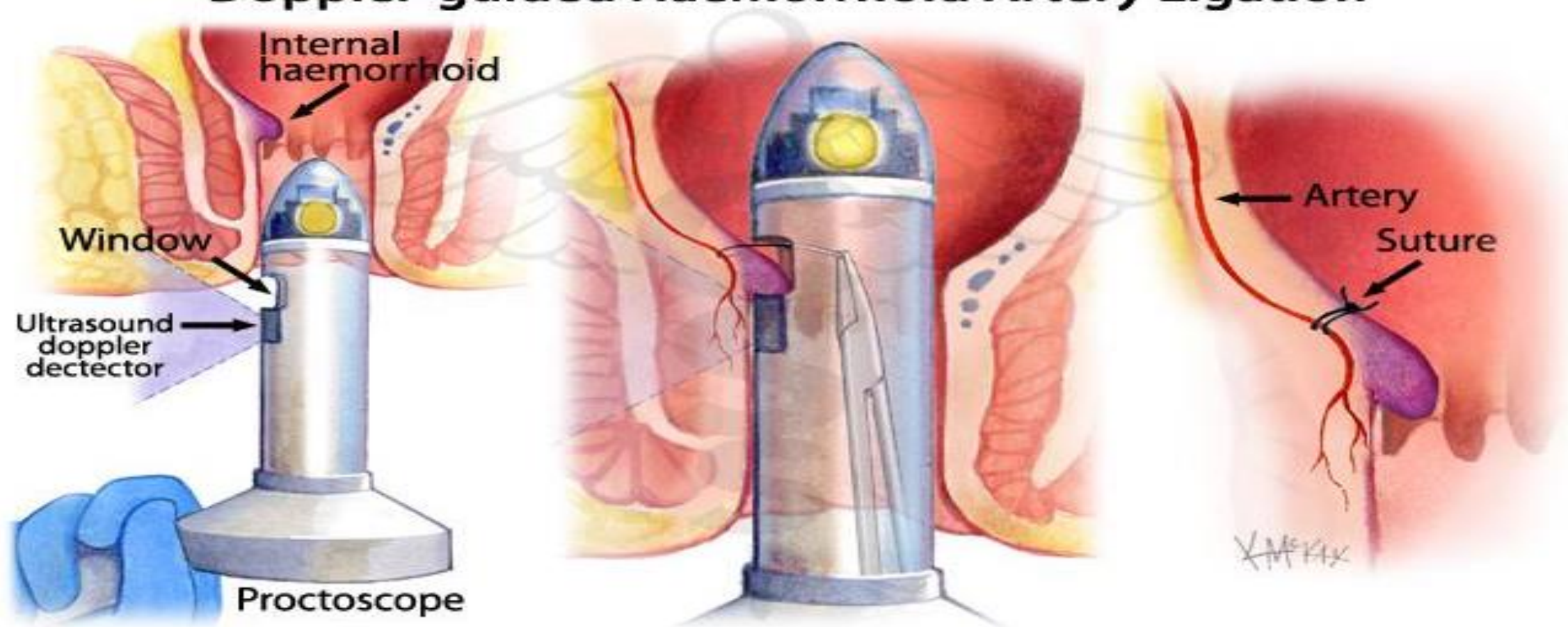
- **Presentation** the patient may complain of a lump if the haemorrhoids are prolapsed but more commonly of small amounts of bright red bleeding on the toilet paper. Bleeding and itch are common features.
- **Pathogenesis** Hard stool causes stretching and prolapse of the internal anal cushions. Subsequent exposure of the mucosa and ulceration results in bleeding.
- **Examination Features** The distinguishing feature between external and internal haemorrhoids is the presence of skin versus mucosa overlying the haemorrhoid. Note in the photo that there is mucosa over the haemorrhoid.

- **Natural History** Some patients have intermittent symptoms, while others will have progressive disease with constant symptoms.
- **Initial Treatment** Analgesia and laxatives are simple measures. Any suspicious features on history or examination should result in further investigation.
- **Specialised Treatment** Many haemorrhoids do not need further treatment though banding, injection sclerotherapy or haemorrhoidectomy may be required if resistant to simple measures.

Rubber Band Ligation



Doppler-guided Haemorrhoid Artery Ligation





Fourth Degree Haemorrhoids

- **Presentation** Usually a lump, which is not reducible, with an acute onset of severe pain
- **Pathogenesis** Hard stool causes stretching and prolapse of the internal anal cushions. Subsequent exposure of the mucosa and ulceration results in bleeding. Swelling due to venous obstruction from sphincter spasm causes necrosis.
- **Examination Features** Irreducible haemorrhoid, which may appear necrotic

Fourth Degree Haemorrhoids

- **Natural History** Over several days necrose but may become infected and cause severe pain
- **Initial Treatment** Simple analgesia, topical anaesthetic and ice
- **Specialised Treatment** If the haemorrhoids are necrotic or causing continuing severe pain then urgent haemorrhoidectomy may be required.



Thrombosed External Haemorrhoid

- **Presentation** Sudden onset of severe perianal pain which may be worsened with defecation (this is not usually a prominent variation on the pain). The pain may have started with a difficult defecation or childbirth.
- **Pathogenesis** Intravascular thrombosis with subsequent inflammation results in exquisite pain.
- **Examination Features** Gentle separation of the buttocks reveals a discrete swelling at the anal verge. Usually a bluish colour signifies the underlying clot. An acute thrombosis is associated with oedema and tight shiny skin over the clot.

Thrombosed External Haemorrhoid

- **Natural History** In most cases the oedema will start to resolve within 2 to 3 days, and the pain will gradually ease. The episode is usually completely over by 10 to 14 days, although the stretched skin may form a permanent tag.
- Sometimes the pressure of the clot causes necrosis of the overlying skin with ulceration and extrusion of the clot. It is followed by relief of the pain.
- **Initial Treatment** Analgesia and ice packs are simple measures. Patients may need laxatives to prevent straining at stool.
- **Specialised Treatment** Excision of the clot and its causative vein will result in immediate and permanent relief



Case 4

- 67 male
- Past history of left sided abdo pain
- Now presents with maroon colored bleeding PR



- Lower gastrointestinal bleeding (LGIB) refers to blood loss of recent onset originating from a site distal to the ligament of Treitz
- The causes of LGIB may be grouped into several categories:
 - anatomic (diverticulosis)
 - vascular (angiodysplasia, ischemic, radiation-induced)
 - inflammatory (infectious, idiopathic)
 - neoplastic
 - In addition, LGIB can occur after therapeutic interventions such as following polypectomy.

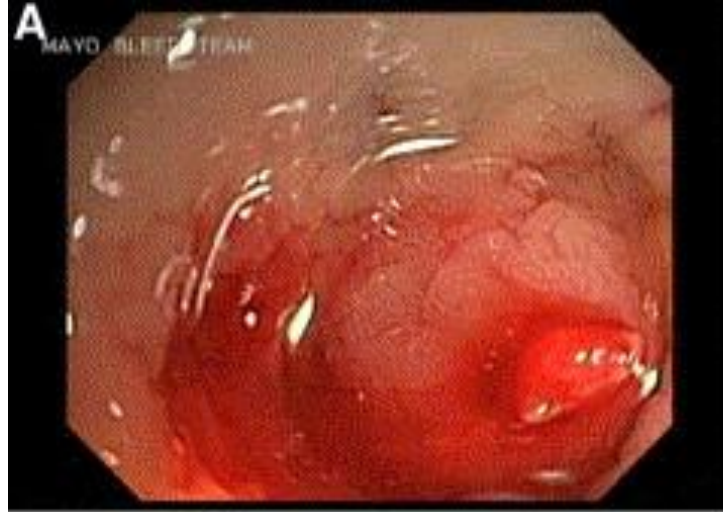
- In a review of seven series that included 1333 patients with acute LGIB,
 - Diverticulosis — 33 percent
 - Cancers/polyps — 19 percent
 - Colitis/ulcers (including Inflammatory bowel disease, infectious, ischemic, and radiation colitis, vasculitis and inflammation of unknown cause) — 18 percent
 - Unknown — 16 percent
 - Angiodysplasia — 8 percent
 - Miscellaneous (postpolypectomy, aortocolonic fistula, stercoral ulcer, anastomotic bleeding) — 8 percent
 - Anorectal (hemorrhoids, fissures, and idiopathic rectal ulcers) — 4 percent

Incidence

- 20-30/100,000
- Rates increases with age
- At age 30 incidence is 1/100,000
- At age 90 incidence is 200/100,000
- Cf upper GI bleeds incidence is 100/100,000
- Median age 65

Outcome

- Generally good
- In hospital mortality ~ 5%
- 3yr mortality ~20%
- Most stop spontaneously ~60-70%
- Cost LGIB ~ Canadian \$ 4,832 and average stay is 7.5 days



Diverticular

Diverticular disease currently comprises 20% to 55% of all cases of LGIB

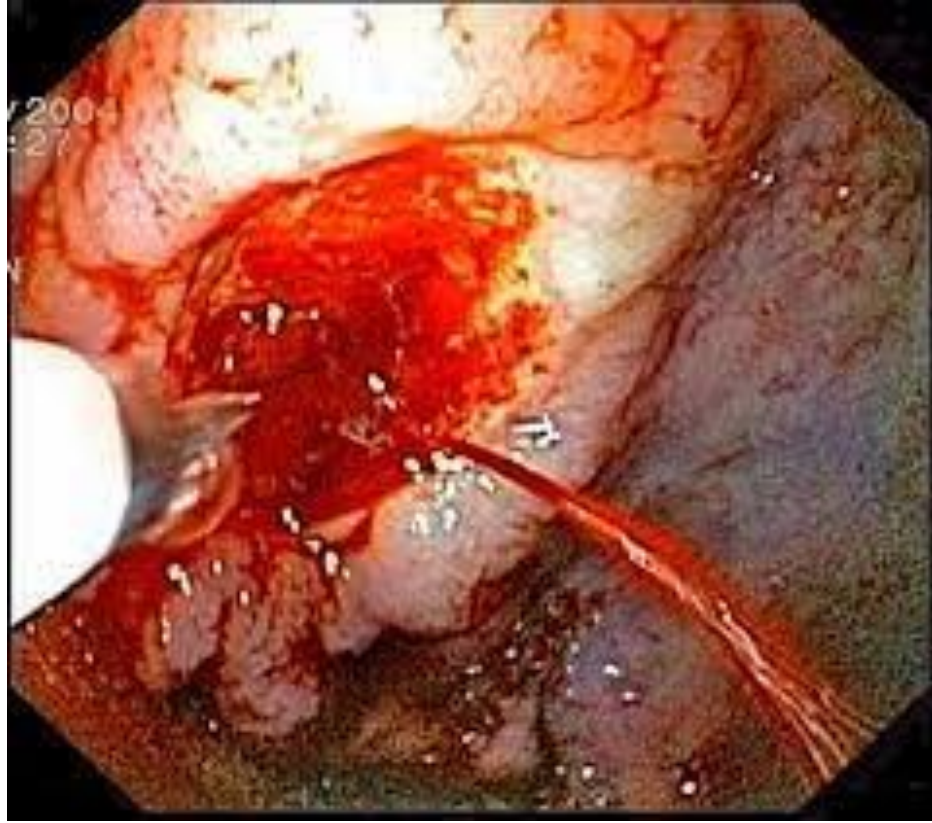
Most patients will stop bleeding spontaneously, but up to 25% will require emergent intervention

After the second episode of bleeding, there is a 50% chance of recurrence

Case 5

- 43 male taking NSAIDs present with passing dark bloody stool



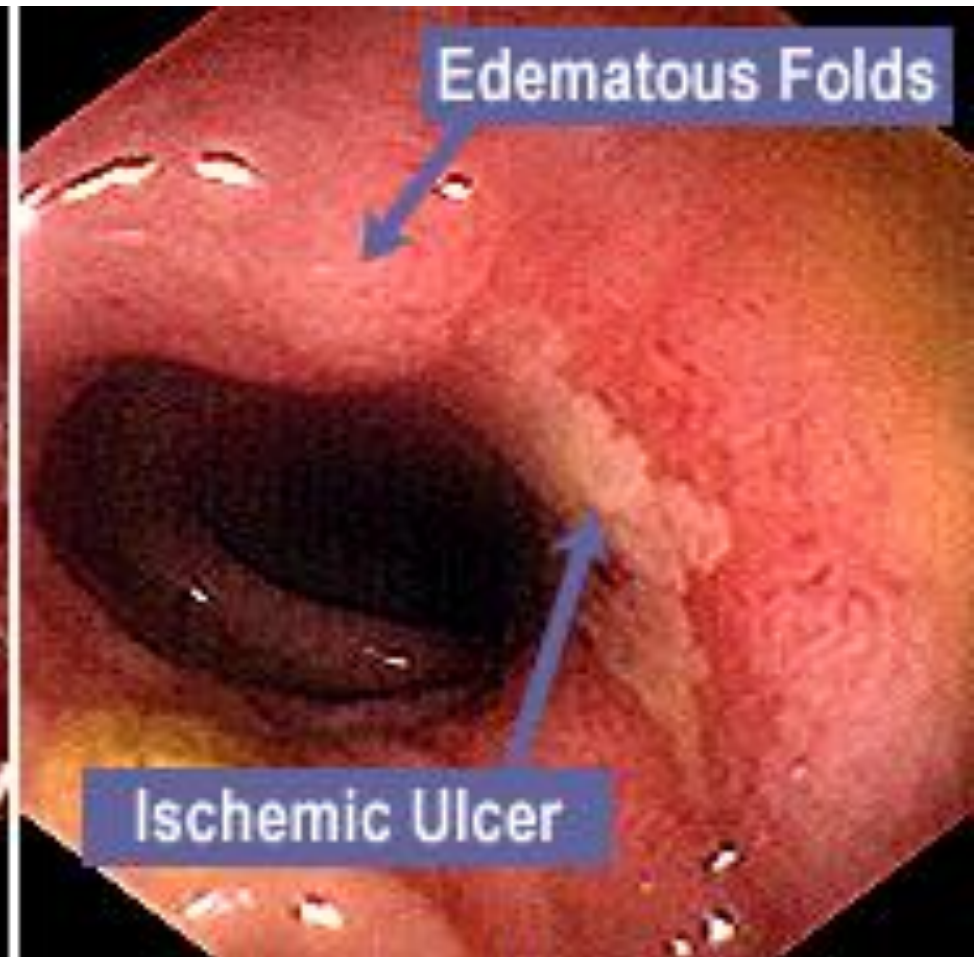
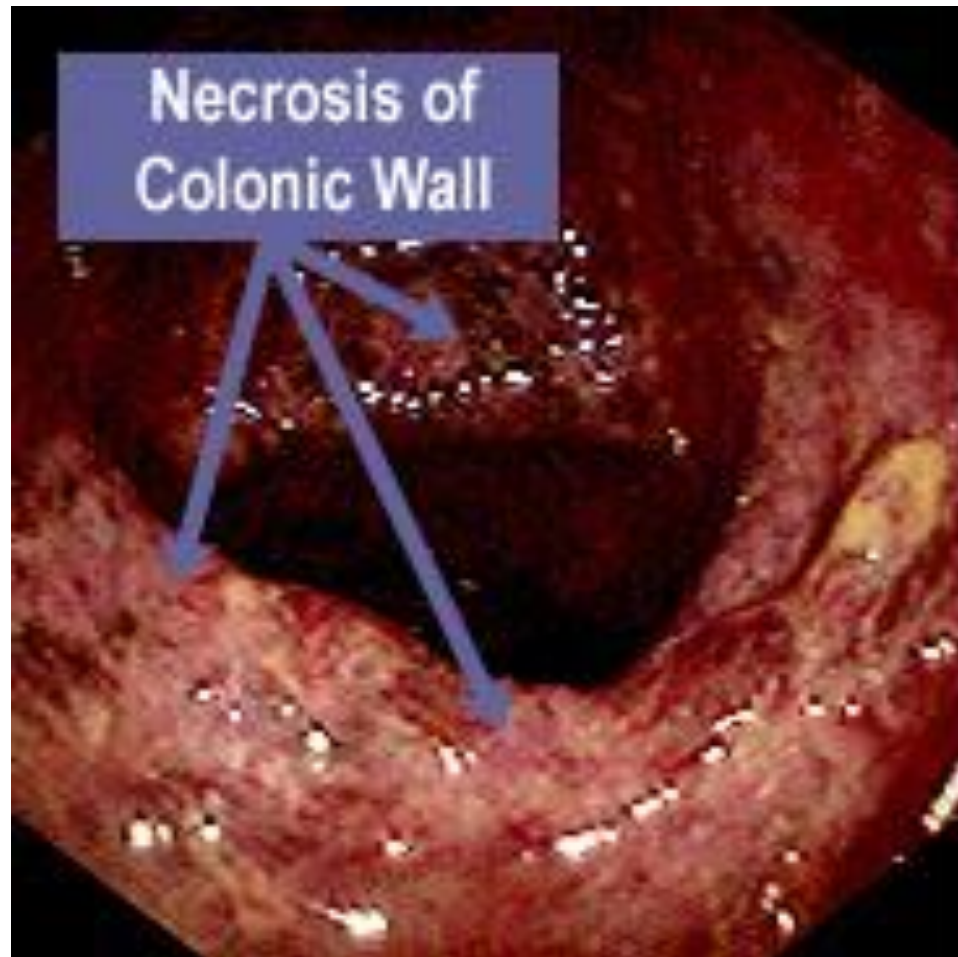


Case 6

— ibd
pqj

Ischemic Colitis

- Colonic ischemia is the most common form of intestinal ischemia and in most cases is transient and reversible.
- The colon is predisposed to ischemic insult because of its poor collateral circulation, low blood flow, and high bacterial content.
- The watershed areas of the splenic flexure, rectosigmoid junction, and right colon are commonly involved because of their particularly tenuous blood supply.
- Most cases of colonic ischemia resolve with conservative treatment. The 15% to 20% of patients who develop gangrene will require surgical intervention and have a substantial risk of death



Inflammatory bowel disease

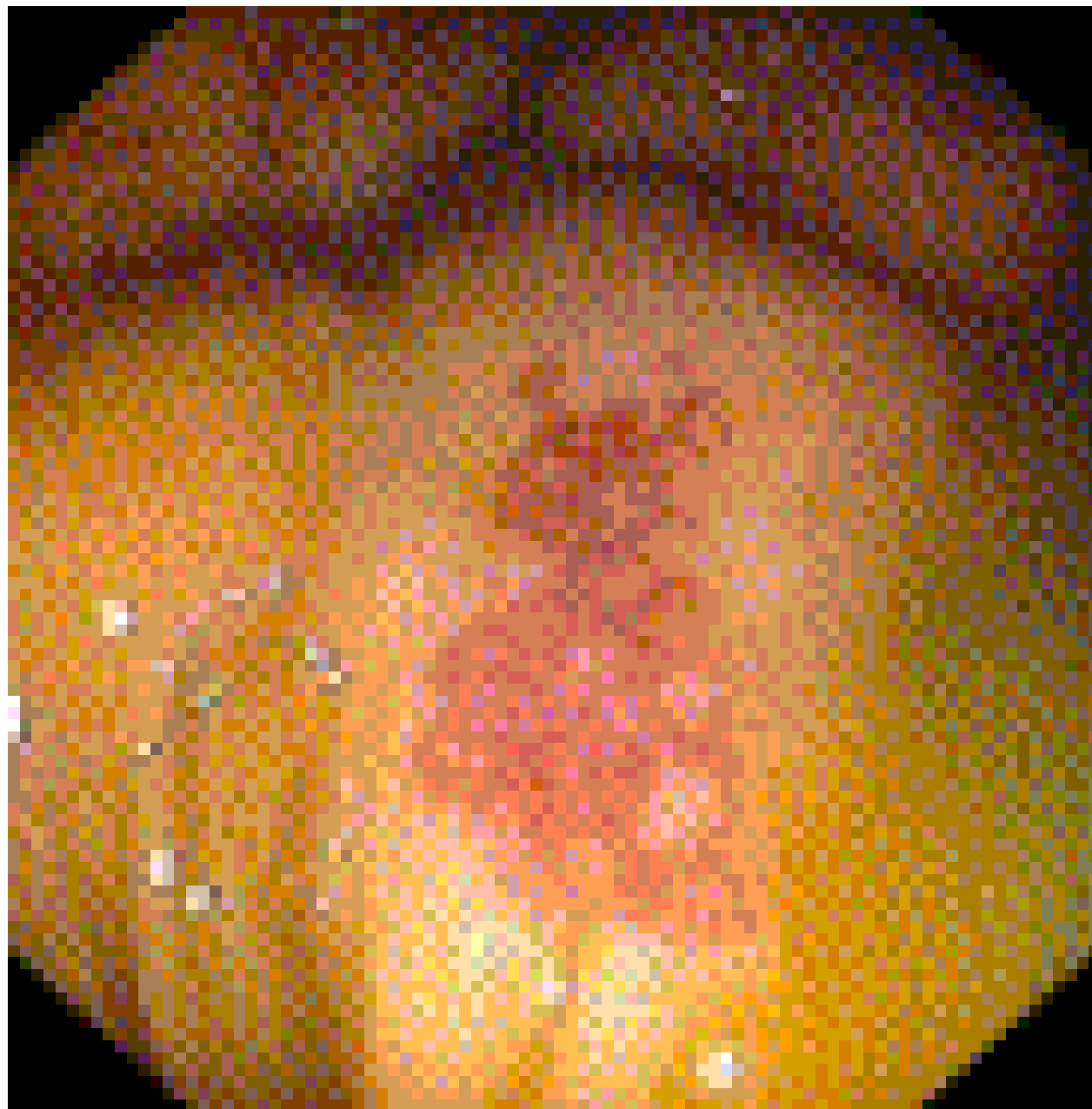
- Inflammatory bowel disease refers to both Crohn's disease and ulcerative colitis. Hematochezia is a more common initial presentation with the latter and tends to occur in the setting of active inflammation.

Infectious colitis

- There are many infectious causes of colitis. A routine stool culture will identify Salmonella, Campylobacter, and Shigella, the three most common causes of bacterial diarrhea.

Angiodysplasia

- Angiodysplasia are gastrointestinal vascular ectasias, distinct from vascular malformations and telangiectasias seen in other systemic and hereditary disorders.
- Estimates of angiodysplasia as a source of acute LGIB vary from 2% to 40%
- Angiodysplasia are thought to be degenerative lesions of the submucosal venules, and are therefore seen predominately in the elderly



Post polypectomy

- Clinically relevant bleeding occurs in 1% to 6% of patients undergoing colonoscopic polypectomy
- Bleeding at the time of polypectomy is amenable to immediate endoscopic hemostasis using various methods.
- Delayed bleeding typically occurs within 1 week of polypectomy, but can be seen up to 3 weeks following the procedure
- Most patients with postpolypectomy bleeding present with mild to moderate blood loss, and many can be managed conservatively

Anorectal Sources

- Hemorrhoids are the most common anorectal source of acute. Most hemorrhoidal bleeding will stop with conservative measures.
- Anorectal fissures, stercoral ulcers, and radiation proctitis are other important anorectal sources of LGIB.

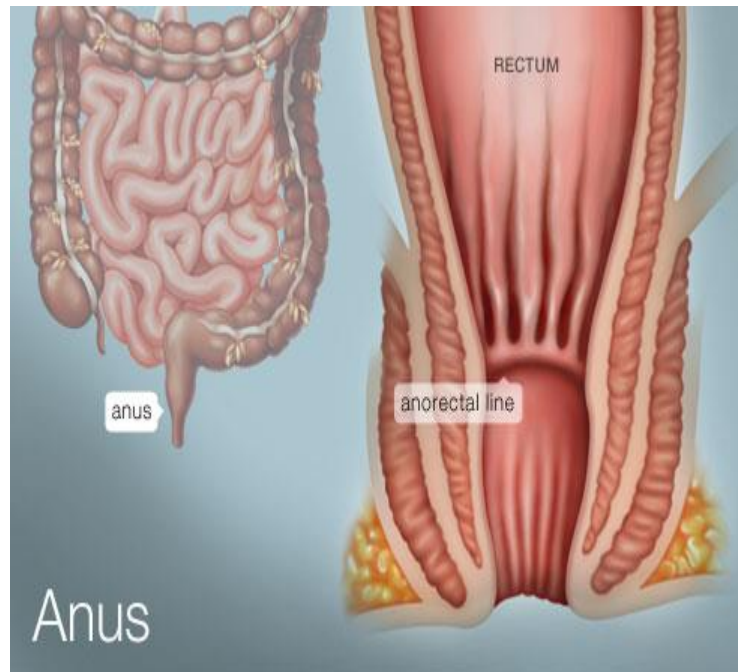
Other Colonic Sources

Cancer and polyps typically result in chronic blood loss and are the source of acute LGIB in only a small percentage of patients.

Summary

- Lower gastrointestinal bleeding (LGIB) refers to blood loss of recent onset originating from a site distal to the ligament of Treitz.
- Usually stops spontaneously 70% time
- Large bleeds need aggressive resuscitation and investigation and treatment.

Proctology for GPS



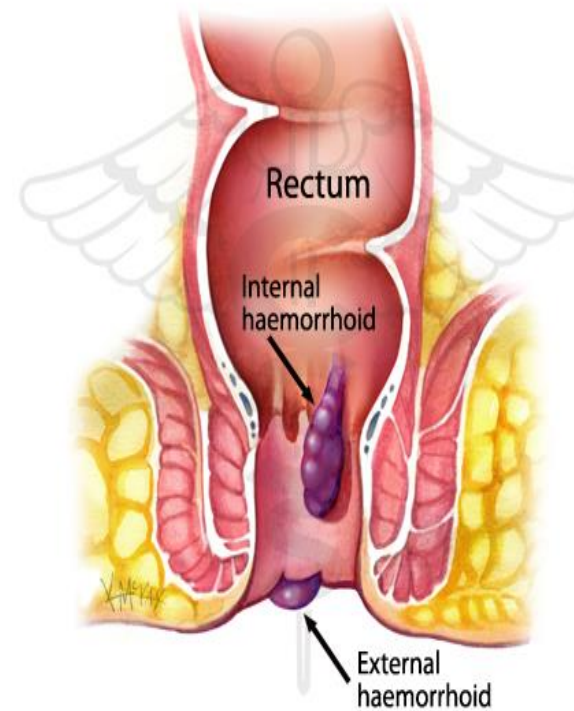
- Perianal Conditions are common, and although they are rarely life-threatening they often cause disabling or chronically irritating symptoms.
- The diagnosis of perianal conditions can usually be made by a thorough history and examination, and an understanding of the pathophysiology of the disease.
- Patients with perianal disease usually present with a combination of rectal bleeding, perianal pain, discharge, the sensation of a lump and itching
- Examination often is limited by patient discomfort but valuable clues can be gained with a gentle approach, good light, concern for patient modesty and assistance.

On History....

- Most perianal conditions will present with multiple symptoms but usually there is a prominence of two or three.
- Listed below is a guide to the more common symptom grouping of these conditions.
- **Itch or None** • AIN • Paget's disease • Pilonidal Sinus
- **Pain** • External haemorrhoids
- **Pain and Bleeding** • Anal Fissure
- **Itch, bleeding** • SCC anus • Melanoma
- **Discharge, bleeding, pain** • Anal Fistula
- **Painless, bleeding, discharge** • Crohn's disease
- **Bleeding, lump, itch** • Internal haemorrhoids

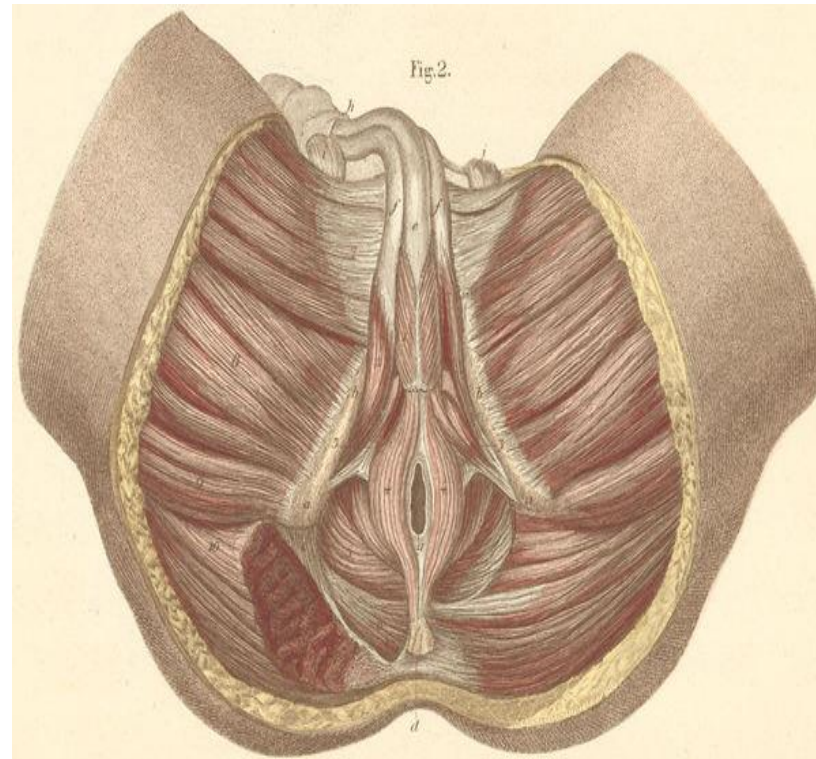
Anatomy of the Anus

- **Anal Verge**
- The skin at the edge of the anal opening , visible on inspection of the perineal region. It is the zone between the anal canal itself and the skin of the perianal area. It is used as a landmark to measure the height of tumours or other rectal pathology, on rigid proctoscopy.

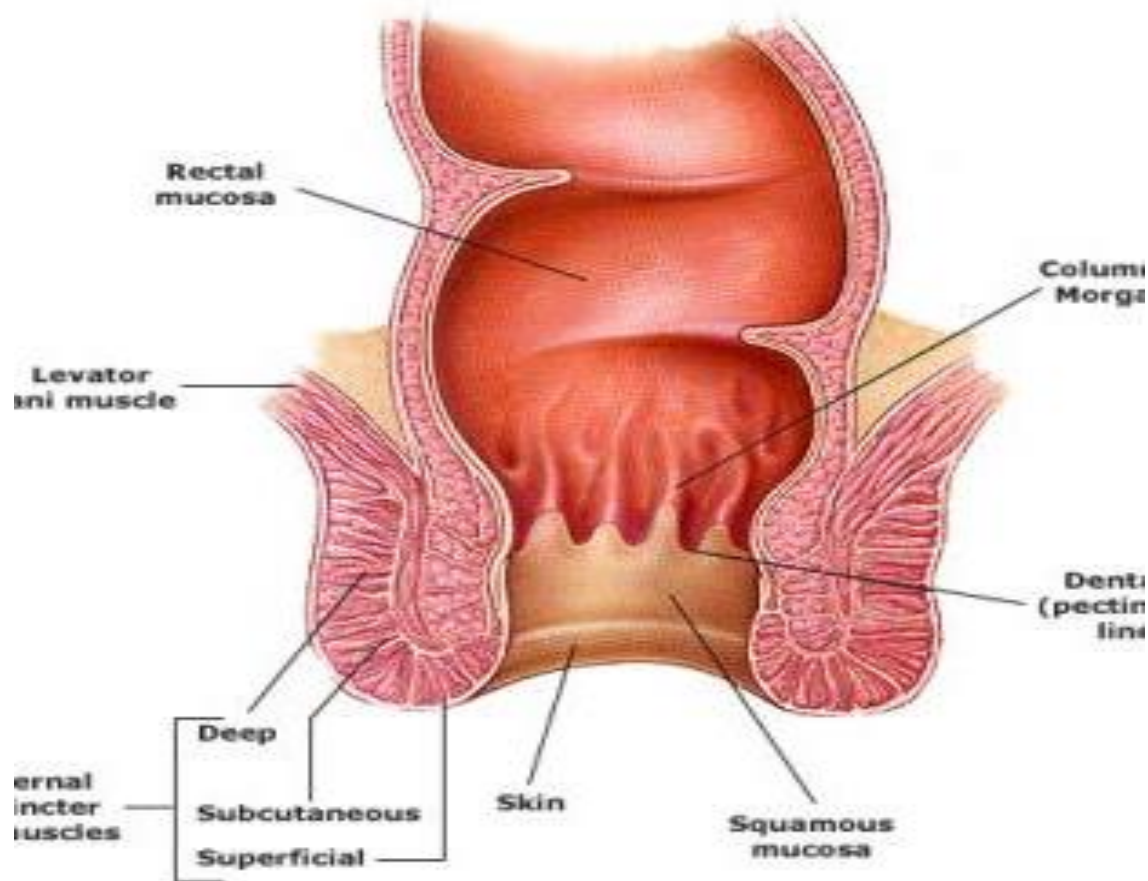


Anatomy of the Anus

- **Anal Canal**
- Thee most distal 4cm of the gastrointestinal tract.
- It is a muscular tube consisting of the anal sphincters, and lined by normal squamous epithelium (with hairs) in its lower third, modified squamous epithelium in its middle third (no hairs) and transitional epithelium in its upper third (above the dentate line).
- The “surgical anal canal” extends from the anal verge below to the “anorectal ring (levator muscle)” above.



Anatomy of the Anus



- **Dentate Line**
- The junction between squamous and transitional epithelium in the anal canal. It is a wavy line that includes the anal valves (where the anal glands open) and the start of the anal columns. Enlargement of the squamous parts of the dentate line causes a hypertrophied anal papilla

Anatomy of the Anus

- **Internal Sphincter**
- A continuation and expansion of the inner circular muscle layer of the rectum. It is smooth muscle and is always contracted except with it relaxes in response to rectal filling, as part of the recto-anal inhibitory reflex. It is responsible for passive continence.
- **External Sphincter**
- is a ring of voluntary muscle that surrounds the anal canal outside and slightly overlapping the internal sphincter. It is under voluntary control and is used to maintain continence when there is an urge to defecate. It is sometimes described in three parts; subcutaneous, superficial and deep.

Anatomy of the Anus

- **Haemorrhoidal Cushions (Internal Haemorrhoids)** There are three haemorrhoidal cushions lying in the upper anus, above the dentate line. They are composed of arteries and veins, and when engorged with blood (during defecation) they help prevent leakage. They are normally attached to the wall of the lower rectum by fibro-elastic bands.
External Haemorrhoids A plexus of veins lying subcutaneously at the anal verge.



Examination Features

- Observe: the anus is normally closed as an antero-posteriorly oriented slit.
- Look for scars, tags, ulcers, excoriations, discolorations, swellings in the perianal skin
- Ask the patient to squeeze the sphincters. This shows that motor innervation is intact..
- Touch: very lightly touching the anal skin should cause contraction of the corrugator cutis ani: the “anal wink”. is means that sensory innervation is normal.
- Palpate: using plenty of lubricant gently insert an index finger.
- Ask the patient to bear down. This will relax the internal sphincter and bring the lower rectum into range of the finger.
- Palpate the prostate, the recto-vaginal septum (?rectocele?) and the circumference of the anus and low rectum

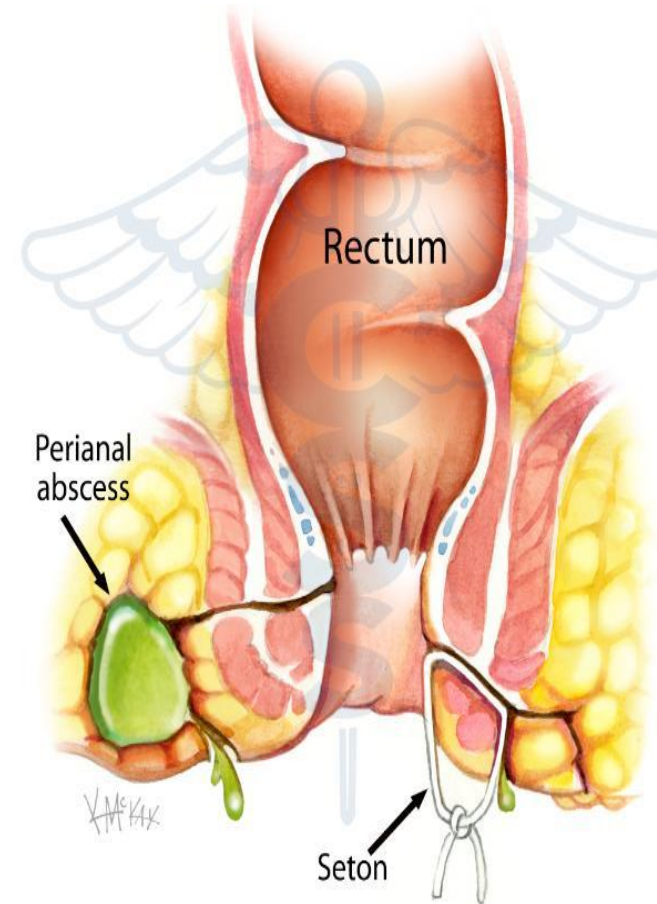
Ischiorectal Abscess

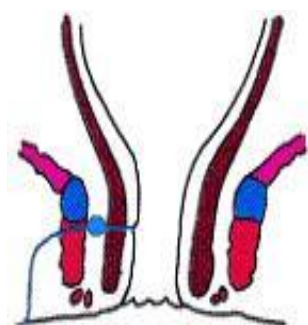
- **Presentation** The patient usually complains of a few days of pain with fever.
- **Pathogenesis** Cryptoglandular abscesses are formed from obstruction of the anal glands results in infection and abscess formation
- **Examination Features** Redness is apparent on the buttock. An area of fluctuance may be apparent if the abscess is pointing.
- **Natural History** There will be progressive enlargement and eventual discharge through the buttock skin
- **Initial Treatment** Antibiotics may assist in treatment of cellulitis but have no role in definitive treatment
- **Specialised Treatment** Drainage with exploration for the internal opening under anaesthesia is required direct repair may be of benefit.



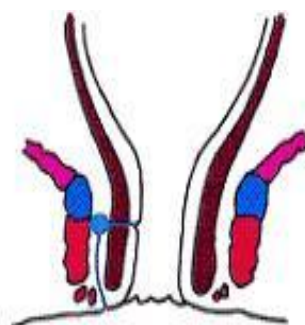
Anal Fistula

- **Presentation** Perianal pain and swelling followed by discharge, which may be blood stained
- **Pathogenesis** Currently thought to be from obstruction of the anal glands resulting in sepsis with drainage through the perianal skin
- **Examination Features** External opening with expressible discharge and perianal excoriation
- **Natural History** Intermittent episodes of pain and swelling relieved when the discharge occurs

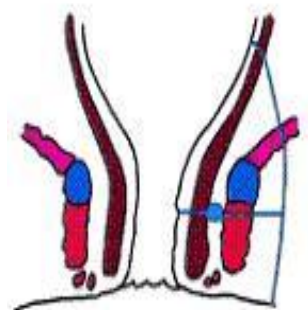




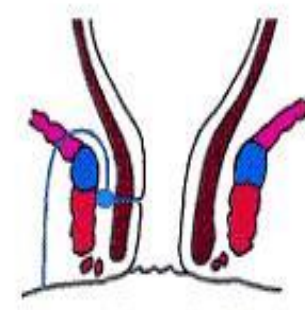
Transsphincteric Fistula



Intersphincteric Fistula



Extrasphincteric Fistula

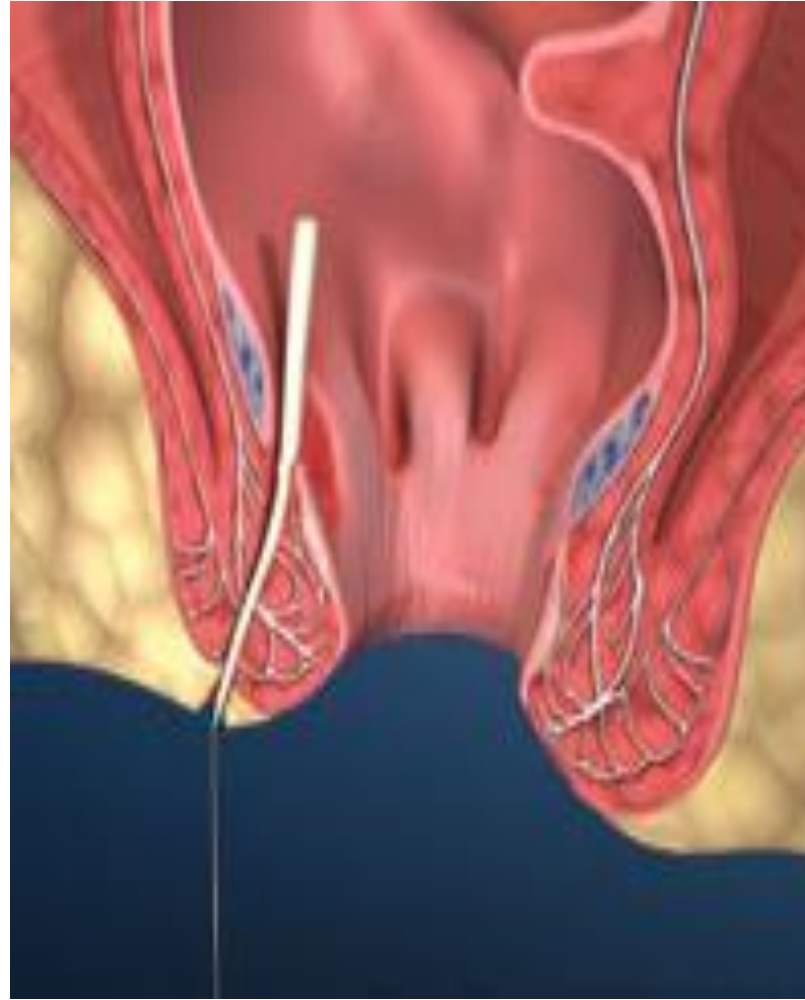


Suprasphincteric Fistula

Anal Fistula (AR)

- **Initial Treatment** Need referral for drainage and further management
- **Specialised Treatment** Thee main determinant of treatment is dependant upon the amount of sphincter involvement and range from Seton to fistulotomy







Anal Intraepithelial Neoplasia (AIN)

- **Presentation** May present with an itch, ulcer but is usually asymptomatic. It is more common in the immunosuppressed and HIV positive groups. Usually is asymptomatic but may cause itch and minor anal bleeding. Suspect in patients with history of sexually transmitted disease or anal intercourse.
- **Pathogenesis** Human Papilloma Virus, most commonly 16, infects the squamous cells and they become dysplastic. HPV infection (most common serotype 16 and 18) is associated
- **Examination Features** Usually there are no findings until 5% acetic acid is applied and then the AIN will appear white compared to the surrounding skin. Thee AIN may also be present in the transition zone. May appear normal or have anal ulcer. With the application of 5% acetic acid the areas of AIN appear white

Anal Intraepithelial Neoplasia (AIN)

- **Natural History** Rates of progression to SCC remain largely unknown and regression from high grade to low grade may occur. Grades I and II may regress or stay stable without progression. Grade III can progression to squamous cancer, especially in immunocompromised patients.
- **Initial Treatment** None Aldara ointment for Grades I and II
Specialised Treatment Remains controversial due to the lack of knowledge of natural history though currently Surgical Excision of high grade dysplasia is common. Topical chemotherapy has been reported in trials. Excise Grade III



Fibroepithelial Polyp

- **Presentation** Presents with a lump and sometime minor perianal bleeding
- **Pathogenesis** Remains uncertain but may be due to stromal hyperplasia from the anal canal with multinucleated cells
- **Examination Features** Polyp may be visible on inspection but is usually palpable on PR without tenderness
- **Natural History** May ulcerate or autoamputate over time
- **Initial Treatment** None
- **Specialised Treatment** Excision will relieve symptoms and provide definitive diagnosis



Mucosal Prolapse

- **Presentation** Itch and minor bright red PR bleeding. There is usually no perianal pain.
- **Pathogenesis** Increased abdominal pressure with pelvic floor dysfunction and mucosal slippage
- **Examination Features** On eversion of the anal verge and with the patient straining, rectal mucosa is visible.
- **Natural History** May progress to full thickness prolapse
- **Initial Treatment** Laxatives and stool softeners may be of assistance
Specialised Treatment It is dependant upon the severity of symptoms and degree of prolapse and may include rubber band ligation, injection sclerotherapy or stapled haemorrhoidectomy



Rectal Prolapse

- **Presentation** The patient, usually a woman, complains of a painless anal lump appearing after defecation. It may require manual reduction. Small amounts of bright red bleeding are often noticed and the patient usually has a long history of constipation.
- **Pathogenesis** is not known for certain. Contributing factors include: lack of relaxation of the rectum to the hollow of the sacrum, increased intra-abdominal pressure from constipation; a deep pelvic cul de sac; intussusception of the rectal wall. Laxity of the anal sphincters allows the prolapse to become overt. Trauma to the prolapsing rectal mucosa causes ulceration and bleeding.
- **Examination Features** Bowel prolapsing through the anus, with concentric rings of mucosal folds visible.

Rectal Prolapse

- **Natural History** Usually enlarges with time. May become incarcerated and necrotic.
- **Initial Treatment** If prolapsed then reduction is required. Application of sugar or salt to the prolapse may aid reduction
- **Specialised Treatment** Usually requires repair either through the perineal or abdominal approach





Rectocele Presentation

- Most rectoceles are asymptomatic. Large rectoceles cause symptoms because residual stool is in the rectum after defecation has apparently been complete. is residual stool may leak out and the patient may present with incontinence. Large rectoceles will preferentially fill with stool, producing the sensation of a mass bulging into the vagina.
- **Pathogenesis** Small rectoceles are common (almost normal) and are a sequela of childbirth. Larger rectoceles may be associated with a generalized weakness of the pelvic floor, with cystocele and enterocele. Rectoceles can be secondary to obstructed defecation, such as occurs with non-relaxing puborectalis or occult rectal prolapse.
- **Examination Features** During digital rectal examination the examining finger palpates a defect in the rectovaginal septum just above the sphincter complex. A finger pushing into this defect can be seen from the outside producing a bulge in the perineum. Large rectoceles can be seen through the introitus, as the posterior vaginal wall descends.

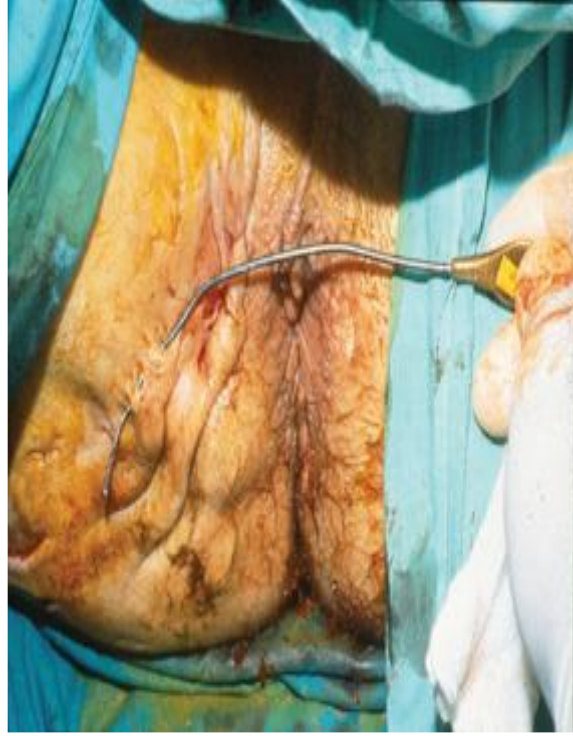
Rectocele Presentation

- **Natural History** Rectoceles associated with a weak pelvic floor or obstructed defecation will tend to get worse and more symptomatic. Asymptomatic, small rectoceles associated with childbirth may never cause a problem.
- **Initial Treatment** Continue with strategies to enhance rectal emptying, such as pushing on the vagina or using suppositories.
- **Specialised Treatment** Treat the cause of the obstructed defecation. Repair either through the vagina or rectum, either alone or along with an anterior pelvic floor repair



Skin Tags

- **Presentation** Usually presents as tags of redundant skin around the anus, sometimes interfering with keeping the area clean May be associated with several disorders of the anus.
- **Pathogenesis** Usually due to descent of the anal epithelium, creating excess skin at the verge. Also due to stretching of the anal skin by enlarged external haemorrhoids, childbirth, or perianal infection. Large, oedematous tags are a feature of perianal Crohn's disease.
- **Examination Features** Folds of excess skin of various sizes and shapes around the circumference of the anal verge.
- **Natural History** Depends on associated diseases but usually stable or gradually increasing.
- **Initial Treatment** No treatment required **Specialised Treatment** May need to be removed if interfering with anal hygiene or there are cosmetic issues



Hydratinits Supprativa

- **Presentation** Presents with pain and discharge from collections in the groin, axilla and perineum
- **Pathogenesis** Abnormal apocrine glands in the hair bearing areas result in obstruction and infection
- **Examination Features** Superifcal abscess in the hair bearing areas of the groin, axilla and perianal area
- **Natural History** Recurring abscess which spontaneously discharge
- **Initial Treatment** Drainage of the symptomatic abscesses and antibiotics may palliate the symptoms.

Hydratinits Supprativa

- **Specialised Treatment** Excision of the entire hair bearing area may be required with grafts or aps
- **Important Points:** When positioned close to the perianal area then it may be di cult to distinguish from perianal abscesses (without the internal opening being found) Left Lateral Position





Perianal Warts

- **Presentation** Usually present with itch and perianal swelling which may occasionally bleed
- **Pathogenesis** Human Papillomavirus type 6 and 11 are the most common viruses associated with perianal warts. Usually acquired through contact with infected person (sexual contact).
- **Examination Features** Elevated, cauliflower-like pink lesions, which may form larger plaques.
- **Natural History** Usually increase in size and number, though may spontaneously regress. Can be associated with the development of anal intraepithelial neoplasia (AIN) especially in the immunosuppressed
- **Initial Treatment** Inquire into sexual history. Testing for other sexually transmitted diseases may be indicated. Educate patient and partner.
- **Specialised Treatment** Warts may be excised with diathermy or scissors. Local chemotherapeutic agents are currently being investigated.

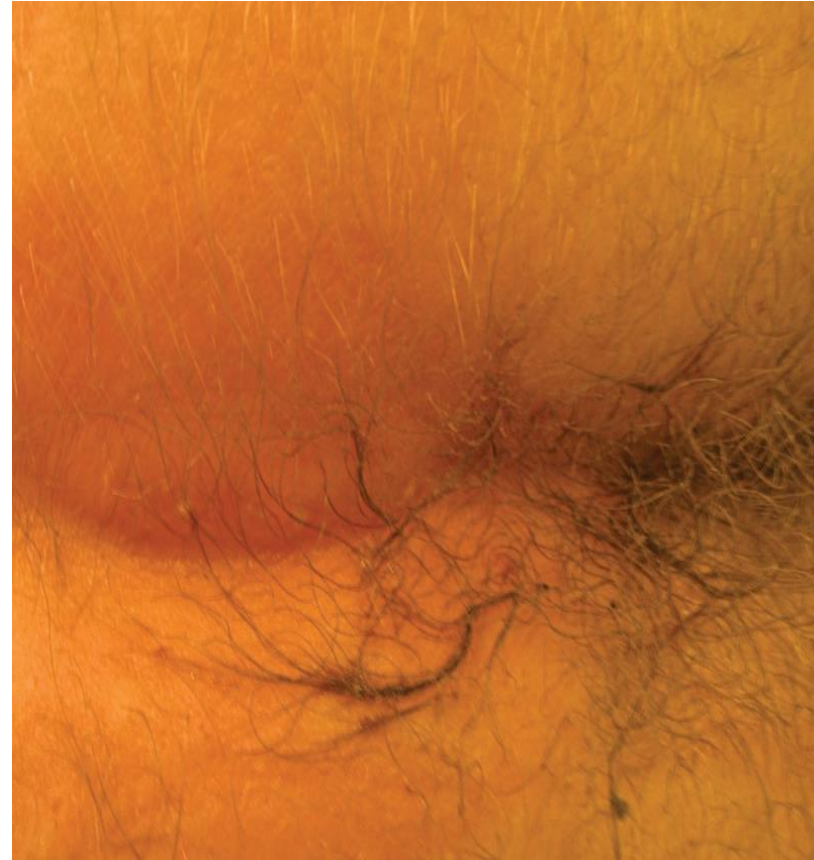


Pilonidal Sinus

- **Presentation** Usually asymptomatic
- **Pathogenesis** Not known for sure. Theories include congenital (dermatomes do not join accurately and some hair follicles become subcutaneous) and acquired (hair drops into the natal cleft and burrows into the skin).
- **Examination Features** Pits are visible in the natal cleft
- **Natural History** May become infected with an abscess and tunnelling sepsis. The likelihood of this tends to reduce with age.

Pilonidal Sinus and abscess

- **Initial Treatment** None
- **Specialised Treatment** None unless there is an infection. e usually lay open the abscess and infected sinuses, and excise uninfected sinuses. For complex, recurrent disease, excision of the skin with eradication of the natal cleft (Karyadakis Procedure) or marsupialisation of tract can be done
- Incision and drainage of the abscess



psoasis

