Anal Canal

Fissure In Ano

Haemorrhoids

Anorectal Anatomy

Arterial Supply

Inferior rectal
A middle rectal A

Venous drainage

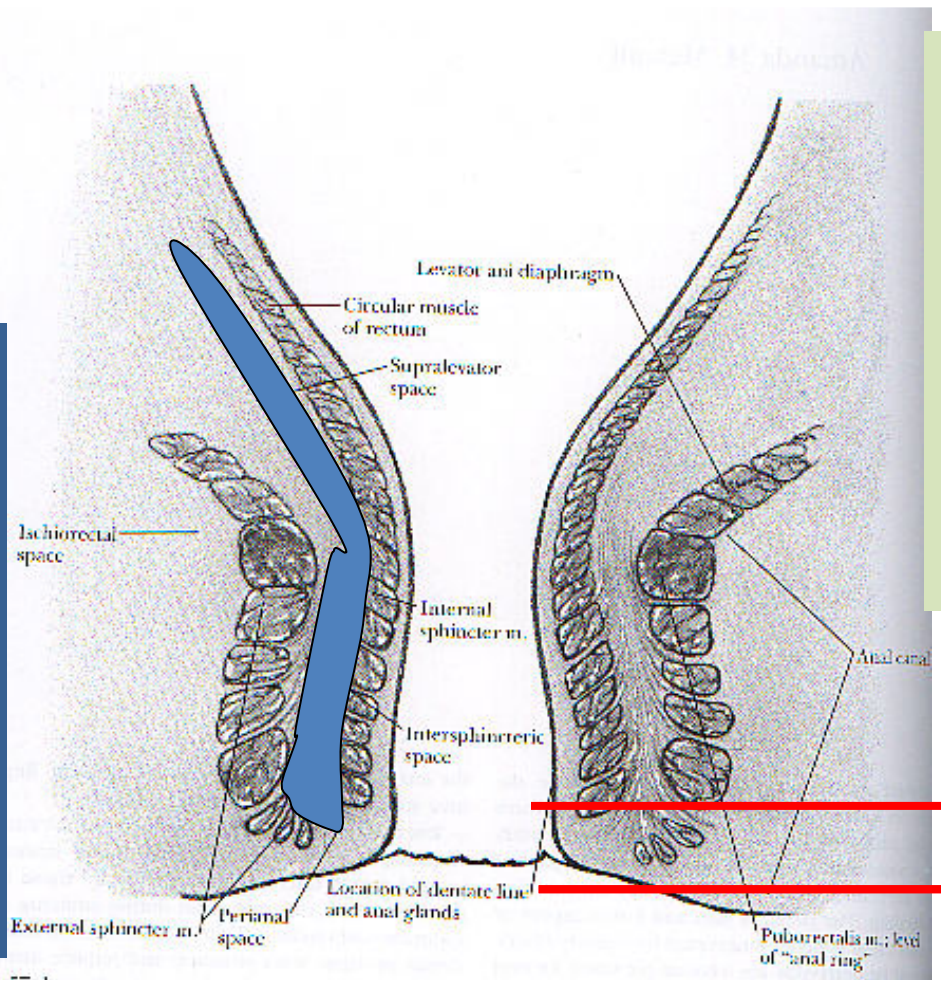
Inferior rectal V
middle rectal V

3 hemorrhoidal complexes

L lateral

R antero-lateral

R posterolateral



Nerve Supply

Sympathetic: Superior hypogastric plexus

Parasympathetic:

S234 (nerviergentis

Pudendal Nerve:

Motor and sensory

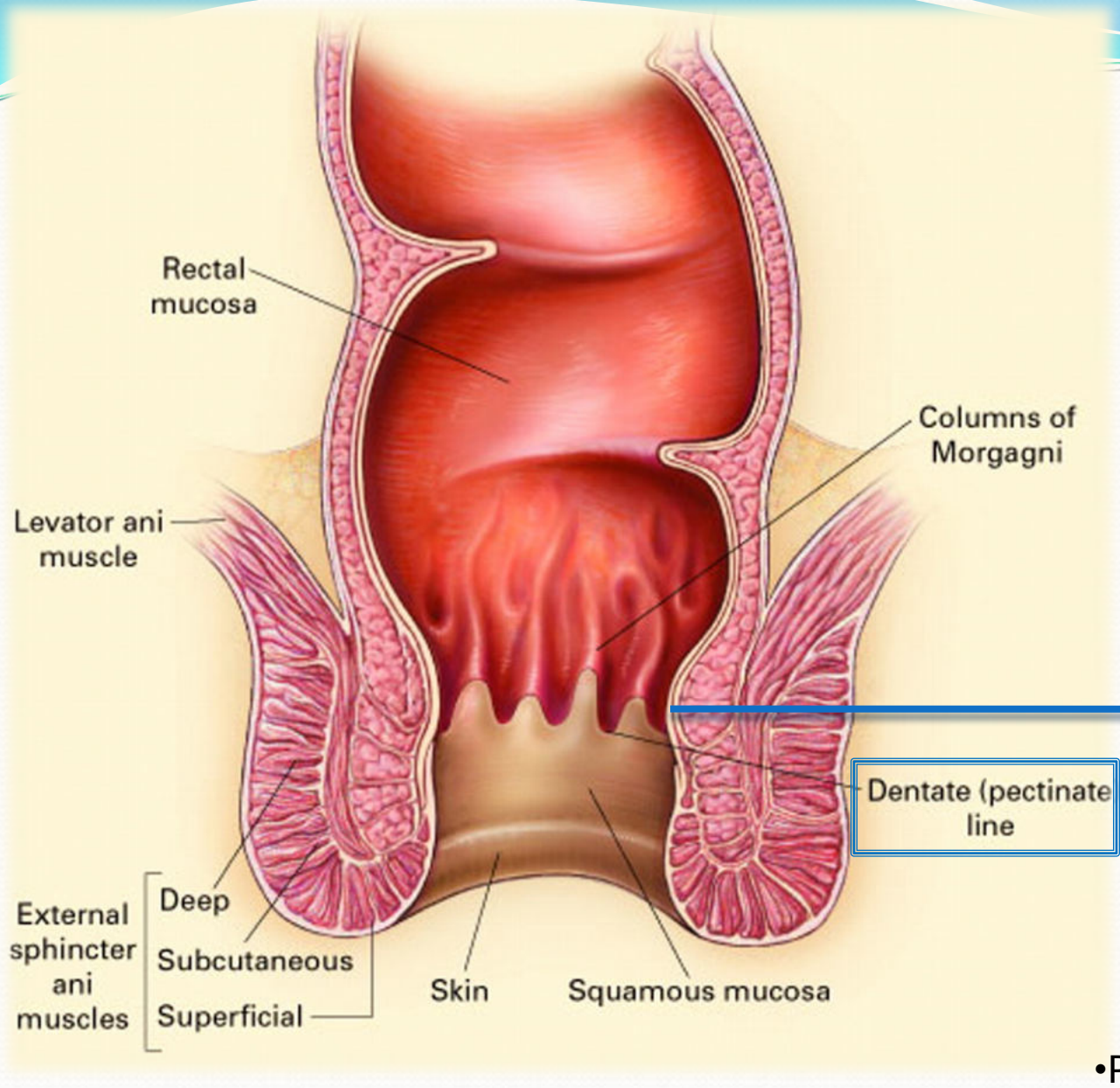
Anal canal

Anal verge

Lymphatic drainage

Above dentate: Inf. Mesenteric

Below dentate: internal iliac



•Pain?
-> painless
•Bright red bleeding
•Prolapse associated with defecation

Internal

External

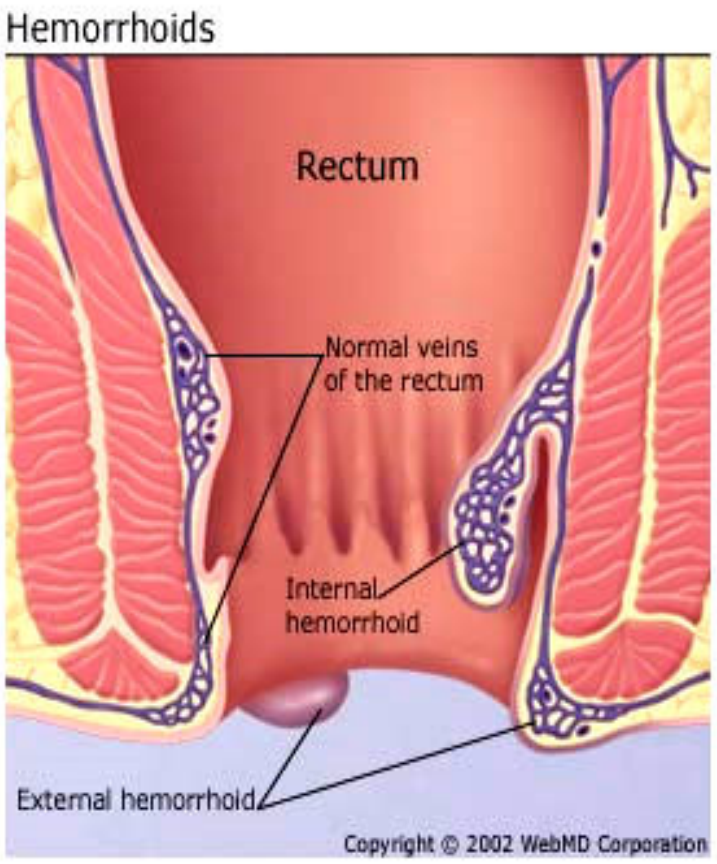
•Anoderm
•Swell, discomfort, difficult hygiene

•Pain?
-> Thrombosed

Background

- They are part of the normal anoderm cushions
- They are areas of vascular anastamosis in a supporting stroma of subepithelial smooth muscles.
- The contribute 15-20% of the normal resting pressure and feed vital sensory information .
- 3 main cushions are found
  - L lateral
  - R anterior
  - R posterior

  This combination is only in 19%
- But can be found anywhere in anus
- Prevalence is 4%
- Miss labelling by referring physicians and patients is common



Pathogenesis

Abnormal haemorrhoids are dilated cushions of arteriovenous plexus with stretched suspensory fibromuscular stroma with prolapsed rectal mucosa

3 main processes:

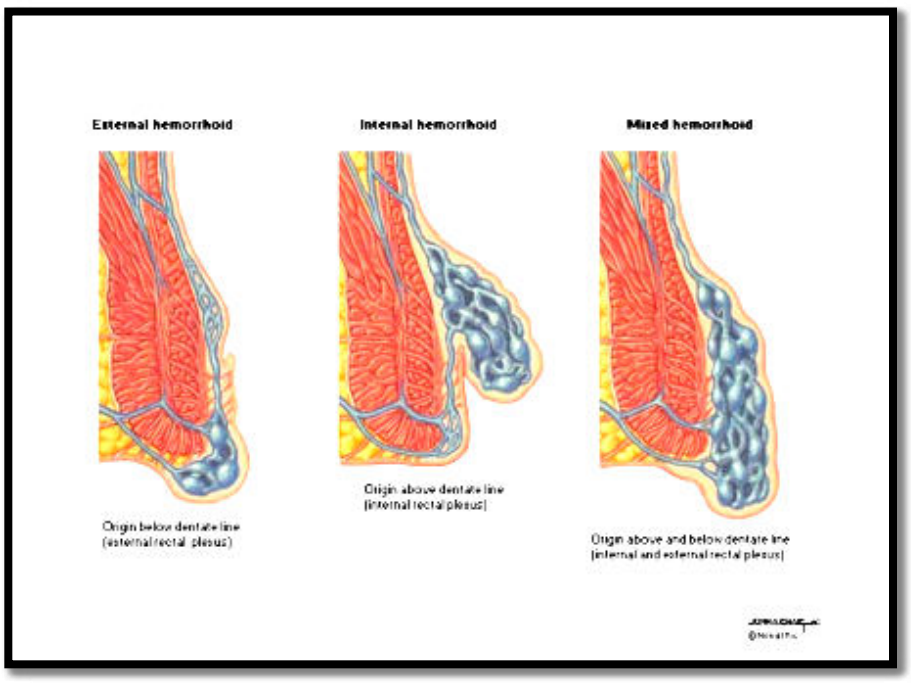
1. Increased venous pressure
2. Weakness in supporting fibromuscular stroma
3. Increased internal sphincter tone

Risk factors

Habitual	Pathological
1. Constipation and straining	1. Chronic diarrhea (IBD)
2. Low fibre high fat/spicy diet	2. Colon malignancy
3. Prolonged sitting in toilet	3. Portal hypertension
4. Pregnancy	4. Spinal cord injury
5. Aging	5. Rectal surgery
6. Obesity	6. Episiotomy
7. Office work	7. Anal intercourse
8. Family tendency	

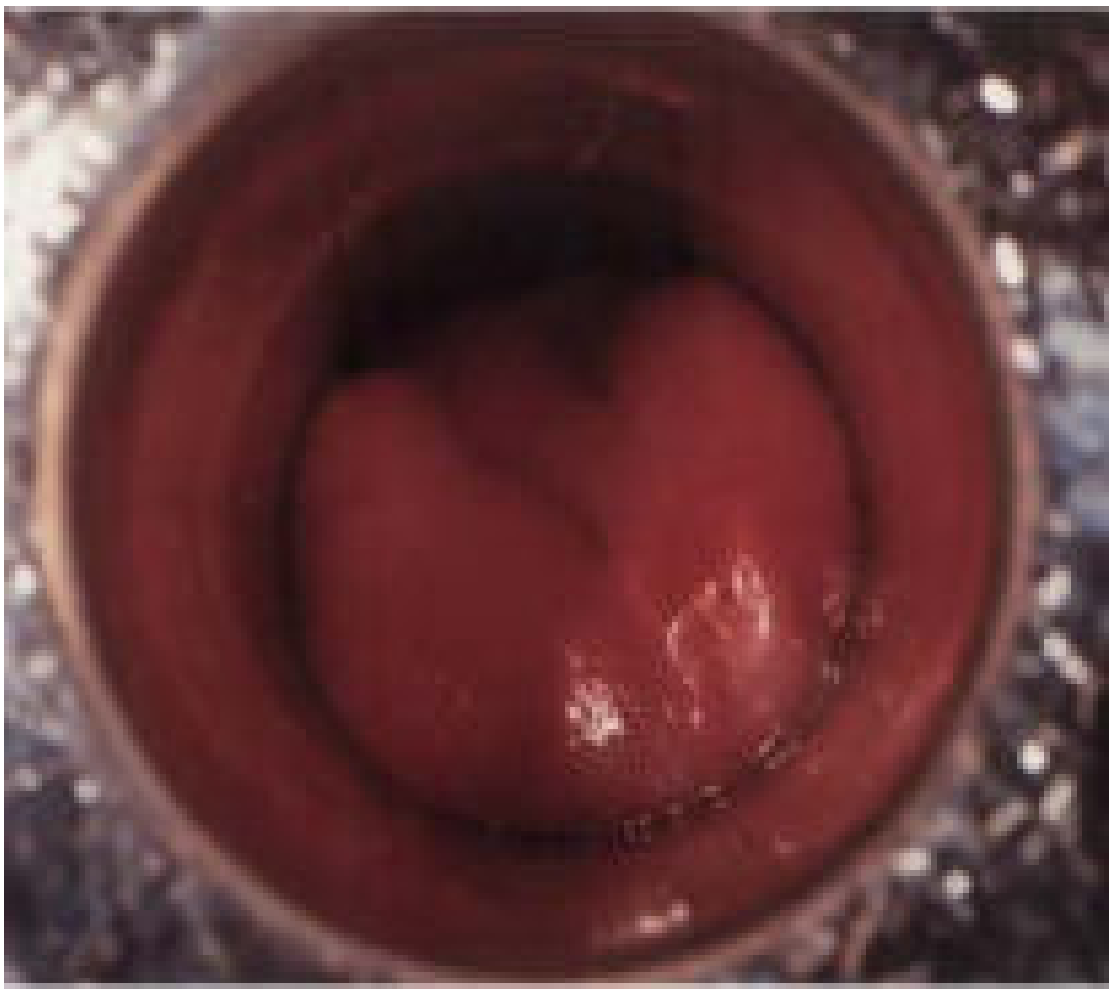
Classification

Origin in relation to Dentate line	Degree of prolapse through anus
1. Internal: above DL 2. External: below DL 3. Mixed	•1st: bleed but no prolapse •2nd: spontaneous reduction •3rd: manual reduction •4th: not reducable



Thrombosed external piles

First-degree internal piles viewed through anoscope



Second-degree internal prolapsed piles, reduced spontaneously

Third-degree internal prolapsed piles, requiring manual reduction

Fourth-degree strangulated internal and thrombosed external piles

Clinical assessment

History (Full history required)	Examination
Haemorrhoid directed: **•Pain acute/chronic/ cutaneous** **•Lump acute/ sub-acute** **•Prolapse define grade** **•Bleeding fresh, post defecation** **•Pruritis and mucus** **General GI:** **•Change in bowel habit** **•Mucus discharge** **•Tenasmus/ back pain** **•Weight loss** **•Anorexia** **•Other system inquiry**	Local •Inspect for: –Lumps, note colour and reducability –Fissures –Fistulae –Abscess •Digital: –Masses –Character of blood and mucus •Perform proctoscopy and sigmoidoscopy General abdominal examination

Investigations

The diagnosis of haemorrhoids is based on clinical assessment and proctoscopy

Further investigations should be based on a clinical index of suspicion

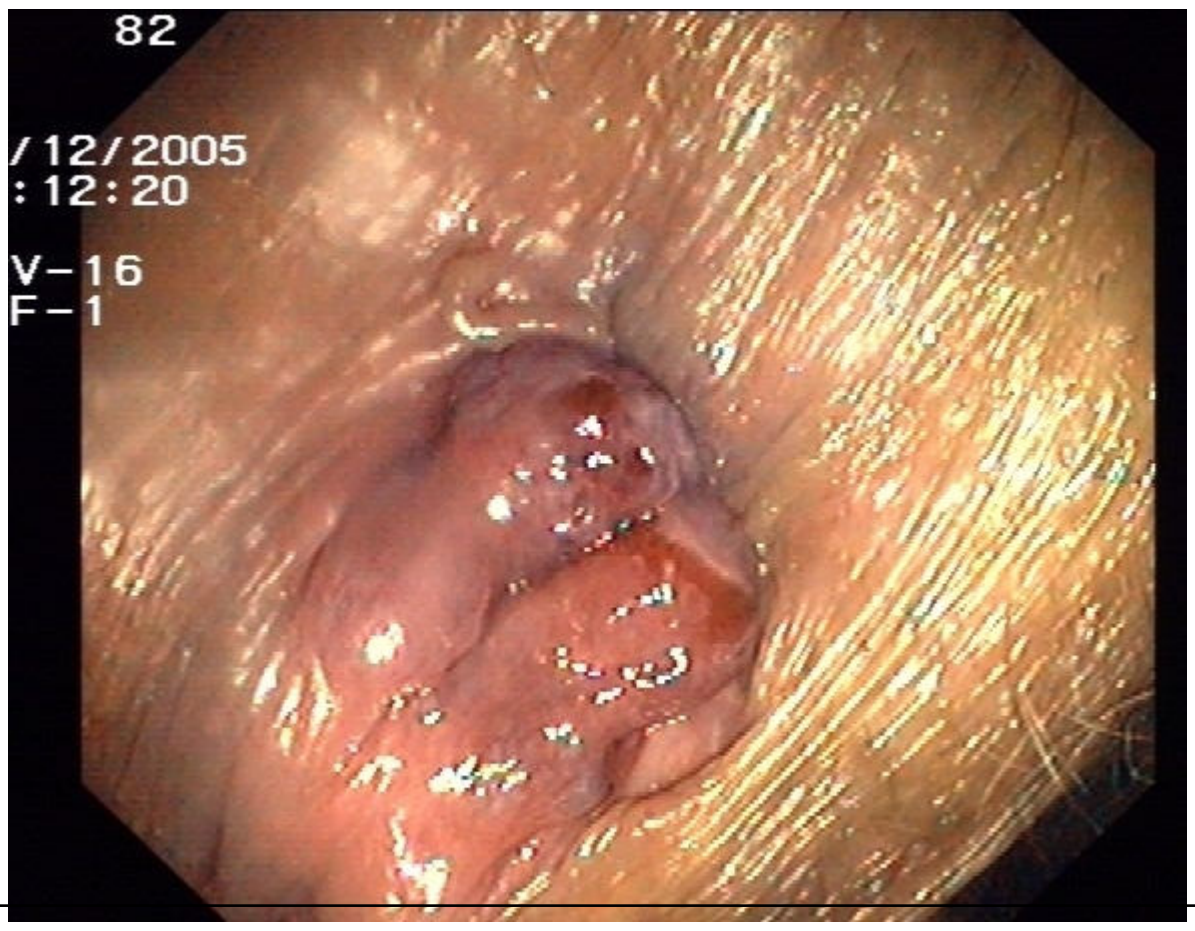
- **Lab: CBC / Clotting profile/ Group and save**
- **Proctography: if rectal prolpse is suspected**
- **Colonoscopy: if higher colonic or sinister pathology is suspected**

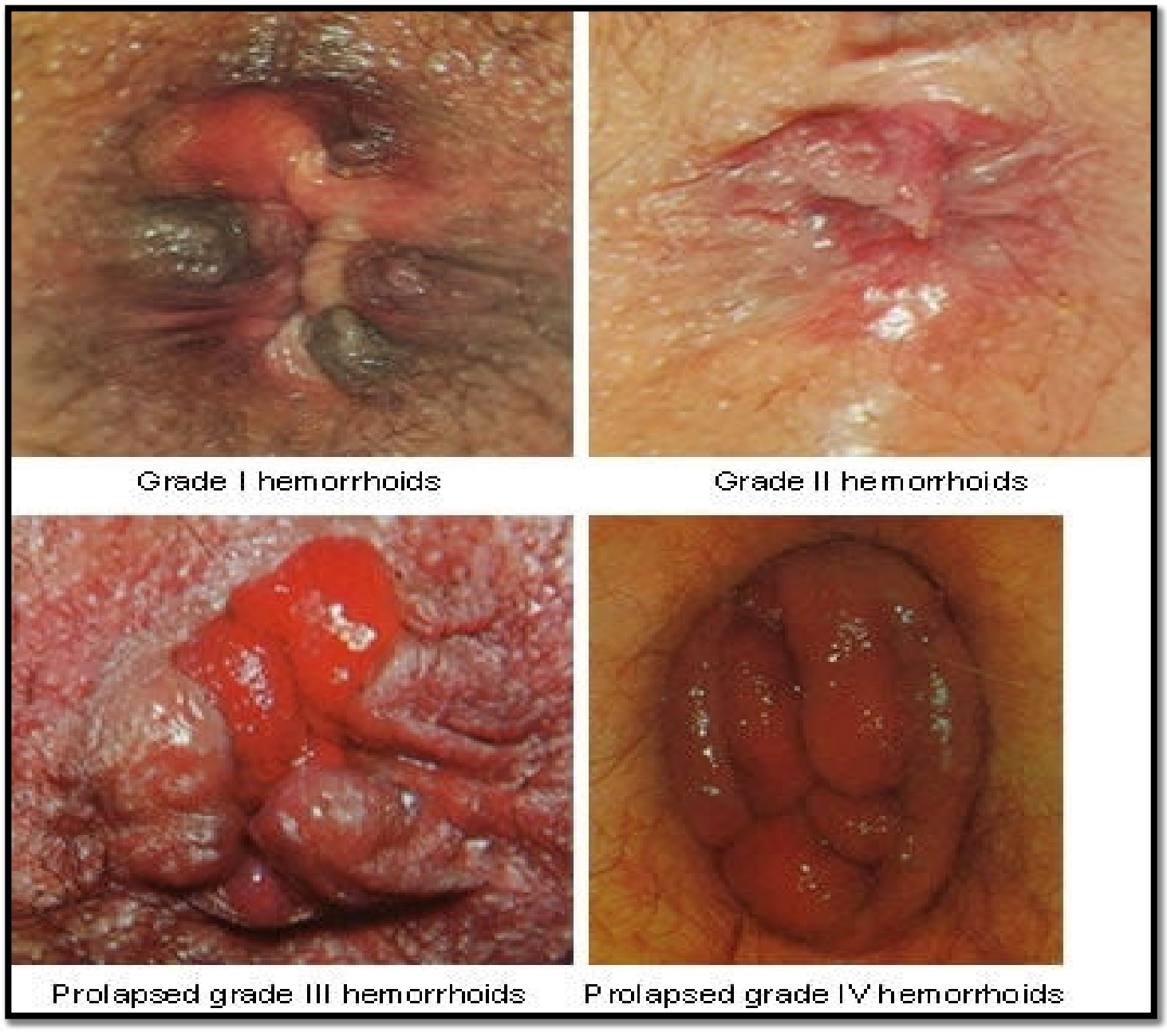
Complications

1. Ulceration
2. Thrombosis
3. Sepsis and abscess formation
4. Incontinence

Thrombosed internal haemorrhoids

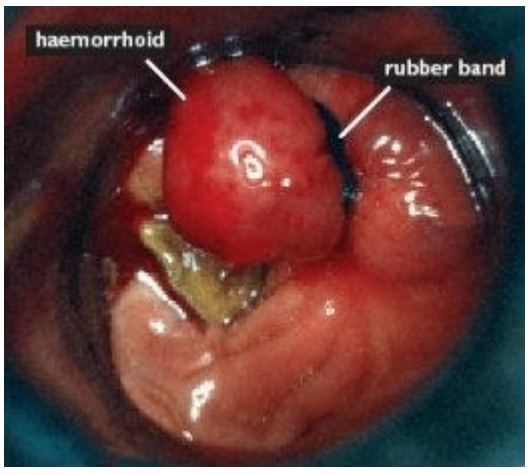
Thrombosed external haemorrhoids

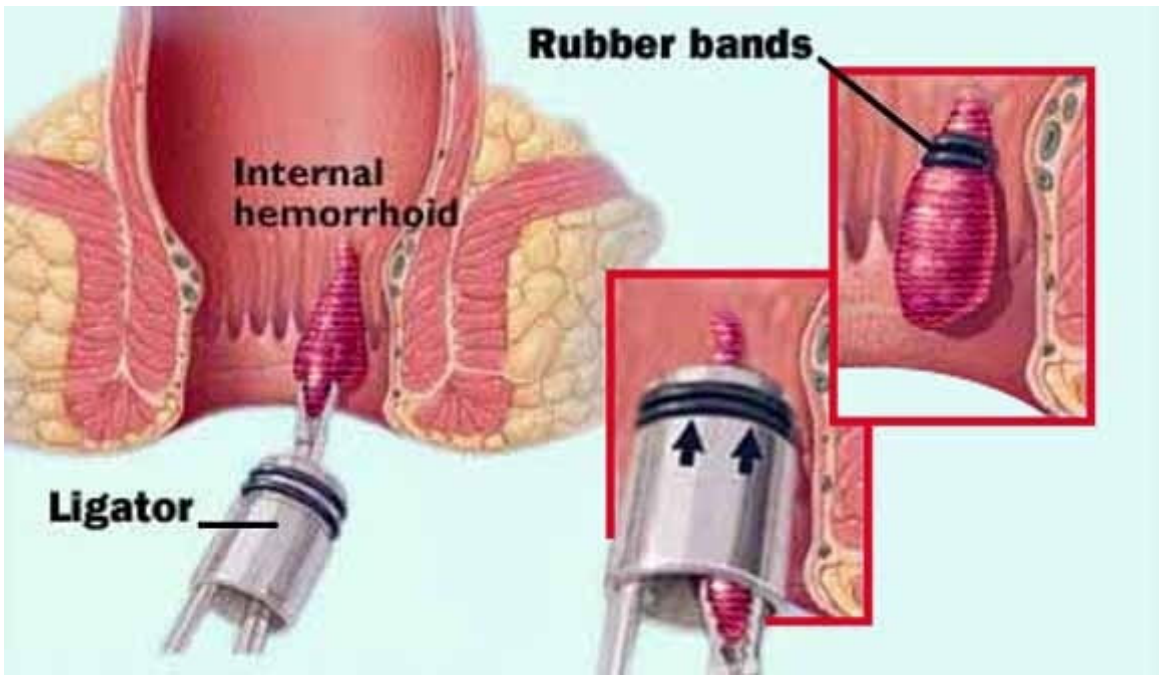


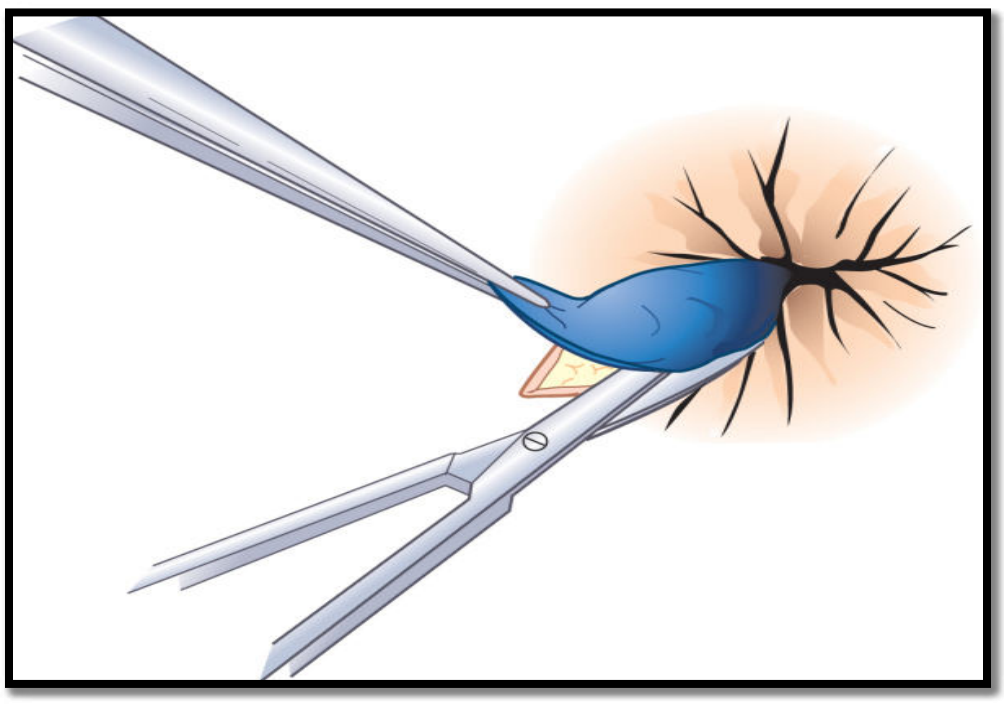


Internal Haemorrhoids Treatment

Conservative Measures	**Grade 1&2** • Dietary modification: high fibre diet • Stool softeners • Bathing in warm water • Topical creams NOT MUCH VALUE
Minimally invasive	**Indicated in failed medical treatment and grades 3&4** • injection sclerotherapy • Rubber band ligation • Laser photocoagulation • Cryotherapy freezing • Stapled haemorrhoidectomy
Surgical	**Indications:** 1. Failed other treatments 2. Severely painful grade 3&4 3. Concurrent other anal conditions 4. Patient preference

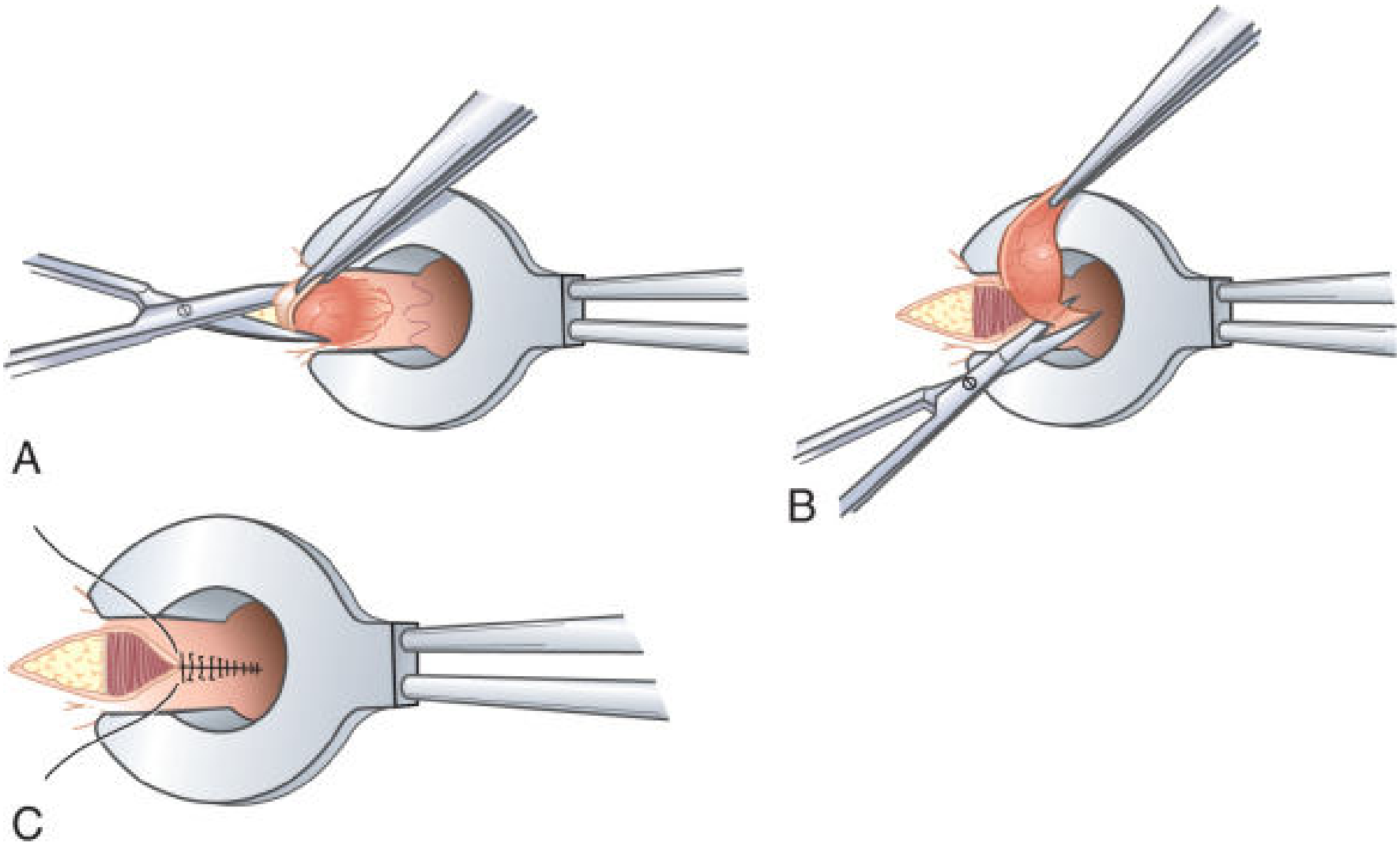




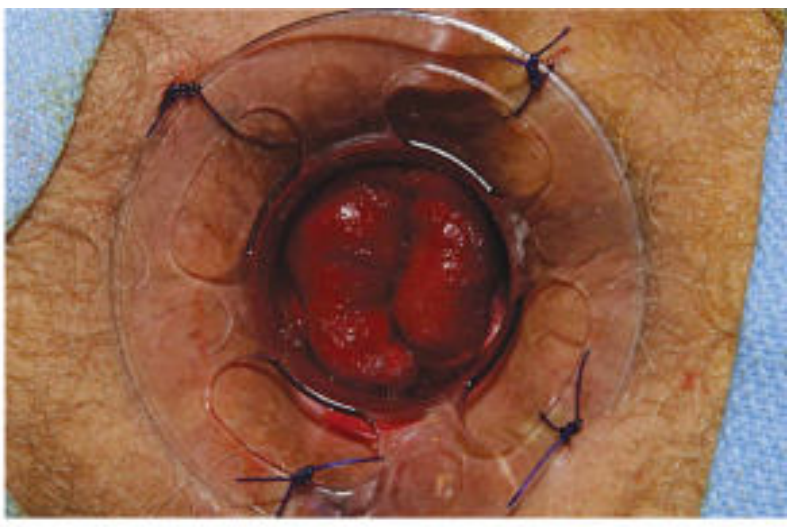


Excision of thrombosed external hemorrhoid.

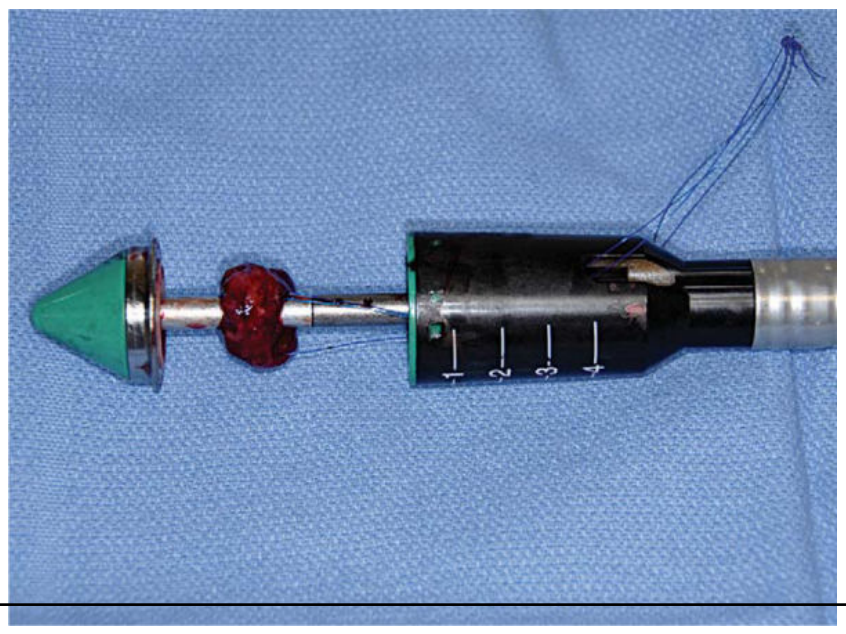
Closed hemorrhoidectomy



Grade 4 hemorrhoid before reduction



Placement of stapling device obturator



Stapling device

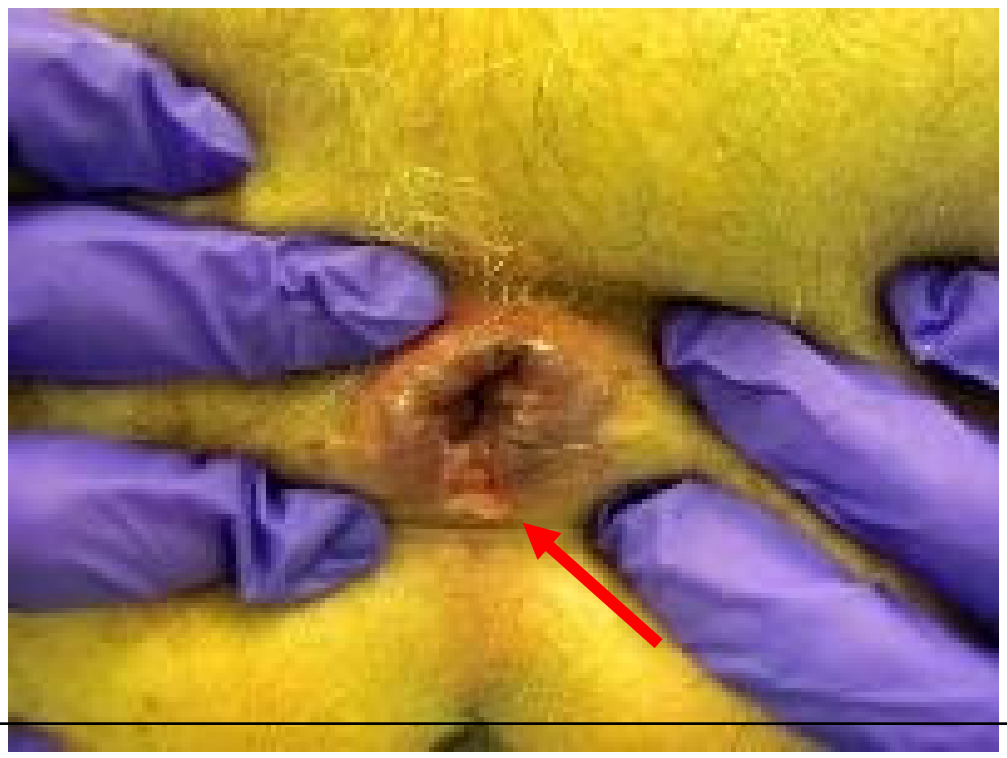
External Haemorrhoids Treatment

- If presentation less than 72 hours:
  - Enucleate under LA or GA
  - Leave wound open to close by secondary intension
  - Apply pressure dressing for 24 hours post op
- If more than 72 hours:
  - Conservative measures

Anal Fissure

Linear tears in the anal mucosa exposing the internal sphincter

90% are posterior



- Young & middle aged adults
- Male = Female
- Location – posterior midline (most common)

  Anterior midline fissures – more common in females
- In any event, length of each fissure is remarkably constant, extending from the dentate line to the anal verge and corresponding roughly to the lower half of the internal sphincter

Pathology

- Acute fissures – heal promptly with conservative treatment
- Secondary changes if present, it does not heal readily
  - Sentinel pile
  - Hypertrophied anal papilla
  - Long standing
    - Fibrous induration in lateral edges of fissure
    - Fibrosis at the base of ulcer (internal sphincter)
  - At any stage
    - Frank suppuration – intersphincteric / perianal abscess

Etiology

- Initiation – trauma
- Why midline posterior fissures are more common?
- Dietary factors
  - Decreased risk – raw foods, vegetables, whole grain bread
  - Increased risk – white bread sausages etc.
- Secondary fissure
  - Crohn's disease
  - Previous anal surgery, especially hemorrhoidectomy
  - Fistula-in-ano surgery
  - Anterior fissure in females resulting from childbirth
  - Long standing loose stools with chronic laxative abuse

- Initiation – trauma
- Perpetuation of fissure – abnormality of internal anal sphincter
- Higher resting pressure within the internal anal sphincter in pts with fissures than in normal control
- Rectal distension → reflex relaxation of internal anal sphincter → overshoot contractions in these patients → sphincter spasm and pain
- Elevated sphincter pressures cause ischemia of the anal lining resulting in pain and failure to heal
- Posterior commissure perfused more poorly than the other portion of the anal canal

Clinical Features

- **Pain and spasm**
  - Sharp, agonizing during defecation, recurrent, worsens constipation.
- **Bleeding**
  - In small amounts,
  - approximately 70% of patients note bright red blood on the toilet paper or stool
- **Discharge**
  - Irritation and pruritis ani due to malodorous discharge of the pus
- **Constipation**

Painless non-healing fissure with occasional bleed – may be a progenitor of IBD

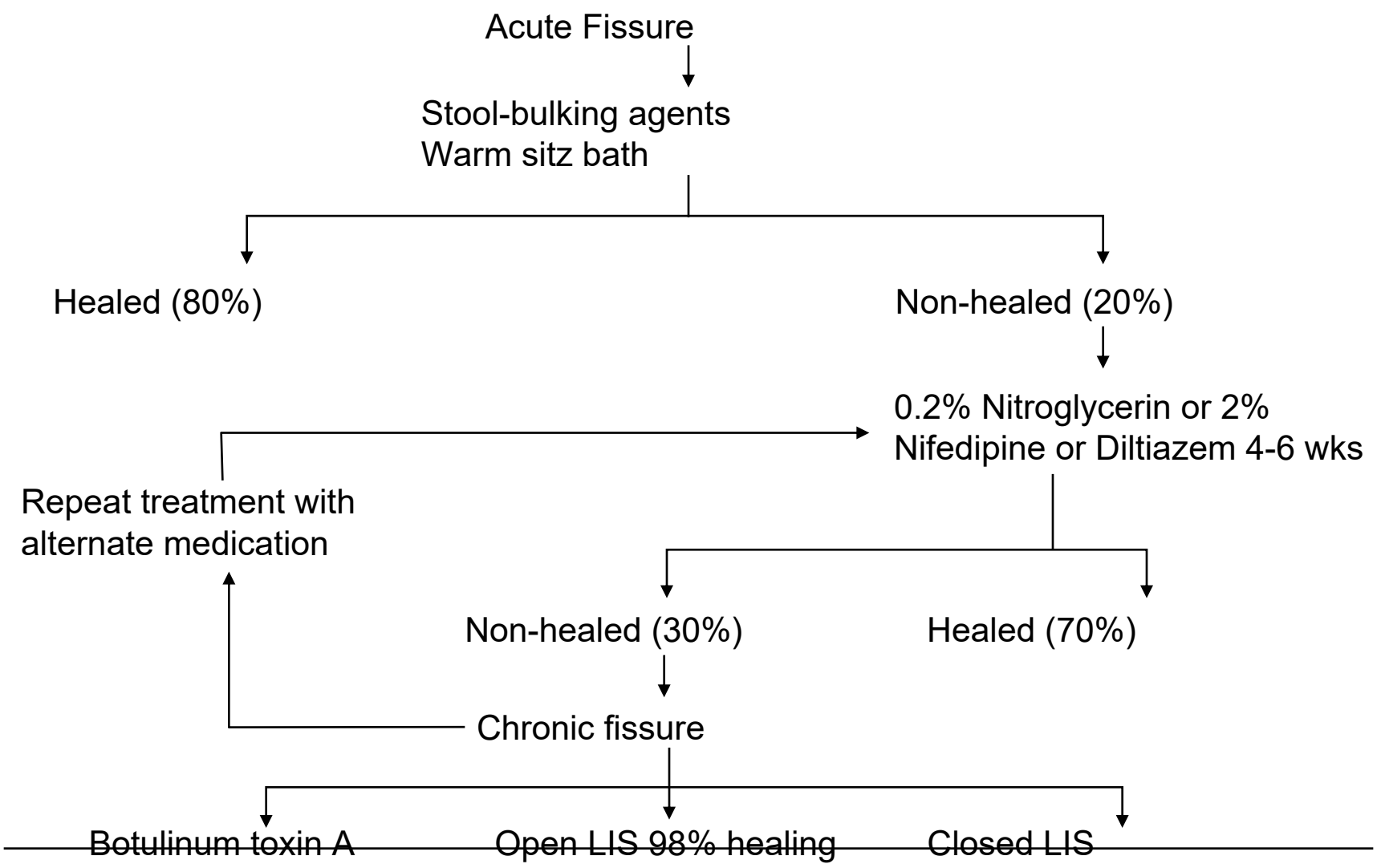
Diagnosis

- Inspection – Acute fissure is seen as Linear tear
  - most important
- Palpation
- Anoscopy
- Sigmoidoscopy
- Biopsy

Differential diagnosis

- Anorectal suppuration
- Pruritus ani
- Fissure in inflammatory bowel disease
- Carcinoma
- Syphilitic fissures
- Tuberculous ulcer
- Anal abrasion

Treatment



Acute anal fissure:

- Spontaneous healing, High fiber diet, adequate water intake and warm sitz bath, stool softener/bulk laxative, suppositories
- Sodium tetradecyl sulphate

- Chronic anal fissure:
  - Conservative
  - Surgical

Pharmacological Sphincterotomy

- Pharmacological manipulation of anal sphincter tone as an alternative modality to surgery for the treatment of anal fissure

- Shares the same goal as lateral sphincterotomy without its possible long-term side effects

- Pharmacological agents lower anal canal resting pressure producing chemical sphincterotomy without causing permanent damage to the anal sphincter mechanism

- **By enhancing internal anal sphincter (IAS) relaxation via**
  - **nitric oxide donation**
  - **intracellular Ca2+ depletion**
  - **muscarinic receptor stimulation**
  - **adrenergic inhibition**

- **This improves blood supply at the site of the fissure that would promote healing of anal fissures**

- **Nitric oxide donors and calcium channel blockers, agents that directly reduce resting anal pressure, has now largely replaced traditional surgical methods as first-line treatment for chronic anal fissure**

Other Agents

- Botulinum Toxin A
- L-arginine
- Gonyautoxin
- Topical sildenafil