

# Anorectal Conditions

● **Important**

● Notes (Doctors'/students')

**431**

**SURGERY TEAM**

*Done By:*

Tarfah Al-  
Obaidan



*Revised By:*

Mohammed  
Alshammari

*Leaders*

Abeer Al-Suwailem

Mohammed Alshammari

## Important to know from anatomy:

Internal sphincter: smooth muscle (muscle in the wall of any bowel "inner or circular muscles")-involuntary. Help to control gas.

External sphincter: Puborectalis muscle. Help to control solid (Stool) or liquid.

Dentate line (pectinate): mucosa above (columnar) different than mucosa below (Squamous). In the middle (anal transition zone).

Nerve supply:

Above dentate line → visceral.

Below dentate line → somatic.

The importance is the sensation of pain.

Another important thing in the dentate line is the glands (6-15).

## HEMORRHOIDS

\*Hemorrhoids are normal structures in our bodies that help in controlling the continence (part of continence mechanism). When these hemorrhoids get diseased and the symptoms start appear, they called diseased hemorrhoids. Each person has hemorrhoid.

\*Location of hemorrhoids: right anterior (11), right posterior (7) and left lateral (3) positions.

### CLASSIFICATION:

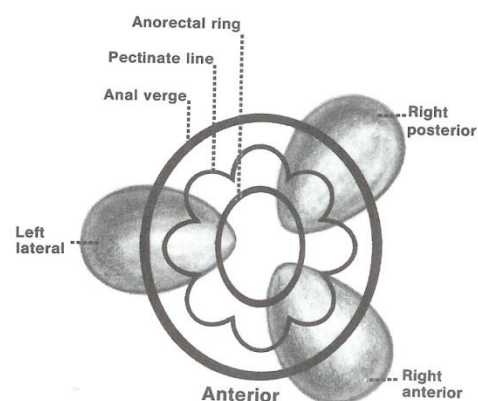
\*Those originating above the **dentate line** (**pectinate**) called internal (will never get pain unless it is ischemic or distended).

When it becomes larger it goes out → prolapsed or bleeding. That is the only symptoms from internal hemorrhoid unless it gets out and strangulated → ischemia → they will feel pain.

\*Those originating below the dentate line called external. Main symptom → lump and sever pain. Rarely the thrombus will rupture → bleeding.

Why would hemorrhoids get diseased?

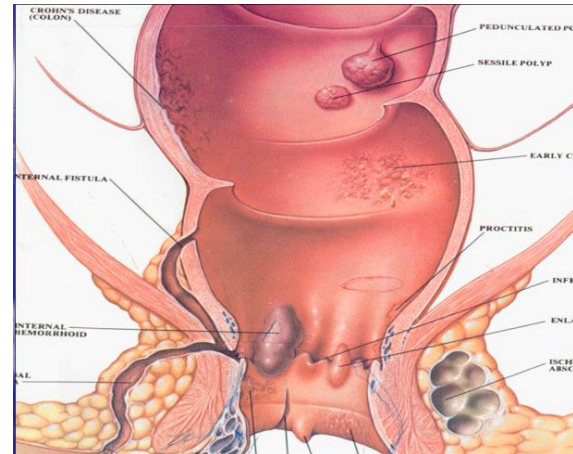
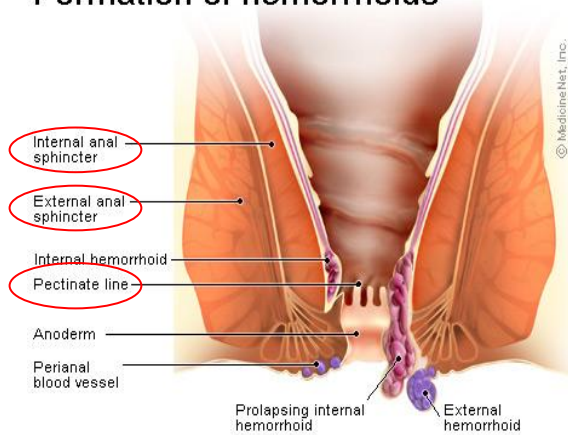
Internal component: constipation → straining → increase intrabdominal pressure → increase pressure inside pelvis → decrease venous return → congestion (engorgement) → repeated attacks → vessel dilated and become bigger → either of these two situations will



happened: 1- rupture and bleed or 2- Become prolapsed. (Internal component) (Pathophysiology of hemorrhoids).

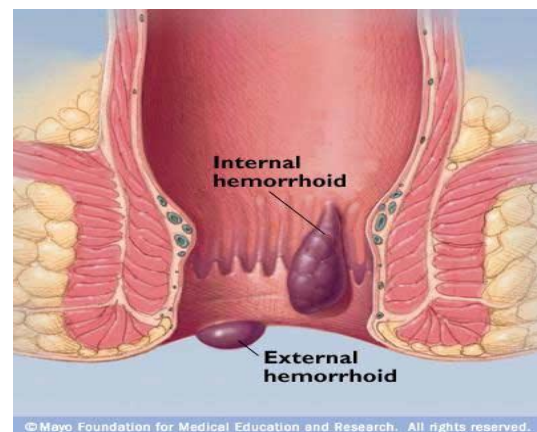
External hemorrhoids: with external engorgement and limited space. Also, they covered by squamous epithelium and skin → thrombosis → pain (because the nerve supply is somatic).

### Formation of hemorrhoids



### PATHOPHYSIOLOGY:

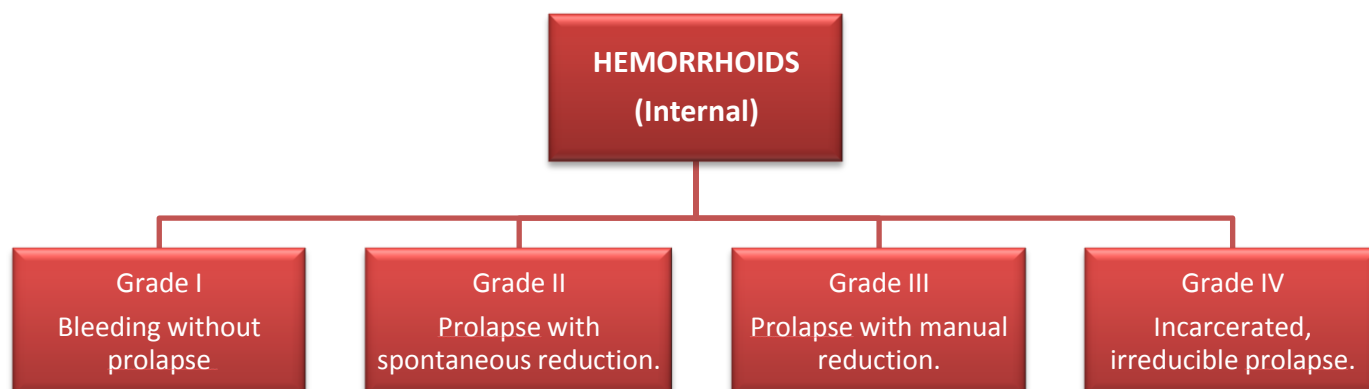
- \*Represent engorgement or enlargement of the normal fibrovascular cushions lining the anal canal.
- \*Chronic straining secondary to constipation or occasionally diarrhea
- \*Fibrovascular cushions lose their attachment to the underlying rectal wall.
- \*Prolapse of internal hemorrhoidal tissue through the anal canal.
- \*The overlying mucosa becomes more friable and the vasculature increases.
- \*With overlying thinning of the mucosa and vascular engorgement, subsequent rectal bleeding occurs.



### CLASSIFICATION

Classified by **history and not by physical examination.**

There are no grades for external hemorrhoids.



### SYMPTOMS:

- \*Bright red blood per rectum or a prolapsing anal mass.
- \*With, or following, bowel movements, is almost universally bright red, and very commonly drips into the toilet water.
- \* Blood may also be seen while wiping after defecation.
- \*Prolepses usually occurs in association with a bowel movement,
- \*May also prolapsed during walking or heavy lifting as a result of increased intra-abdominal pressure.
- \*Extreme pain, bleeding and occasionally signs of systemic illness in case of strangulation.

### PHYSICAL EXAMINATION:

- \*Patients should be examined in the left lateral decubitus position
- \*Any rashes, condylomata, or eczematous lesions.
- \*External sphincter function.
- \*Any abscesses, fissures or fistulae.
- \*Lubricated finger should be gently inserted into the anal canal while asking the patient to bear down.
- \*The resting tone of the anal canal should be ascertained as well as the voluntary contraction of the puborectalis and external anal sphincter.
- \*Masses should be noted as well as any areas of tenderness.

\*Internal hemorrhoids are generally not palpable on digital examination.

\*Anoscopy is performed.

\*The side viewing anoscope should be inserted with the open portion in the right anterior then right posterior and finally the left lateral position

\*Hemorrhoidal bundles will appear as bulging mucosa and anoderm within the open portion of the anoscope.

### EVALUATION OF RECTAL BLEEDING:

\*Rule out rectal cancer.

\*Young individual with bleeding associated with hemorrhoidal disease and no other systemic symptoms, and no family history, perhaps anoscopy and rigid sigmoidoscopy

\*Older individual, with either a family history of colorectal cancer, or change in bowel habits, a complete colonoscopy should be performed to rule out proximal neoplasia.

### TREATMENT:

How do we treat hemorrhoids? We have to document the presence of hemorrhoids by history and physical examination. Part of physical examination → inspection for any prolapse or external thrombosed hemorrhoids → do rectal exam (to rule out malignancy or any mass) you will never be able to feel hemorrhoids because they are so soft → then put Proctoscope and look for hemorrhoids → If it is bleeding → rule out some diseases.

We classified the patients into two groups according to their risk of cancer:

Low risk: <50 + no family history → sigmoidoscopy (look for first 25-30 cm of large bowel (rectum+ sigmoid colon)

High risk: elderly (age >50) + family history → do full colonoscopy to rule out more proximal source of bleeding other than hemorrhoids.

\*Varies from simple reassurance to operative hemorrhoidectomy.

\*Treatments are classified into three categories:

## 1) Dietary and lifestyle modification:

- \*The main goal of this treatment is to minimize straining at stool.
- \*Achieved by increasing fluid and fiber in the diet, recommending exercise, and perhaps adding fiber agents to the diet such as psyllium. We might add laxatives in severe constipation but for short period.
- \*If necessary, stool softeners may be added.
- \*"you don't defecate in the library so you shouldn't read in the bathroom".

## 2) Non operative/office procedures:

RUBBER BAND LIGATION	<ul style="list-style-type: none"> <li>• Grade I or Grade II hemorrhoids and, in some circumstances, Grade III hemorrhoids.</li> <li>• Complications include bleeding, pain, thrombosis and life threatening perineal sepsis.</li> <li>• Successful in two thirds to three quarters of all individuals with first and second degree hemorrhoids.</li> <li>• Bayer, Myslovaty, and Picovsky followed 2,934 patients banded over a 12 year period.</li> <li>• Seventy-nine percent required no further therapy, while eighteen percent required repeat banding due to recurrence.</li> <li>• Hemorrhoidectomy was necessary in 2.1% related to persistent symptoms.</li> </ul>
INFRARED COAGULATION	<ul style="list-style-type: none"> <li>• Generates infrared radiation which coagulates tissue protein and evaporates water from cells.</li> <li>• Is most beneficial in Grade I and small Grade II hemorrhoids.</li> </ul>
BICAP ELECTROCOAGULATION	<ul style="list-style-type: none"> <li>• It works, in theory, similar to photocoagulation or to rubber banding.</li> <li>• The probe must be left in place for ten minutes.</li> <li>• Poor patient tolerance minimized the effect of this procedure.</li> </ul>
SCLEROTHERAPY	<ul style="list-style-type: none"> <li>• Injection of an irritating material into the submucosa in order to decrease vascularity and increase fibrosis.</li> <li>• Injecting agents have traditionally been phenol in oil, sodium morrhuate, or quinine urea.</li> </ul>
MANUAL ANAL DILATATION	<ul style="list-style-type: none"> <li>• was first described by Lord .</li> </ul>
CRYOTHERAPY	<ul style="list-style-type: none"> <li>• was used in the past with the belief that freezing the apex of the anal canal could result in decreased vascularity and fibrosis of the anal cushions.</li> </ul>

3) Operative hemorrhoidectomy (Surgical Treatment of Hemorrhoids “Hemorrhoidectomy”). (Doctor mentioned that he will not go through the surgical treatment)

\*The triangular shaped hemorrhoid is excised down to the underlying sphincter muscle.

\*Wound can be closed or left open

\*Stapled hemorrhoidectomy has been developed as an alternative to standard hemorrhoidectomy.

---

## ANAL FISSURE

\*Fissure is a tear in the anal canal extending from just below the dentate line to the anal verge.

\*Most commonly in young and middle age adults.

\*The cardinal symptom is pain during and for minutes to hours following defecation. (Patient will present with sharp sever pain “especially when they want to go to the wash room + bleeding).

\*Bright red blood is common.

\* Over 90% of anal fissures are located in the posterior midline. (in female and 10% somewhere else. In male 99% posterior and 1% somewhere else). Why they are posterior? Because the least blood supply area is the posterior midline.

\* Almost all the rest located in the anterior midline.

\*The acute fissure (red floor) is a "mere crack" in the anoderm.

\*Distal sentinel tag, a proximal hypertrophied anal papilla, fibrotic edges, and exposed internal sphincter fibres (Floor white) are features of chronicity.

## ETIOLOGY AND PATHOGENESIS:

Pathophysiology : constipation → straining → increase pressure inside → hypertrophy of the muscles → decrease blood supply → ischemia → slapping of the lining anoderm → anal fissure =>

Pain and blood => patient don't want to go to the bathroom because of the pain

=> more constipation "because the fluid will be absorbed from the stool !!" => the patient eventually will defecate HARD stool => Physical trauma => MORE fissure and more pain and so on in this vicious cycle.

- \*The initiating factor is trauma, typically overstretching of the anoderm by a large hard stool.
- \*The proposed explanation for the posterior midline predominance is a lack of tissue support and maximal stretching at this site.
- \*Failure to heal is secondary to poor perfusion of the anoderm in the posterior midline.
- \*Posterior midline ischaemia is the result of arterial anatomy and internal anal sphincter hypertonicity.

### TREATMENT:

Inspection → Physical examination → you should be careful when you do digital exam (scope) because it is very painful. Usually just by inspection you can see the fissure. Treat them like hemorrhoids (blood forming agent, lots of fluids and high fiber diet). The problem is ischemia → how can we improve the blood supply → by applying vasodilators GTN ointment or use Ca<sup>++</sup> channel blockers in the area locally → dilate blood vessel → more blood supply → fissure will heal. 95% of acute fissure will heal with this medication and reverse of constipation. In chronic fissure only 50% will respond so we should do second step which is surgery (decrease pressure inside by making the muscle relax "sphincterotomy"). Botox injection will relax sphincter "medical sphincterotomy" → 40-50% patients will respond. If they don't respond, we go to surgical option → cut internal sphincter. There will be risk of incontinence (contenance mainly when we cut external sphincter and it depends how much of sphincter we cut). By cutting the whole sphincter 100% they will get gas incontinence. The surgeons cut only the lower third of the sphincter.



\*Warm baths and a diet sufficiently high in fiber to achieve soft bulky stool allows approximately 50% of acute anal fissures to heal within three weeks.

\*Stool softeners and fiber supplements are reasonable additions.

\*Recurrence is common, in the range of 30 - 70%, but can be reduced to 15 - 20% by maintaining a high fiber diet.

<b>Acute Fissure (within 6 weeks)</b> <b>Topical Application</b>	<b>Chronic Fissure (&gt; 6 weeks)</b>
Nitric oxide has been identified as the chemical messenger of the intrinsic non-adrenergic, non-cholinergic pathway mediating relaxation of the internal anal sphincter.	Topical Nitroglycerin: At eight weeks healing was observed in 68% of the GTN
Topical application of nitroglycerin, a nitric oxide donor, causes a transient lowering of resting anal pressure and an increase in anodermal blood flow.	Botulinum Toxin: Botulinum toxin has been injected into the external and internal sphincters and, with short term follow up, healing rates of 80% have been achieved.
A 92% healing rate within two weeks for acute fissures treated with application of 0.2% glyceryl trinitrate ointment t.i.d.	Are unlikely to heal with warm baths and a high fiber diet.
Topical calcium channel blockers (2% diltiazem, 0.3% nifedipine) .	Internal Sphincterotomy : Lateral internal sphincterotomy (LIS) achieves healing in over 95% within several weeks
Heal 65-95% of fissures. The most common side effects are headache, flushing, and symptomatic hypotension.	Anal Dilatation.

## ANORECTAL ABSCESES AND FISTULA-IN-ANO

\*Both abscess and fistula-in-ano can be considered simultaneously.

\*The abscess is an acute manifestation, and the fistula is a chronic condition.

### ETIOLOGY:

\***Nonspecific:** 90%

Cryptoglandular in origin. 90% of perianal abscess due to Cryptoglandular.

\***Specific:** 10% of causes

Crohn's - Ulcerative colitis - TB - Actinomycosis - Carcinoma – Trauma - Radiation - Foreign body - Lymphoma - Pelvic - inflammation - Leukemia

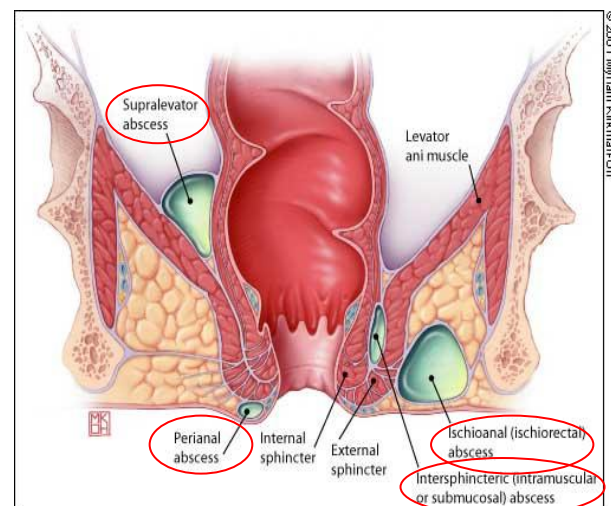
If any gland was blocked  
→ collection → ducts will be obstructed → secretion will be accumulated in the ducts.

### PATHOGENESIS:

The *cryptoglandular* hypothesis states that infection of the anal glands associated with the anal crypts is the primary cause of anal fistula and abscess.

### CLASSIFICATION:

- 1-Supralelevator abscess.
- 2-Perianal abscess.(common type)
- 3-Intersphincteric (intramuscular or submucosal) abscess.
- 4-Ischioanal (ischioirectal) abscess.



**Parks Classification of Fistula-in-Ano\***



**Intersphincteric Fistulas**

- Simple low tract
- High blind tract
- High tract with rectal opening
- Rectal opening without a perineal opening
- Extrarectal extension
- Secondary to pelvic disease

**Transsphincteric Fistulas**

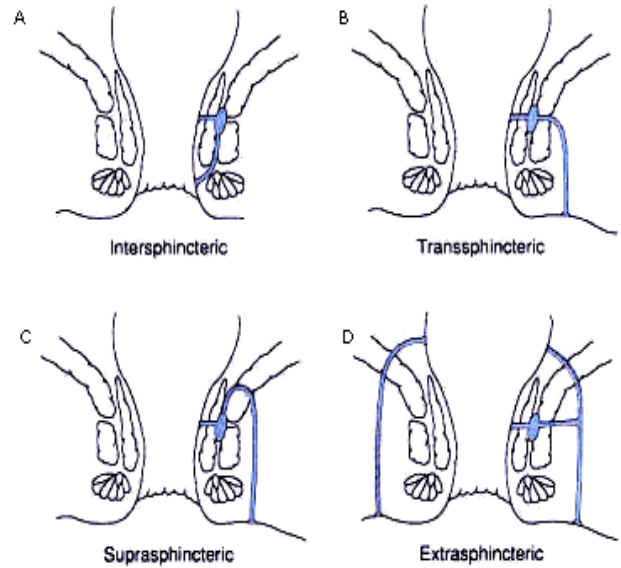
- Uncomplicated
- High blind tract

**Suprasphincteric Fistulas**

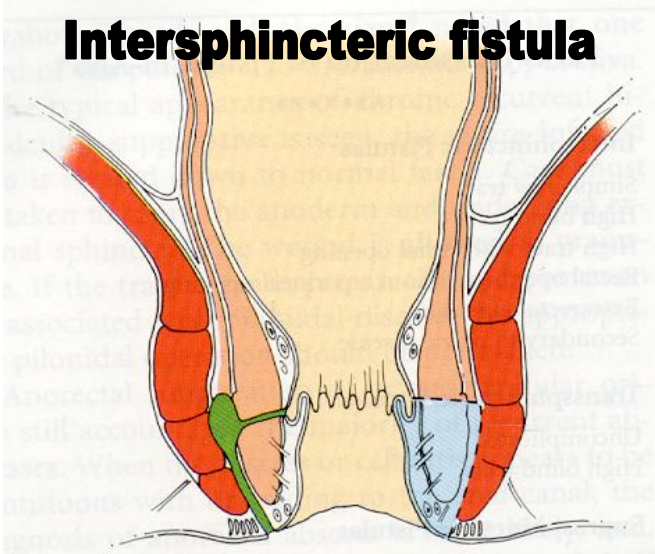
- Uncomplicated
- High blind tract

**Extrasphincteric Fistulas**

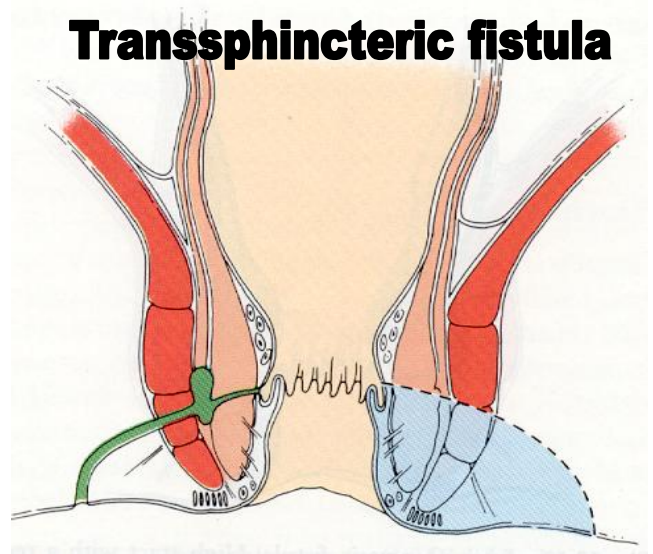
- Secondary to anal fistula
- Secondary to trauma
- Secondary to anorectal disease
- Caused by pelvic inflammation



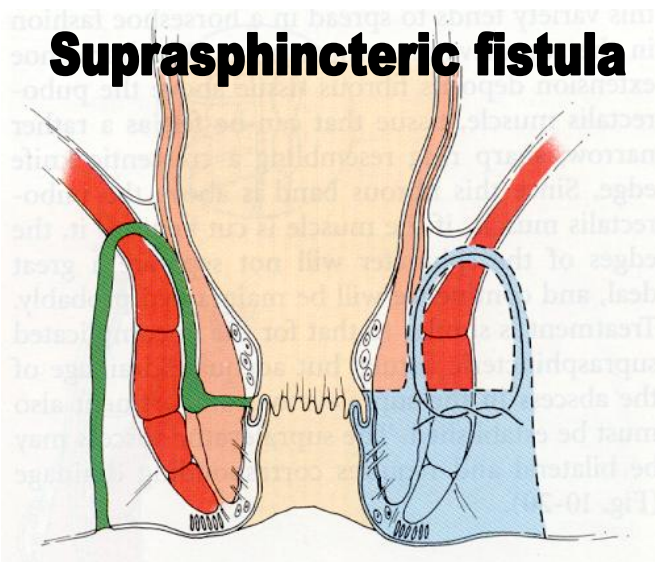
**Intersphincteric fistula**



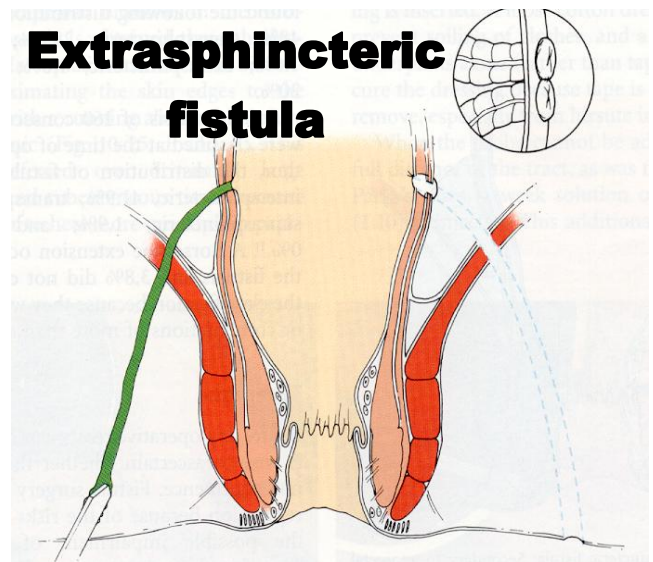
**Transsphincteric fistula**



**Suprasphincteric fistula**



**Extrasphincteric fistula**



## Symptoms:

The main symptom is painful swelling + discharge (if it is large abscess and rupture spontaneous “pain will disappear or it will decrease”).

Systemic manifestation if the abscess for long time, very aggressive bacteria or huge abscess (rare).

## Evaluation of Anal Fistula:

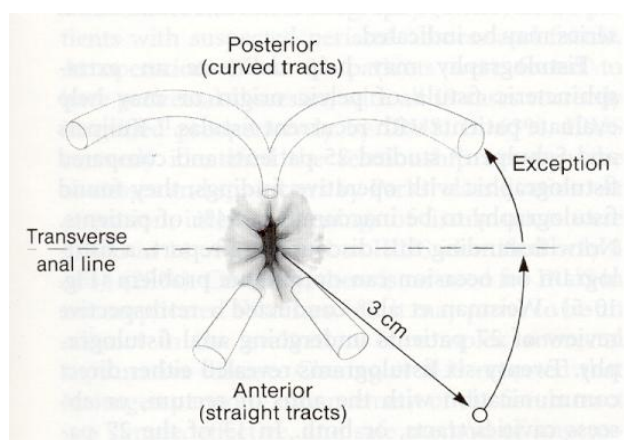
\*An accurate preoperative assessment of the *anatomy* of an anal fistula is very important.

\*Five essential points of a clinical examination of an anal fistula (it is also important in the treatment):

- (1) Location of the *internal* opening → by physical examination 80% (If you can't → do MRI, US or fistulogram).
- (2) Location of the *external* opening → see it by eyes.
- (3) Location of the *primary* track.
- (4) Location of any *secondary* track especially in patient who has previous surgery.
- (5) Relation of the tract to puborectalis muscle. (IMP)
- (6) Determination of the presence or absence of underlying disease.

IMP

## Goodsall's rule:



## TREATMENT:

\*The objective is to cure with lowest possible recurrence rate and minimal, if any, alteration in continence, shortest period.

\* The principles are:

- 1- Identification of the primary opening.
- 2- Relationship to puborectalis
- 3- Least amount of muscles should be divided.
- 4- Side tracts should be sought,
- 5- Presence of underlying disease.

\*In fistula, the patients should have a surgery.

\* For any abscess in the body incision and drainage.

\*Determine the tenderest point, a 2 cm area of skin is injected with local freezing.

\*Eliptical or cruciate incision.

\*Drainage of pus. Destroy all loculations.

### ANTIBIOTICS:

\* Immunosuppression.      \*Systemic manifestation.

\* Diabetics.                      \*Extensive disease

\* Valvular disease (patients who are at risk of infective endocarditis).

### Fistulotomy/fistulectomy:

\*The laying-open technique (fistulotomy) is useful for 85-95% of primary fistulae.

\*Curettage is performed to remove granulation tissue.

\*Marsupialization of the edges to improve healing times.

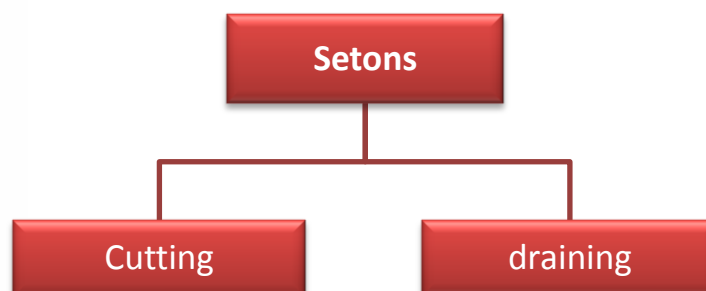
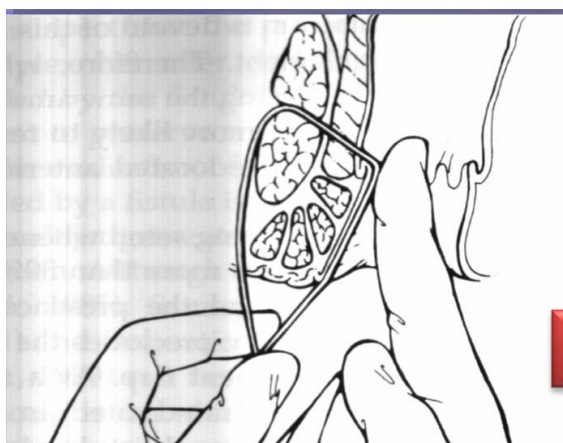
When we did incision and drainage → relieve the obstruction → created a fistula .

Fortunately, in 60% of patients the fistula will improves spontaneously.

40% of the patients will have chronic manifestations and fistula.

The aim is get rid of fistula and preserving the continence mechanism

## Setons in the Management of Difficult Fistulas:



### Summary:

\*Hemorrhoids are normal structures in our bodies that help in controlling the continence (part of continence mechanism). When these hemorrhoids get diseased and the symptoms start appear, they called diseased hemorrhoids.

\*There are internal and external hemorrhoids and they classified by history.

\* Main symptom → lump and sever pain. Rarely the thrombus will rupture → bleeding.

\*Pathophysiology: Internal component: constipation → straining → increase intrabdomenal pressure → increase pressure inside pelvis → decrease venous return → congestion (engorgement) → repeated attacks → vessel dilated and become bigger → either of these two situations will happened: 1- rupture and bleed or 2- Become prolapsed. (Internal component) (Pathophysiology of hemorrhoids). External hemorrhoids: with external engorgement and limited space. Also, they covered by sequamous epithelium and skin → thrombosis → pain (because the nerve supply is somatic).

\*Treatment:

- 1) Dietary and lifestyle modification.
- 2) Non operative/office procedures.
- 3) Operative hemorrhoidectomy

\* Fissure is a tear in the anal canal extending from just below the dentate line to the anal verge.

\* The cardinal symptom is pain during and for minutes to hours following defecation.

- \* Over 90% of anal fissures are located in the posterior midline.
- \* There are two types of fistula: acute and chronic.
- \* Distal sentinel tag, a proximal hypertrophied anal papilla, fibrotic edges, and exposed internal sphincter fibres (Floor white) are features of chronicity.
- \* Pathophysiology : constipation → straining → increase pressure inside → hypertrophy of the muscles → decrease blood supply → ischemia → slapping of the lining and derm → anal fissure.
- \* Treatment:
  - 1) Dietary and lifestyle modification.
  - 2) Applying vasodilators GTN ointment or use Ca<sup>++</sup> channel blockers in the area locally.
  - 3) Sphincterotomy.
- \* Anorectal abscesses (acute) and fistula (chronic).
- \* Etiology nonspecific: cryptoglandular in origin. 90% of perianal abscess due to Cryptoglandular. Specific: 10% of causes such as systemic TB and Trauma.
- \* The main symptom is painful swelling + \_ discharge.
- \* Classification: Supralelevator abscess, perianal abscess.(common type), intersphincteric (intramuscular or submucosal) abscess and ischioanal (ischioanal) abscess.
- \* Treatment:
  - In fistula, the patients should have a surgery.
  - For any abscess in the body incision and drainage.
- \* When to use antibiotics?
  - Immunosuppression.      - Systemic manifestation.
  - Diabetics.                      - Extensive disease
  - Valvular disease (patients who are at risk of infective endocarditis).

### Recommended YouTube videos:

1- **Fistula:** <http://www.youtube.com/watch?v=mPOGSuOMvmg&feature=youtu.be>

2- **Fissure:** <http://www.youtube.com/watch?v=JY7o4fOxiZE&feature=youtu.be>