

26 Proctology

26.1 Introduction

Few people relish examination of the rectum, whether the patient or the doctor! As a result, many times you may learn of a diagnosis of 'piles' (haemorrhoids) made without any foundation whatsoever! The difficulty of proctology is described as 'the differentiation of the similar amidst the great diversity of the same'.

Indeed, the rectum and anus can be the source of much disability and discomfort. Where HIV disease is common, the anorectal area will feature frequently but pathology will differ whether or not homosexual practice occurs. Acquaint yourself with the particular prevalence of anorectal disease in your area: it may be different to what you are used to!

In the presence of severe leucopenia (absolute neutrophil count <100/ μ L), there is a real danger of introducing a bacteraemia by performing an anorectal examination. If it is essential, administer prophylactic ciprofloxacin and metronidazole.

You should have little difficulty diagnosing anorectal abscesses (6.17), fistulae (26.3), fissures (26.5), warts (26.6), cancer (26.7), prolapse (26.8), haemorrhoids (26.9), pilonidal sinuses (26.10), juvenile polyps, rectal stricture, ulceration or lymphogranuloma venereum (26.11), and imperforate anus (33.6) because all you need is an examining finger and a proctoscope!

But you do need to become familiar with anorectal conditions, and the only way to achieve this, is always to examine the anus! Sometimes you will need histological support to confirm a diagnosis, but not always. You may need technological help, though, in finding out the cause of rectal bleeding (26.4).

Remember the common causes of anal pain:

- (1) anal fissure or ulcer,
- (2) perianal haematoma,
- (3) perianal abscess,
- (4) excoriated or eczematous perianal skin,
- (5) worm infestation,
- (6) thrombosed prolapsed haemorrhoids,
- (7) coccydynia,
- (8) anorectal carcinoma.

Because the anus is always a contaminated area, any surgical wounds near it are prone to become infected but the infection seldom spreads except in the presence of HIV disease or diabetes. The blood supply is normally good so wounds readily heal *if you let them granulate from below*; make sure your nurses understand this. *Only rarely attempt primary suture*, and instead make wide, shallow saucer-like wounds.

Do not let the subcutaneous tissues or the skin edges fall together and unite prematurely, before the depth of the wound has healed. A shallow open wound with trimmed edges heals better than one with much redundant skin and fat.

PHYSIOLOGY. The purpose of the anal musculature is continence. If it fails in this respect it is a social disaster. Continence is mostly maintained by the external sphincters and the *levator ani*, especially its deep *puborectalis* part, which forms a sling at the anorectal line, in the angle between the anus and the rectum. The tone in the external sphincters is increased by reflex and voluntary contraction. The internal sphincter, which is under autonomic control, is responsible for maintaining anal resting pressure. In painful conditions, both the sphincters are in spasm. The lower part of the anal canal is sensitive enough to discriminate what is in the rectum: nothing, gas, liquid, or solid. Receptors in the smooth muscle of the upper rectum and the voluntary muscle of the pelvic floor alert when the rectum is dilated. Filling of the corpus cavernosa recti (the source of haemorrhoids) make the anus gas-tight. The rectal mucosa is one cell layer thick, so is easily damaged (unlike the vagina which is 40 cells thick).

EQUIPMENT. A rectal tray containing a proctoscope, gloves, cotton wool, long applicators, short biopsy forceps and the light source. If you are going to pass a sigmoidoscope, you may need a suction tube, long biopsy forceps and a sucker. Have a waste bin near-by, and preferably water and towels for washing and cleaning instruments.

PROCTOSCOPE, Gabriel, 64x25mm. This is the standard instrument for examining the rectum. The problem with it is that it needs a separate light source. A simple instrument that circumvents this problem is Dipankar Ray's proctoscope (available from Calcutta) which uses a laryngoscope handle and a cone speculum with a groove for the light. You will also find an ordinary Sims' speculum useful for examining the anal canal under GA.

SPECULUM, bivalve, Goligher pattern with detachable third blade. Use this for doing minor rectal operations, such as division of the internal sphincter.

SIGMOIDOSCOPE, Strauss, 330mm, Luer fitting, in case with bellows, cord and standard endoscope bulb complete with biopsy forceps, etc.. Keep sigmoidoscopes and proctoscopes in a case so that their various parts do not get lost. This also needs a light source: a pen torch usually fits snugly in the side-access of the light source if this does not work.

N.B. Fibre-optic endoscopes are very much more expensive!

SPONGE HOLDER, for sigmoidoscope, 430mm.

FORCEPS, for biopsy through sigmoidoscope, Officer pattern. These are the most expensive part of the outfit. If necessary, you can use them to remove foreign bodies from the oesophagus, or even from the urethra.

SUCTION TUBE FOR SIGMOIDOSCOPE. You can make this from a piece of ordinary copper tube, 15cm longer than the sigmoidoscope, with a right angle bend at one end.

BELLOWS, spare for Strauss sigmoidoscope, Luer fitting.

BULBS, endoscope, standard (34.1), small fitting. Endoscope bulbs are very easily blown.

BATTERY BOX, for endoscopes, holding D type dry cells. This must be the same voltage as the standard endoscope bulbs, and have a lead which fits the endoscopes.

PROBE, medium-sized, malleable silver.

DIRECTOR, probe-pointed. This has a groove on it. Pass it through a fistula and then cut down on the groove.

PARKS'S ANAL RETRACTOR. This versatile retractor is almost essential if you want to do any anorectal operations (26-4).

LONE STAR RETRACTOR. This is a simple, but effective, self-retaining retractor virtually essential for good vision in more advanced anorectal surgery (26-17).

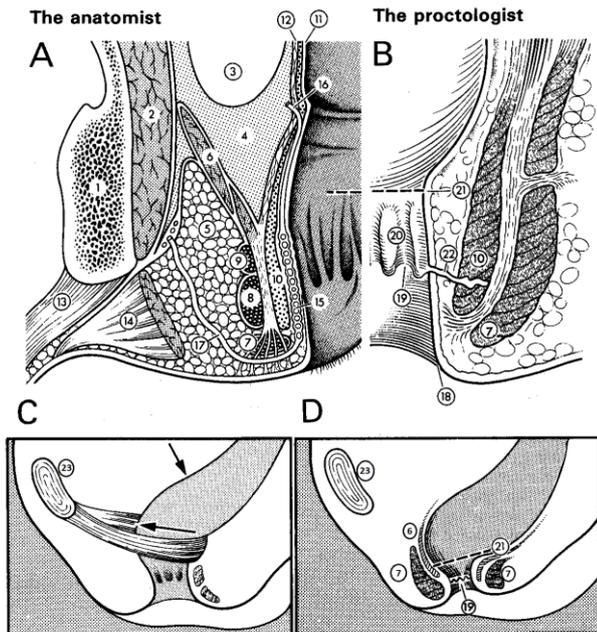


Fig. 26-1 THE ANORECTUM. A, anatomist's (cut coronal) view to show the bony pelvis (1) inside which is *obturator internus* (2). Below the pararectal fossa (3) lies the pelvirectal space (4). This is separated from the ischiorectal fossa (5) by the *levator ani* muscle (6). The external sphincter has three parts; a subcutaneous part (7), a superficial part (8), and a deep part (9). Inside the external sphincter lies the internal sphincter (10). This is continuous with the circular muscle of the bowel (11), outside which is the longitudinal muscle (12). Two other muscles are also shown, *semitendinosus* (13), and *gluteus maximus* (14). The rectal venous plexus (15), is drained by the superior rectal vein (16) and the inferior rectal vein (17).

B, a proctologist sees things more simply and has three reference points. First is the anal verge (18), where the anal and perianal skin join. Second is the dentate (or pectinate) line (19), where the anal columns (20) and sinuses end. Red, loosely attached rectal mucosa lies above this line, and pale, tightly-stretched anal lining lies below it. Third is the anorectal line (21), which is the palpable upper border of the complex of anal sphincters. This is something you can easily feel with your examining finger, provided the patient has adequate muscle tone, and has not been anaesthetized or given a relaxant. It is about 2cm further in than the dentate line, and the rectum balloons out above it. Note that the external sphincter (7) comes down a bit lower than the internal (10). The anal canal is c.3-5cm long and extends from the anal verge to the dentate line. The anal glands (22) are an important site of infection, and the origin of fistulae and sinuses. They open into crypts just above the dentate line.

C, view of the rectum to show how the *puborectalis* muscle connected to the symphysis pubis (illustrated divided: 23) pulls the anorectal junction upwards and forwards when it contracts. You can easily feel it doing this when you do a rectal examination. During defecation, it allows the anorectal angle to straighten out. D, relation of the anorectal line to the external sphincter.

N.B. The classical description of the sites around the anus are with the patient in the lithotomy position, according to the clock face: the 12 o'clock position being in the midline anteriorly, 3 o'clock on the left laterally, 6 o'clock in the midline posteriorly, and 9 o'clock on the right laterally. This clockface nomenclature is confusing and we do not recommend it.

A, after Gray's Anatomy, Churchill Livingstone, 8.127. B, after MacLeod JH. A Method of Proctology, Harper and Row 1979 Fig. 1.1 with kind permission. C,D, kindly contributed by Brian Hancock.

THE DENTATE (PECTINEATE) AND ANORECTAL LINES ARE IMPORTANT LANDMARKS

PREPARATION. Put a drape over the patient and keep the instruments out of sight. Explain what you are going to do, and that it may be uncomfortable. Be gentle, *do not hurry*, and use warm instruments.

DIGITAL EXAMINATION OF THE RECTUM

Lie the patient on his left side with the buttocks extending well over the edge of the bed (26-2A). Flex the hips fully, but keep the knees at 90° so that they are out of your way. It is convenient to have the right upper hip and knee a little more flexed than the left, and a pillow under the head and between the knees.

Draw the buttocks apart and look at the anal region for skin tags, excoriation, eczema, lumps and the openings of fistulae (26-2B). Feel any abnormalities, such as the tracks or openings of fistulae, or tumours (26-2C).

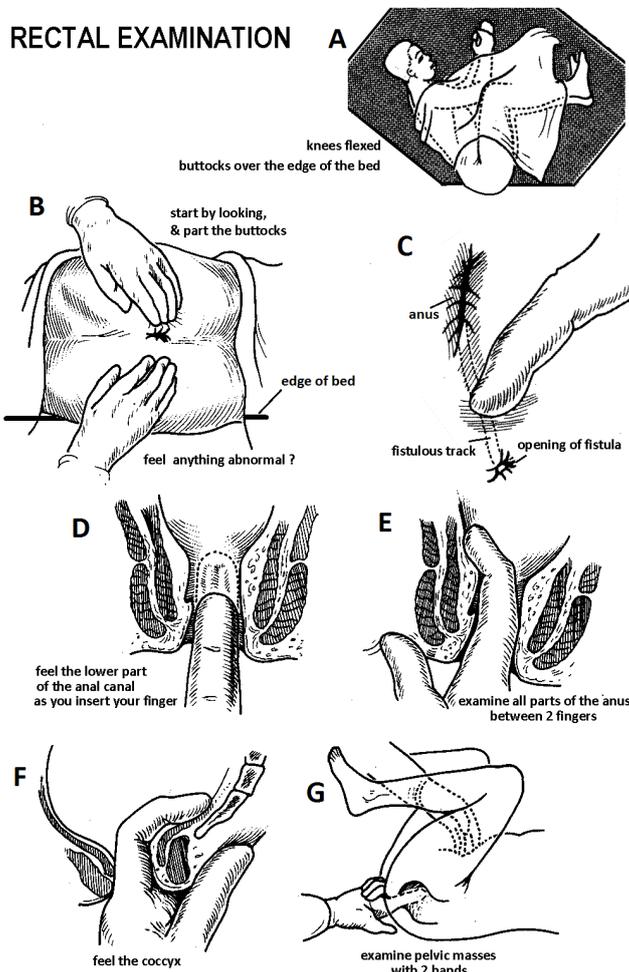


Fig. 26-2 EXAMINING THE RECTUM. A, have the knees well flexed and the buttocks over the edge of the couch. B, start by looking. C, then feel: you may feel the track of a fistula. D, feel the anal canal as you insert your finger. E, feel all round the anus. F, feel the coccyx. G, if necessary, examine the abdomen between your two hands. After MacLeod JH. A Method of Proctology, Harper and Row 1979 Fig.2.1,2,8,2.9 with kind permission.

Lubricate the end of your finger well. Insert it so that its larger broad dimension lies in the antero-posterior axis of the anal canal. When you touch the sphincter, it will contract. Wait, give it a few seconds to relax or if it does not, ask the patient to strain as if he were about to pass a stool, as this will also relax the sphincter. Then press firmly and gently in the axis of the anal canal. Keep pressing, until you can feel your finger suddenly slip easily into the anus (26-2D). Note the tone of the sphincter and the presence of stenosis or spasm, which may prevent you doing a rectal examination. In this case, you must administer an anaesthetic and do it: otherwise you might miss an inter-sphincteric abscess (6.17) or carcinoma (26.7).

As you put your finger into the anus, feel for lesions below and above the anorectal line. Then palpate the entire circumference of the anus between your two fingers (26-2E).

In a man feel each of the 2 lobes of the prostate separated by a median groove.

In a woman, look to see if she has a rectocele, feel her cervix and uterus rectally, and feel for swellings in her rectovesical pouch. It may be helpful to feel a mass bimanually through the vagina with one finger of the right hand and the rectum with one of the left hand: *be sure to change gloves before you do this!*

Sweep your finger round and examine the coccyx between two fingers (26-2F).

Finally, if you suspect an intraperitoneal mass, a bimanual recto-abdominal examination will be useful (26-2G).

PROCTOSCOPY (GRADE 1.1). Examine the anus with your finger first. Lubricate the proctoscope and push it firmly with its introducer in place in the direction of the umbilicus. Remove the introducer. Examine the lining of the anal canal as you withdraw it slowly, looking for fissures, polyps, ulcers, or haemorrhoids as you do so.

SIGMOIDOSCOPY (GRADE 1.1).

Perform a sigmoidoscopy just after normal defecation, or after an enema. There is no need for a GA, unless it is too painful for the patient *e.g.* for carcinoma.

N.B. Always do a digital examination first.

Ask the patient to breathe in and out while you gently insert the sigmoidoscope, lubricated and warmed with its introducer in place. You will feel the resistance of the anal sphincter suddenly diminish (26-3B) as it enters the rectal ampulla. Remove the introducer.

Watching where you are pushing the sigmoidoscope, turn it 90° posteriorly (26-3C), as you gently manipulate it past the mucosal valves of the rectum. As you advance the sigmoidoscope, gently pump in enough air by squeezing the bellows to distend the lumen in front of it. *Do not blow the sigmoid up with too much air,* or the patient will feel urgency and cramps.

The first 12-15cm, as far as the recto-sigmoid junction is usually easy. However, it is easy to miss a lesion in the rectal ampulla. You will then see the smooth rectal mucosa giving way to the concentric *rugae* of the sigmoid colon. At this point the bowel passes over the sacral promontory, and may turn in any direction. Proceed anteriorly and to the left. You should be able to reach 25-30cm, but *do not force the passage of the instrument!* Be sure you can distend the bowel with air, and see where you are going before you push the sigmoidoscope further in.

If you are clumsy, you can perforate the bowel, so:

- (1) *Never push in a sigmoidoscope further, if you cannot see the lumen in front of it.* Follow the lumen at all times.
- (2) *Never force it.* If there is a pocket or a blind area in the way, withdraw it a little, and then advance it again.

If your view is obscured by faeces, remove them with cotton wool on a swab holder, or if this fails, withdraw the sigmoidoscope, clean it and start again. If the stool is very loose or there is copious bleeding or mucus, make sure you have a good suction available.

Concentrate on getting the sigmoidoscope as far up as you can; note the presence of lesions by their position (in cm) from the anus, and review them as you withdraw the sigmoidoscope. Rotate the sigmoidoscope, as you withdraw it, so that you inspect every part of the mucosa. Be careful to examine the posterior wall of the rectal ampulla. This lies at 90° to the anal canal, and you can easily miss it.

N.B. You can use the sigmoidoscope to deflate a sigmoid volvulus (12.4).

SIGMOIDOSCOPY

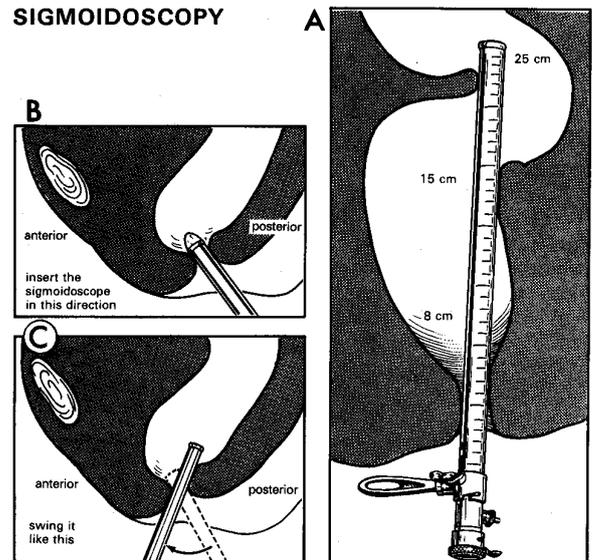


Fig. 26-3 PASSING A SIGMOIDOSCOPE

(A) enables you to inspect the last 25cm of a patient's colon. With your finger you can only feel the most distal 8cm. B, introduce the sigmoidoscope, pointing it towards the umbilicus, and when it is through the anal sphincter (C) swing it backwards, and to the left.

After MacLeod JH, *A Method of Proctology*. Harper and Row 1979 Figs 2-12-14 with kind permission.

If you think you may have perforated the rectum or colon, (when you see loops of bowel at the end of your sigmoidoscope) or there are signs of peritonitis after a sigmoidoscopy, start an IV infusion of saline, commence gentamicin and metronidazole, and get an erect chest radiograph to look for free sub-diaphragmatic air.

If there was a clean bowel with good bowel preparation before the sigmoidoscopy, particularly if the perforation has occurred in the distal retroperitoneal section of the rectum (<12-15cm from the anal verge) and symptoms and signs settle within 12hrs, continue this conservative treatment for a further 48hrs. Otherwise, do not hesitate to perform a laparotomy and try to close the perforation with interrupted sutures; you may add a defunctioning stoma if there is significant soiling.

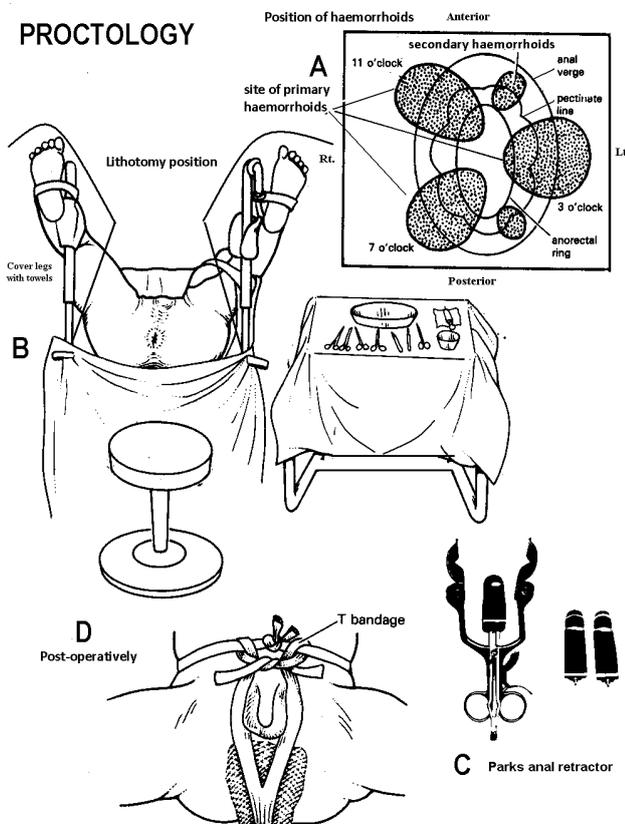


Fig. 26-4 PROCTOLOGICAL SURGERY. A, diagram for recording abnormalities around the anus. This has 3 lines, an inner one for the anorectal line, a middle wavy one for the dentate line, and an outer one for the anal margin (26-1). Record your findings in relation to these 3 lines. Note the sites of the 3 primary haemorrhoids, and the common sites of 2 accessory ones are shown with the classical 'o'clock' positions, corresponding to left & right, anterior & posterior. B, arrangements for operating on a patient's anus. You must also have a light on a stand which will direct its beam horizontally into the wound. C, the Parks anal retractor. D, a T-bandage tied up after the operation. Use this only for 24hrs.

After Goligher JC. *Surgery of the anus, rectum and colon*. Ballière Tindall 4th ed, 1980. Figs 64,65 with kind permission.

PREOPERATIVE CARE FOR ANAL OPERATIONS

Perform a proctoscopy or sigmoidoscopy before all anal operations to exclude coexisting rectal lesions. For this to be possible, the bowel must be empty, so use an enema or a glycerine suppository pre-operatively.

POSTOPERATIVE CARE AFTER ANAL OPERATIONS

BATHING is more effective than irrigation. Encourage soaking in a warm bath; you can add some antiseptic to the water if you are not sure about the cleanliness of the tub!

DRESSINGS are much less important. Soiled dressings will perpetuate sepsis, so encourage frequent bathing or douching.

BOWEL ROUTINE. Treat with a laxative od from the day of the operation for a maximum of 2wks. Encourage mobilization from the first day. *Do not use an enema* as introduction of the funnel will be painful and may disrupt the wound. If there is no stool passed by the 3rd day, gently insert a glycerine suppository.

26.2 Anorectal pathology in HIV disease

Almost 25% of HIV+ve patients will have some kind of anorectal lesion. These are particularly numerous in homosexuals, especially in those that practice anal sexual intercourse, but they adopt a rather different pattern. Their severity relates to the CD4 level.

The healing of anorectal lesions in HIV+ve patients is particularly poor, especially if their CD4 levels are <200/ μ l and they are therefore particularly difficult to treat; moreover the aetiology of many of the HIV-related anal conditions is not easily diagnosed. These conditions will probably not heal properly, and almost certainly recur.

It is exceptionally risky to perform incisional anorectal surgery on HIV+ve patients, unless they are receiving anti-retroviral therapy (5.8), and so you should use different, more conservative methods:

For fistulae (26.3), use a seton. *Do not lay open fistulae.*

For fissures (26.5), *avoid a sphincterotomy.*

For haemorrhoids (26.9), use sclerosant injections with oily phenol. *Avoid a haemorrhoidectomy.*

For anal skin tags, and perianal haematoma, adopt a conservative approach.

For frank daily uncontrollable faecal incontinence, consider a defunctioning colostomy (11.6).

Some anorectal lesions are typical, almost pathognomic, of HIV disease, whilst others are found in HIV-ve patients. They are, however, often more extensive and complex.

(a) **Idiopathic anorectal ulcer** (26.5). This starts as a mucosal laceration within the anal canal, and gives rise to symptoms identical to the classical anal fissure. It is virtually pathognomonic of HIV disease. However, no anal skin lesion is visible on gentle parting of the buttocks, because the lesion is internal, usually just proximal to the dentate line. Furthermore there is rarely anal sphincter spasm, and often diarrhoea rather than constipation. Pain is persistent, usually associated with some intermittent bleeding *per rectum*, particularly after defecation.

The mucosal defect then deepens and becomes palpable as an ulcer with smooth benign-feeling edges. As this ulcer deepens further, it may penetrate into the vagina or appear as a large fistula externally. Often pus collects in the ulcer crater and discharges through the anus. No specific agent is often implicated in this lesion, although in some cases *cytomegalovirus* and *herpes simplex* virus are found. The ulcer edge is smooth and round, unlike the syphilitic ulcer which is irregular. Treatment with glyceryl trinitrate is unsuccessful, because there is no anal spasm. *Sphincterotomy, or worse, anal stretch, is a disaster, resulting in faecal incontinence.* If there is pus, use nalidixic acid, or ciprofloxacin with metronidazole.

N.B. A shallow triangular ulcer posteriorly placed, without spasm or bleeding, may be due to syphilis (26.5). Check also for gonococcal infection especially if there has been ano-receptive sexual intercourse (26.11).

(b) **Superficial breakdown of perianal skin with excoriation** is often occurs with chronic diarrhoea. There is often also excoriation in the intergluteal cleft, which may be due to excessive sweating. Vesicular excoriation is due to *herpes simplex*. Otherwise the causative agents are usually *candida* and/or *trichuris* (whipworm). It is vital to examine patients carefully to exclude fistulae and abscesses.

Use nystatin ointment bd, or miconazole 2% cream bd for 2wks or itraconazole 200mg bd for 1wk and mebendazole 2mg/kg bd for 3days. Zinc oxide or manganese sulphate paste is better than mercurochrome. You must try to control diarrhoea and sweating. These patients are usually grossly cachectic, so encourage high-protein, high-calorie diets.

N.B. If cortisone preparations have been used, the perianal skin becomes paper-thin, and atrophied and readily damaged.

(c) **Sinuses and Fistulae** (26.3) in HIV+ve patients are often complex and multiple. They are frequently high or intersphincteric (intermediate). Many fistulae arise from sepsis, but some as a result of extension of the idiopathic anal ulcer described above. In these cases, the fistula is wide and may readily admit the examining finger. Fistulation can occur to the outside skin, but also to the vagina or bladder.

This is found both in adults and small children, where the history of whether the fistula is congenital or acquired is diagnostic.

Because these fistulae are complex, multiple and often high or intersphincteric, they cannot be simply laid open. In fact, even for low superficial fistulae, the laying open may result in non-healing perianal wounds, especially if CD4 counts are <200/ μ l. Treatment by passing one or more setons (26.3) is not only simple, but very effective. You need to be patient, however: these wounds may take 8-12wks or even more to heal.

(d) **Proctitis** (26.11). Just as in colitis, the rectum may be affected by a severe inflammatory process: *cytomegalovirus, herpes simplex, chlamydia* or enteropathic *E Coli* may be the cause. You will have to treat blind with broad-spectrum antibiotics, as it is unlikely you will have the resources to make a specific diagnosis. *Avoid steroids and sulfasalazine*, unless you can confirm ulcerative or Crohn's colitis.

(e) **Anal and perianal warts** (26.6) are often very extensive and may co-exist on the urethra and external genitalia, and even elsewhere on the body; their excision or diathermy ablation surprisingly results in rapid wound healing, presumably due to an epithelial growth factor in the causative *papilloma* virus, despite other types of anorectal surgery having poor healing in HIV+ve patients. Contact tracing in the developing world is a pipe-dream, and therefore recurrence by re-infection is frequent. Moreover, if you do not remove all condylomata, including penoscrotal ones, and they can extend far up in the anal canal, they quickly re-establish themselves. They may become infected and ulcerated, and if chronic, develop into squamous carcinoma.

They may occur in children through cross-infection by sleeping in the same bed, and do not necessarily imply sexual abuse, although this should always be kept in mind and investigated.

If the warts are extremely voluminous (then grandiosely known as Buschke-Loewenstein tumours), you may remove them in staged procedures. Always use lidocaine with adrenaline infiltration, because they can bleed heavily. There is a risk of anal stenosis if you remove crops of warts right up to the anal verge, or even inside the anal canal. In this case, get the patient to use a plastic anal dilator bd for 6wks. Make sure he takes baths post-operatively; a shower is not really adequate.

(f) **Squamous carcinoma** (26.7) may be the result of neoplastic change seen in anal intra-epithelial neoplasia (AIN), or be the result of chronic infestation by condylomata, especially if florid, or arise *de novo*. There appears to be much greater risk of developing malignancy if ano-receptive sexual intercourse is carried out.

You must establish a histological diagnosis; it is rarely possible to perform a local excision without causing stenosis, or resulting in inadequate tumour excision. This means that an abdominoperineal resection will be necessary (12.11) which is a formidable undertaking in a patient with HIV disease.

Lymphoma and Kaposi sarcoma may also be found at the anus, but you will only make this diagnosis by biopsy. Very rarely, a malignant melanoma is found at the anus: it looks like a thrombosed haemorrhoid.

(g) **Rectal Prolapse** (26.8) is often the result of a very lax anal sphincter. Although this may occur in patients with chronic diarrhoea or neuropathy, it is much more common in homosexuals who practice invasive rectal procedures for pleasure.

Local perineal operations do not correct the essential problem of laxity; you can amputate redundant prolapsing full-thickness rectum but you will need to be careful that you restore bowel continuity.

Doing a laparotomy to lift up the rectosigmoid is an alternative: you should avoid using any foreign implant material for fixation, and *do this only if the patient is getting ARV treatment*.

26.3 Anorectal sinuses & fistulae

Anorectal abscesses (6.17), sinuses and fistulae are usually part of the same disease process. An abscess is the acute phase, and a sinus or fistula the chronic results. Both sinuses and fistulae are tracks lined by granulation tissue, which open on to the skin near the anus. The difference between them is that a sinus has no internal opening, whereas a fistula opens into the anal canal, or occasionally into the rectum. Usually, there is only one internal opening, but there may be several external ones. These can either be insignificant little holes, or prominent little nodules of granulation tissue, which heal over temporarily. With HIV disease, they may be complex, multiple, and chronic.

Likewise, if tubercular in origin (up to 15% in India), they may be complex, multiple and chronic, and often, but not always associated with HIV disease. The cause may be *mycobacterium tuberculosis* or *mycobacterium ulcerans*.

Occasionally, the cause may be Crohn's disease where the appearance is very similar to tuberculosis.

Other infections may also give rise to fistulae: actinomycosis, gonococcus, *chlamydia*, schistosomiasis, mycetoma and amoebiasis.

Another inflammatory processes which may also give rise to fistulae is so-called hidradenitis suppurativa (Verneuil's disease) or pyoderma fistulans sinifica (fox-den's disease: 34.9). These result in quite marked skin thickening and multiple skin bridges, but are essentially superficial skin problems, and are related to smoking.

Typically, a fistula starts with a papule, abscess, nodule, or ulcer, which either bursts and fails to heal, or is not drained properly, after which there is a chronic painless discharge which soils the clothes. The fistula is only painful when it becomes temporarily blocked, when pus builds up inside it.

Fistulae can take any of the paths shown (26-5); they can be subcutaneous (common), low anal, high anal, or intermuscular (rare).

Rather wider fistulae exist as extensions of the idiopathic anal ulcer of HIV disease (26.2): these are usually superficial and have a significant absence of granulation tissue.

A fistula seldom heals spontaneously, and almost always needs surgery. The options are passing a seton, laying open the fistula track (fistulotomy), or fashioning a defunctioning colostomy.

The aim of surgery is to obtain a permanent cure while preserving sphincter function; you therefore must know the relationship of the fistula track to the sphincters, and cause minimal damage to them.

Fistulae which have external openings anterior to the anus enter directly into it by the shortest path. Posterior fistulae usually curve round, so that they enter the anus posteriorly in the midline (Goodsall's rule: 26-6I). In doing so they follow a horseshoe path, and are often bilateral, one side communicating with the other. There are exceptions, and very superficial fistulae behind the line may occasionally track directly into the anus.

The track of a horseshoe fistula hugs the *puborectalis* part (26.1D) of the *levator ani* muscle, as it forms a sling round the sides and back of the anorectal junction, external to the external sphincter. Fortunately, the internal opening of such a horseshoe fistula is usually at the dentate line, although the fistula itself may go much deeper.

PERIANAI ABSCESSSES, SINUSES, AND FISTULAE ARE NOT HELPED BY ANTIBIOTICS!

EXAMINATION. Prepare for light GA or ketamine. (Spinal anaesthesia or using relaxants is unhelpful because you will not then readily feel the anorectal ring.) Before you start, warn that you are going to examine under anaesthesia to try to find where the fistula runs. If you use ketamine, be sure to put the legs up on lithotomy poles first before you start anaesthesia, as muscle rigidity may prevent you doing so afterwards! Introduce the Parks anal retractor well lubricated with jelly.

ANAL FISTULAE

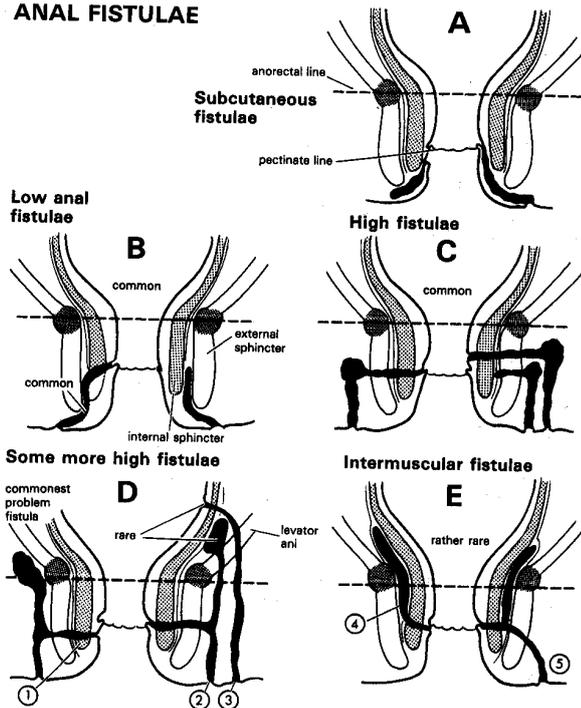


Fig. 26-5 PATTERNS OF FISTULAE.

A, 2 subcutaneous fistulae, 1 opening at the dentate line, and 1 just below it. B, two low anal fistulae. C, several high ones. D, some more high fistulae. Fistula (1) is the commonest high fistula; it goes high towards the *levator ani*, but does not penetrate it. The high extension is often missed, but it must be explored and laid open. Fistulae (2) and (3) penetrate the *levator ani*. E, high intermuscular fistulae (rare) may exist alone (4), or be an extension of a low anal fistula (5).

After Goligher JC. *Surgery of the anus, rectum and colon*. Ballière Tindall 4th ed 1980 Figs 121-6 with kind permission.

If the opening is <5cm from the anus, the fistula is perianal; if it is >5cm away, it is probably high. Multiple openings suggest a horseshoe fistula. Record the position of all external openings carefully on a copy of the diagram (26-4A).

Feel for the thickened track which runs from the external opening(s) towards the anus. If a fistula is superficial, you can usually feel its firm, fibrous track quite easily. As you press it pus may exude from the external opening.

Put a finger into the anus and try to feel the internal opening: you may be able to feel an induration at its internal end. Feel the entire circumference of the rectum, as far as your finger can reach. Determine particularly where the fistula might be in relation to the anorectal ring and the dentate line. Try to feel the track between your two fingers. Does it appear to come to an end low down, or high up in the anus? If you feel induration at the level of the *puborectalis* or above (rare), there is a complex high fistula.

Examine the anal canal with a proctoscope. You may be able to see the internal opening of the fistula, usually posteriorly in the midline on the dentate line.

Insert the proctoscope as far as it will go, withdraw the introducer, and then gradually withdraw the instrument itself. As soon as its end becomes obstructed and closed by the anorectal ring, stop. If you can still see the opening of the fistula, it is safely below the critical level of the anorectal ring.

PROBING. Do not do this until you have finished your initial inspection. Decide where a track is probably going to go before you start probing. Pass the probe as far as possible towards the anal canal, and feel for its end in the anus. It may pass through into the lumen, or it may stop before getting there. If the fistula is superficial it will pass horizontally, if it is deep, the probe will pass almost vertically, parallel to the anus.

CAUTION!

(1) If the probe passes vertically, and not towards the mid anal canal (even though there is an opening there), it is probably a high complex fistula or a deep sinus.

(2) Only pass a probe into the rectum through a fistulous track: do not force it through normal tissues.

In 50% of cases you will find the opening easily, in the other 50%, it will be present but tiny. A probe may show it, but if it does not, inject methylene blue (or similar dye) into the external opening, and look for this flowing into the anus: finding the internal opening is the key to all fistula operations!

You can add hydrogen peroxide to the dye: its bubbling froth will help show the opening more easily.

PASSING A SETON (GRADE 2.2) is one of the oldest operations in history, first described by the Indian master surgeon, Sushruta c. 6000BC. Tie a thread to the probe and withdraw it through the fistula track, release the probe and tie the thread loosely. By slow, progressive inflammatory response, allowing simultaneous drainage, fibrous healing from deep to superficial parts occurs. This method does not divide sphincters and so preserves their function, and so can be used for low or high fistulae. Furthermore as there is no wound, it is ideal in HIV+ve patients. It is also delightfully simple! The disadvantages are varying degrees of discomfort, and prolonged treatment needing usually 8-12wks or more.

You can use any non-absorbable thread such as *ethibond*, though silk will stimulate more of an inflammatory reaction; corrosive 'soaps' applied to thread such as the latex of *Euphorbia nerifolia* or solution of ash of *Achyranthes aspera* increase the efficacy but may result in excessive inflammation and surrounding cellulitis. A nylon suture is sharp and painful, and not well tolerated.

For best results, replace the thread weekly by tying a new one to the old one and pulling it through the track, and tying it loosely. Remove it when the distal hole is almost completely closed.

If the fistula is complex or indurated, take a biopsy for histology.

LAYING OPEN (DEROOFING) THE FISTULA (FISTULOTOMY) (GRADE 2.2).

You should now know where the fistula runs. Only open a simple low fistula, superficial to the dentate line if there is no HIV disease. *Do not open high or complex fistulae*; you may render a patient permanently incontinent. *If there is untreated HIV disease, the wounds may never heal.*

A LOW ANAL FISTULA

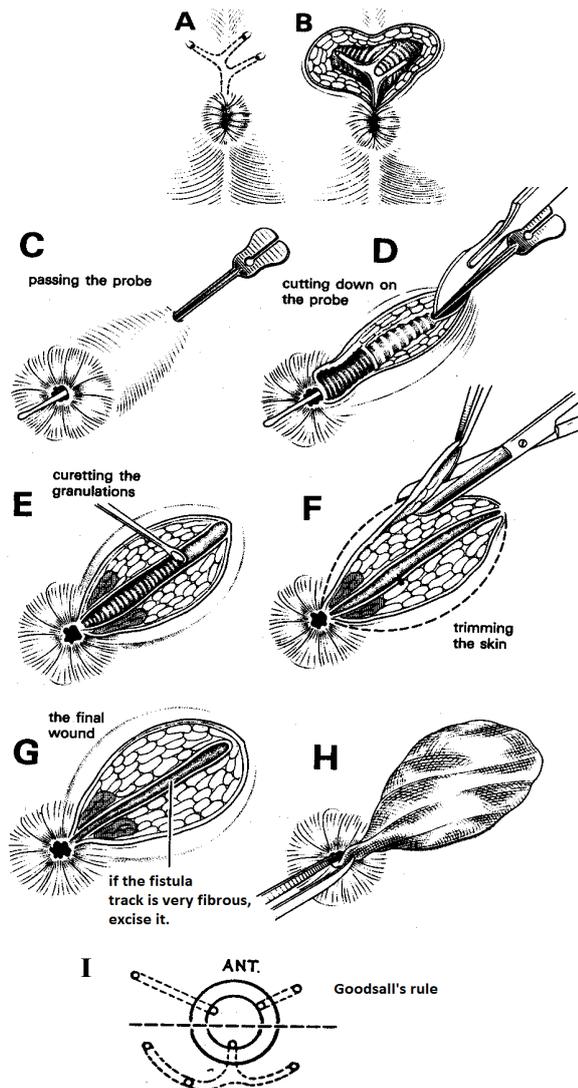


Fig. 26-6 LOW ANAL FISTULA can have several tracks, A,B, or only one. C, pass a probe-pointed director along the track from the external to the internal opening, and out through the anus. D, cut down on the director. E, scrape away the granulation tissue with a sharp spoon. F, trim the edges of the wound. G, final pear-shaped guttered wound. If there is much fibrous tissue round the track, excise it. H, pack the wound with gauze. I, Goodsall's rule: in 60% of cases, fistulae anterior to the anus usually pass directly into it; fistulae posterior to it curve round it to enter in the midline. After Goligher JC, *Surgery of the anus, rectum and colon*. Ballière Tindall 4th ed 1980 Figs 139-40 with kind permission.

Pass a probe or director through the track, from the external opening towards the anal canal, either completely through to its lumen, or as far as it will go. It may enter the anal canal, or it may stop before doing so. Confirm that the probe enters the anus superficial to the dentate line, cut down through the skin on all structures superficial to it, and lay the track open. If you are using a director (26-6C,D), cut down onto its groove through the skin. Look at the purplish track of the opened fistula. If there is no such track, you have probably opened up a false passage. Look carefully for any side openings, and feel among the fatty tissue for nodules of induration, which might be branches of the fistula. As a general rule, all fistulous tracks communicate with one another. Using a sharp spoon, curette the tracks, so as to leave only healthy tissue, and trim away any overhanging skin.

Alternatively, make a narrow pear-shaped incision to include both the internal and external openings. Excise both of them, and the track of tissue that still clings to the probe.

Control bleeding with diathermy, or tie off bleeding vessels with 2/0 absorbable suture. Bevel the skin edges by making an inclined cut, so as to leave a conical or pear-shaped concave raw area. Be sure that there will be no pockets or overhanging edges, when muscle tone returns.

Always send tissue for histology if possible to exclude tuberculosis or other pathology.

POSTOPERATIVE CARE. Make sure you keep the wounds clean: dressings may simply retain sepsis, or worse, stool and urine which will secondarily cause soiling. A douche is essential and bidets are very useful: *there is no advantage in using special solutions*: soap and warm water are all that are required. *Don't soak the perineum for a long time*: this will cause maceration. You may have to insist, though, on this tid or qid. For complex fistulae, it is wise to re-examine the fistulae after 6wks under GA to see if they are healing well, and no new fistulae have formed.

Use a laxative if constipation ensues.

DIFFICULTIES WITH ANAL FISTULAE

If the probe enters the anus deep to the dentate line, pass a seton. (*Do not cut deep to the dentate line, or you will cut too much sphincter.*)

If the probe does not enter the anal canal, there is a sinus. Lay it open in the same way, but without opening into the anus.

If you find any other sinuses or fistulae, pass setons. *Do not try to lay open complex fistulae* (26-8).

If a fistula passes forwards from the anus, it may be an URETHRAL FISTULA (27.11), or originate in Bartholin's glands (23.5).

If a fistula is posterior, do not confuse it with a *PILONIDAL SINUS* (26.10).

If the external opening is far from the anus, look out for a long curved fistula, or a high one. Its thickened track will usually show you its course and destination. Probe it; you will probably need dye & hydrogen peroxide to show its internal opening.

A HIGH POSTERIOR HORSESHOE ISCHIORECTAL FISTULA

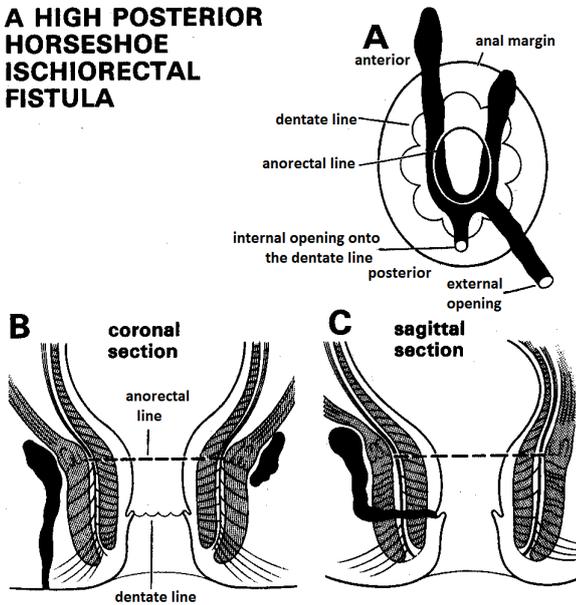


Fig. 26-7 HIGH POSTERIOR HORSESHOE FISTULA (I). A, fistula shown on a standard diagram of the anus. B, coronal section. C, sagittal section. See also 26-8. After Goligher JC *Surgery of the anus, rectum and colon*. Ballière Tindall 4th ed 1980 Fig 128 with kind permission.

If there is *hydradenitis suppurativa*, the infected sweat glands will need derroofing (34.9).

If *haemorrhoids* are also present, inject them with oily phenol and defer treatment of the fistula for at least 6wks.

If there is a recurrent discharge from the track, the wound has healed over externally, without healing from below. It will not heal with antibiotics. Consider the possibility of tuberculosis. Pass a seton.

If there is gross faecal incontinence, especially with HIV disease, counsel appropriately and fashion a defunctioning sigmoid loop colostomy (11.6). The wounds may heal in time, but do not close the colostomy unless you can start anti-retroviral therapy and the CD4 count improves.

If there are multiple fistulae, consider HIV disease with or without tuberculosis, lymphogranuloma venereum (26.11), colloid anal carcinoma, or Crohn's disease. Check the HIV status and take a biopsy before starting treatment, though using setons will not cause harm and may effect a cure.

A POSTERIOR HORSESHOE ISCHIORECTAL FISTULA

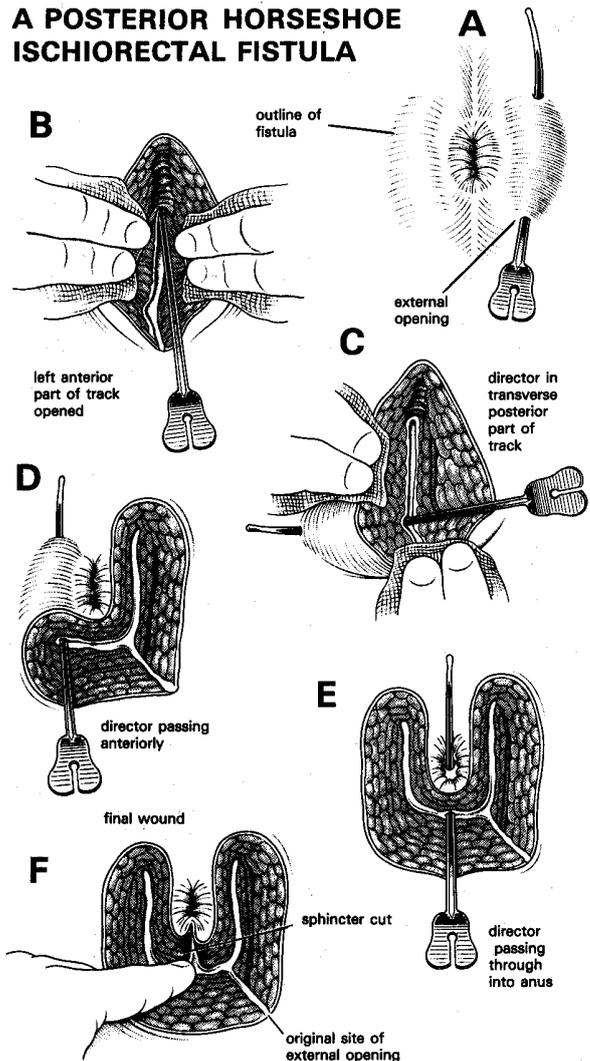


Fig. 26-8 HIGH POSTERIOR HORSESHOE FISTULA (II). This is the same fistula (26-7) laid open for demonstration purposes. A, pass the director forwards. B, cut down on the track on the left side. C, pass the director along the posterior part of the track towards the right. D, expose the track on the right side. E, pass the director forwards through the posterior communication into the patient's anus. F, final horseshoe-shaped wound, with part of the sphincter divided. *N.B.* Passing a seton is simpler and causes less morbidity. After Goligher JC, *Surgery of the anus, rectum and colon*. Ballière Tindall 4th ed 1980. Fig 147 with kind permission.

26.4 Rectal bleeding (Haematochezia)

Bleeding from the rectum may be sudden and very alarming, but is usually not very copious. It often stops and starts again, with the result that a patient may not seek attention until he is profoundly anaemic. You should try to distinguish fresh rectal bleeding, and blood mixed with the faeces. This may actually be bloody diarrhoea (dysentery) or just traces of blood that come out with defecation, sometimes associated with change in bowel habit. Fresh rectal bleeding may be spots on toilet paper or moderate volumes.

Obviously, patients who defecate in pit latrines are unable to describe much about the blood they pass, and therefore you have the obligation to find out as best you can. There are clues, and you must try to distinguish lower intestinal from upper gastro-intestinal bleeding: the latter is usually dark purplish and sticky with a sweet pungent odour (melaena) or, if the bleeding is more rapid, comes out as dark red burgundy-coloured blood. This bleeding is not necessarily from the stomach or duodenum (13.4) although that is the most common site, and may come from the small bowel and rarely from the large bowel. It is often severe, is usually more serious than it looks, and frequently threatens the life.

There are clues:-

Fresh blood separate from stool:

(small amount with pain): anal fissure

(moderate amount, intermittently, without pain): haemorrhoids

(at monthly intervals): endometriosis

Fresh blood mixed with stool:

(loose motions): proctitis, colitis, dysentery (including typhoid, 14.3), necrotizing enteritis (14.4), amoebiasis (14.5), or schistosomiasis,

(no change in bowel habit): polyp

(change in bowel habit): carcinoma, diverticular disease

(with mucus): intussusception, juvenile polyp, chlamydia, gonorrhoea, rectal prolapse

The major mistakes are:

- (1) To misjudge the severity of the bleeding.
- (2) To fail to use your finger, a proctoscope and a sigmoidoscope, to label the cause as 'haemorrhoids' without a proper examination, to fail to investigate fully, and so to miss the diagnosis.
- (3) To miss the more treatable diseases, such as amoebiasis, as the following case shows.
- (4) To confuse iron-black stools (from ingestion of iron supplements) with blood.

POUL (53yrs) had passed several bloody stools since the morning, but had no other gastrointestinal symptoms. He was neither anaemic nor hypotensive, but during the next few days he continued to bleed, and the haematocrit fell to 23%. Sigmoidoscopy showed friable, oedematous, reddish-yellow areas in the rectum, but no obvious ulcers. A smear from the rectal mucosa showed amoebae. Metronidazole cured him dramatically.

LESSONS (1) Amoebiasis is readily treatable, if you diagnose it. (2) A severe bleed in the absence of previous symptoms of amoebiasis is unusual.

EXAMINATION.

Assess the degree of hypovolaemia, and anaemia. Does sitting up in bed cause light-headedness, or exercise produce breathlessness? Do a general abdominal examination.

Examine the rectum with your finger *and* a proctoscope, and *do not forget to look at the stool*.

CAUTION! Never forget to perform a proctoscopy and/or sigmoidoscopy in an adult presenting with rectal bleeding.

If attempted rectal examination is exquisitely tender, stop and do it under anaesthesia.

If you palpate a polyp, try to pull it down through the anus, tie the stalk, and cut it off. *If you cut the stalk without tying it first, it may bleed massively.*

If you feel a craggy mass or stricture, examine under anaesthesia and take a biopsy. (26.7)

If you see a prolapsed lesion, distinguish between haemorrhoids (26.9), rectal prolapse (26.8) and intussusception (12.7). Try to reduce it.

(The intussusception needs a laparotomy)

ON PROCTOSCOPY,

If you find haemorrhoids (26.9), inject oily phenol.

If you see inflamed mucosa, take a biopsy, a smear, and examine the stools. Enquire about the use of herbal enemas. *Only use steroids and sulfasalazine if you can confirm inflammatory ulcerative or Crohn's colitis.*

If you see a polyp, try to hold it with a biopsy forceps and pull it down so you can tie its stalk. If you can't do this, try to diathermy it taking care that you do not touch the metal sides of the proctoscope. If this is not possible, twist it by 360° and hold it twisted for 2mins so that it will thrombose. *Do not pull it off: it may bleed massively.*

ON SIGMOIDOSCOPY,

If you see blood coming from proximally, investigate for a peptic ulcer (13.4), and if that is unhelpful by Barium enema or colonoscopy. If you can't do this, you may have to try to find out where it is coming from at laparotomy.

If bleeding continues from the rectum, and you are not sure why, you will have to decide:

- (1) if you are going to operate,
- (2) when, and
- (3) what you are going to do when you get inside.

Try to distinguish between upper gastro-intestinal and colorectal bleeding. In most areas, the commonest cause of massive bleeding is a peptic ulcer; but in some areas it is bleeding from the terminal ileum, or ascending colon, due to typhoid or amoebiasis. You may be able to tell quite easily if the bleeding is from the small or large bowel, but it may be more difficult to determine if it is from the right or left colon: if you establish a transverse loop colostomy, and blood comes from the stoma rather than the rectum, it must be right-sided bleeding!

INDICATIONS FOR LAPAROTOMY FOR RECTAL BLEEDING.

(1) Loss of >1500ml of blood with unknown cause. If he is *in extremis*, surgery may be life saving.

(2) The presence of a mass.

N.B. Most colonic bleeding stops on its own, so do not operate too early.

PREPARATION. Resuscitate with IV fluids if shocked, and transfuse blood to get a Hb level of at least 8g/dl, and have more blood in reserve for operation.

LAPAROTOMY. Make a long midline incision. Look at the stomach and duodenum and feel for irregularities and signs of ulceration. Then examine the entire bowel from the duodeno-jejunal flexure down to the rectum. Note the colour of the contents of the bowel, which is purplish if it has blood inside. What is the highest site in the bowel to show bleeding? Look for abnormal vessels going to the bleeding area, and feel for induration or an ulcer. If necessary, open the bowel (11.3), or stomach (13.5) to find the level of the bleeding. Using an endoscope (13.2) through the opened bowel is very helpful.

If you are confident you have found the lesion, perform a localized resection (11.3), but if there is severe bleeding from the right colon, you do not find a lesion, and there is no bleeding more proximally, perform a 'blind' right hemicolectomy (12.11). This will not be easy, so do not do it lightly. Afterwards, open the specimen to see where the blood is coming from.

If the bowel is severely inflamed, resection may be more hazardous than a conservative approach (12.3,4).

26.5 Anal fissure

An anal fissure causes suffering out of all proportion to its size. There are essentially two types, the classical and the HIV-related. The latter is internal and not seen by gentle parting of the buttocks, and not usually associated with muscle spasm. Both types present as a defect in the mucosal lining in the lower part of the anal canal, which makes defecation, and the half-hour following it, acutely painful. Even the thought of a bowel movement may fill the patient with such dread that he suppresses the urge, so that the hard constipated stools that he eventually passes make the fissure worse, and may occasionally make it bleed. With HIV disease, however, he often has a loose stool.

The classical fissure usually occurs posteriorly in the midline, between the anal verge and the dentate line, directly over the distal end of the internal sphincter. A small oedematous skin tag commonly forms on the anal verge, just posterior to the fissure. This is the 'sentinel skin tag'.

Later, the fissure may become indurated and infected, and may lead to a low perianal abscess (6.17). This may discharge through the fissure, and externally, to produce a low anal fistula. The internal sphincter lies directly under the fissure, and after several months of exposure this becomes fibrosed and spastic.

The HIV-related fissure arises often posterolaterally proximal to the dentate line, and develops into a smooth shallow ulcer, which deepens and may collect pus. This may then fistulate with a wide track (26.3) externally or into the vagina. The cause of this problem is rarely clear, and its treatment is unsatisfactory.

EXAMINATION.

An acute fissure is very painful, so do not try to do a rectal examination if you thereby hurt the patient even more. You may not be able to pass a proctoscope until you have gently introduced a submucosal injection of LA or administered a GA. You can, however, usually see a classical fissure by parting the buttocks gently; there is often a sentinel skin tag. The HIV-related fissure feels like an irregularity *inside* the anal canal; you may see pus discharging from the anus. Distinguish this from pus discharging from an adjacent fistula.

If there is more induration, a larger ulcer, and perhaps enlarged inguinal nodes, think of a carcinoma or sexually-transmitted infection: a **primary chancre** (the 1st sign of syphilis) has indurated margins, a symmetrical lesion on the opposite margin of the anal canal, and *no pain*. **Secondary syphilis** presents with a moist, pruritic anus, with flat, slightly-raised lesions, which are usually symmetrical on both sides.

TREATMENT depends on how long the fissure has been present.

If it is acute (<10days), only the epithelium is involved and it will heal, if you keep the stools soft for 2wks with a laxative. When it has healed, warn that it may return, if constipation recurs. So advise a high fibre diet. To reduce severe acute pain, introduce a condom (or the closed finger of a rubber glove) filled with water and frozen, into the anal canal. You can also help with LA ointment (5% lidocaine): this should be smeared over the sphincter inside the anus, *not outside it*. Injection of submucosal LA, though effective, is rarely tolerated by most patients.

If the fissure is chronic (>30days), fibrosed, of classic type, and has a sentinel skin tag, and especially if you can see the exposed fibres of the internal sphincter under it, it will probably not respond to non-operative treatment, though it may improve with glyceryl trinitrate 0.2% or diltiazem 2% cream locally. If symptoms persist for months and there is anal spasm, and the HIV test is negative, consider a lateral sphincterotomy, or excision of the fissure and skin tag. This second is a delicate procedure best left to an expert, though.

If the fissure is the HIV-related variety, treat with laxatives, if there is constipation (unusual), and nalidixic acid or ciprofloxacin with metronidazole, if there is a purulent discharge from within the anal canal. Advise against using jelly with the spermicide, nonoxylon-9.

LATERAL ANAL SPHINCTEROTOMY (GRADE 1.3)

Do not do this operation in an untreated HIV+ve patient; it may well not heal, and is unlikely to help!

Use laxatives before the operation. Use the lithotomy position and administer a GA. Examine the fissure to exclude an intersphincteric abscess. Insert either a bivalved operating proctoscope, or Lockhart-Mummery anal retractors, and rotate these to show the left lateral wall of the anal canal. Palpate the edge of the internal sphincter. Make a 1cm radial incision into the mucosa over the sphincter and, with scissors separate the epithelial lining of the anal canal from the internal sphincter and the internal from external sphincters. Open the scissors with blades either side of the internal sphincter and divide it. Do not make a large cut, which might render the patient incontinent: a partial division of the internal sphincter usually suffices. If you cannot define the anatomy, do not proceed!

LATERAL ANAL SPHINCTEROTOMY

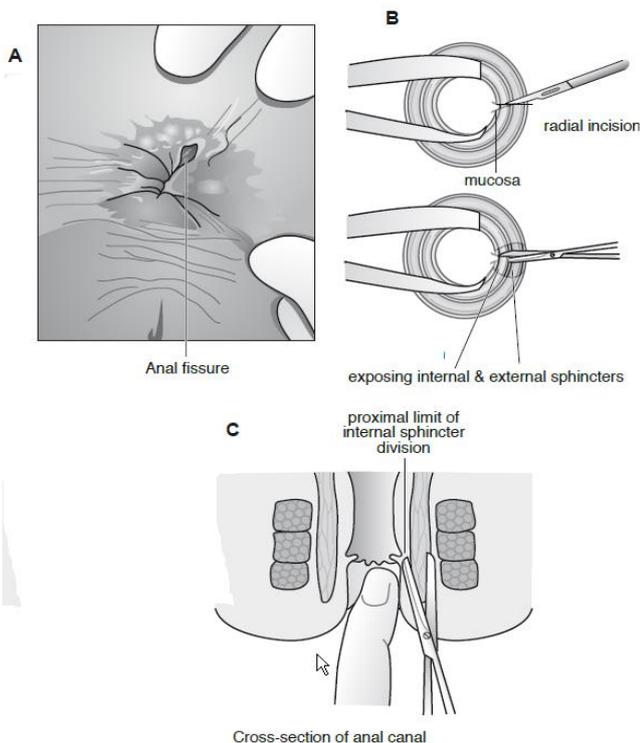


Fig. 26-9 LATERAL ANAL SPHINCTEROTOMY. A. appearance of chronic anal fissure. B, Radial incision exposing internal & external sphincters, and scissors inserted between internal & external sphincters, with one blade below and another above the internal sphincter, before division of the internal sphincter. C. Position of incision of internal sphincter with the index finger at the dentate line. After Morris PJ, Malt RA. Oxford Textbook of Surgery, OUP 1994 p.1141.

N.B. NEVER PERFORM AN ANAL STRETCH! (It is a crude uncontrolled way of doing a sphincterotomy and may well result in permanent incontinence, or even anal gangrene, especially in HIV+ve patients.)

26.6 Perianal warts

These are most commonly discrete multiple cauliflower-like lesions in the perianal area, known as *condylomata acuminata*. They are caused by a papilloma virus, transmitted sexually or through close physical contact (e.g. sleeping in the same bed) and may extend inwards as far as the dentate line, and become infected and ulcerate. There is a very strong but not absolute association with HIV disease, where if untreated they develop into squamous carcinoma.

Less commonly, they are large verrucous lesions with a pale brown centre, composed of many smooth warts, known as *condylomata lata*. They are caused by syphilis (*treponema pallidum*) and respond to penicillin, doxycycline and azithromycin. There is frequent association with HIV disease.

EXCISION OF PERIANAL WARTS (GRADE 1.3)

Make sure you are dealing with *condylomata acuminata*.

Infiltrate the perianal skin with dilute lidocaine with adrenaline. Carefully remove the growths with cutting diathermy or scissors. Treat the raw areas that are left with hypochlorite diluted 1:100 for a week, then with saline dressings, like any other perianal granulating lesion. If the warts are extremely voluminous, you should remove them in staged procedures in order to prevent the development of anal stenosis, which occurs if you excise warts at or inside the anal verge.

Treat with laxatives and adequate analgesia post-operatively, and insist on a daily douche and every time after defecation. Try to trace sexual contacts, and examine them for genital or perineal warts.

26.7 Anorectal carcinoma

A malignant ulcer at the anus is usually a squamous carcinoma if arising *de novo* or as a result of chronic infestation with *condylomata acuminata* (26.6); it may be an adenocarcinoma if extending inferiorly from a low rectal carcinoma. Rarely, you may find a malignant melanoma at the anus.

In HIV+ve patients a tumour related to the papilloma 16 virus, called anal intra-epithelial neoplasm (AIN), may develop. This looks like patches of reddened skin like Bowen's disease (a pre-cancerous scaly red ulceration), which it resembles, and progresses to squamous carcinoma.

If you see suspicious areas like this early, and can excise them locally, you may be able to prevent the degeneration to invasive carcinoma.

Anal Kaposi sarcoma, and non-Hodgkin's lymphoma also occur in HIV+ve patients.

These lesions may be extensive and fungating on presentation, when you will be unable to achieve excision with adequate clearance. Special techniques in well-equipped centres may still effectively deal with such tumours; otherwise the alternative is an abdomino-perineal resection, which many such patients will not be able to tolerate. Consider carefully if a defunctioning sigmoid colostomy (11.6) will benefit; biopsy is essential to make a diagnosis.

Occasionally if the lesion is small and near the anal margin, you can infiltrate it with LA solution containing adrenaline, and excise the tumour widely. You will need anal retractors and an assistant to achieve this.

Differentiate between an anal carcinoma and LGV, chancroid, schistosomiasis, amoebiasis & donovanosis, all of which can produce a destructive ulcer

N.B. Rectal carcinoma, which arises above the dentate line (12.11, 26-1) where the rectal mucosa starts.

26.8 Rectal prolapse (Procidentia)

Occasionally, the rectum prolapses out of the anus. It may prolapse incompletely, so that only a pink fold of mucosa shows, or it may prolapse completely, so that the whole thickness of the rectal wall is turned inside out (procidentia), and may ulcerate. At the same time the anal sphincter may stretch and become patulous, so that incontinence results. At first the rectum prolapses only with defecation, later it does so on minimal coughing and straining; finally it is outside all the time.

Although the rectum can prolapse at any age, it commonly does so in children of 3-5yrs (usually incompletely), and occasionally does so in the aged (usually completely). Prolapse is more common in malnourished children, perhaps because of poor tone and weakness of the anal sphincter mechanism, and is also associated with diarrhoea as well as straining when seriously constipated. If a child's diarrhoea and malnutrition is treated, the prolapse is usually cured also. A chronic cough, especially with whooping cough and cystic fibrosis, whipworm (*trichuris*) infestation and coeliac disease (reaction to gluten) predispose to prolapse. Prolapse often occurs in babies with spina bifida (33.11) and ectopia vesicae (33.15). Prolapse occurs also in those who practice anal intercourse.

A child's rectal prolapse is usually noticed by the mother who says that something red appears at the anus after defecation. When she brings him to you, there is usually nothing to see.

If there is, you can usually replace the rectum manually, but it is likely to prolapse again. If it remains prolapsed too long, it ulcerates.

The prolapse will however correct itself with age and improved nutrition. You should make sure the child sits properly during defecation, rather than squatting, and you can also strap the buttocks (26-10). If this does not prevent prolapse recurring, apply gallow's skin traction (pulling the buttocks up off the bed) and watch the prolapse reduce spontaneously.

An adult's rectal prolapse is much more difficult to treat. Symptoms are the result to the prolapse itself. However, it may be due to chronic large bowel obstruction from malignancy or *Schistosomiasis*, so ask about a history of constipation.

EXAMINATION.

If the prolapse is intermittent, the history may be of 'something coming down', but there will be nothing to see. In an adult, pass a proctoscope and ask the patient to strain down. The anal mucosa will prolapse into the hollow of the proctoscope, and extend beyond the anus as you withdraw it. If the prolapse is complete, the whole thickness of the rectum slides out all round, sometimes for several centimetres. At rectal examination, the anal sphincter feels weak.

To find out if the prolapse is partial or complete, put your finger into the rectum, and feel the protruding ring of mucosa between your finger and thumb. If all you can feel is 2 layers of mucosa, it is incomplete; if you can feel more tissue than merely mucosa, it is complete.

In a child, distinguish a prolapse from a rectal polyp, or an *ileorectal intussusception*. Examine immediately after defecation. Feel the outer aspect of the swelling, up to the anal orifice. In an ileorectal intussusception, you can pass your finger *between* the *intussusciens* and the anal wall: you can't do this with an anal prolapse. A rectal polyp is mobile and dangles from the anorectal wall, and you can flick it with your finger: make sure it cannot be squeezed like faeces.

N.B. Strictly speaking, a rectal prolapse is a *recto-rectal intussusception*.

In an adult, you may find that the prolapse is reduced when you start your examination, but appears with straining. The anal orifice may be widely open, and the sphincters abnormally lax. Assess their tone with your finger, because this is an important determinant of treatment and prognosis. You may feel very little contraction. If it is very lax, you may be able to put 3 or 4 fingers into the anus without discomfort. This is especially so amongst those who practice anal intercourse.

(A) CHILDREN WITH RECTAL PROLAPSE

If a child has diarrhoea, treat that. If the nutrition is poor, treat that first. These are the common causes of prolapse, and treating them usually provides a cure and avoids an operation.

Regular small doses of a mild sedative helps; put the child on a potty-chair, not sitting on a pot on the floor.

MANUAL REPLACEMENT AND STRAPPING.

Using a glove and lubricant jelly, replace the prolapse manually. You may have to squeeze it for 15mins to do so. If it is very oedematous apply gauze with icing sugar, which will soak up the oedema fluid and allow you to reduce the prolapse later.

Strap the buttocks securely together with the large gauze pad up against the anus. If this method is to work, the strapping must be adequate, painless, and easily applied. Apply a large square to each buttock. Join these with a 2½-5cm transverse strip, so as to close the buttocks, and leave this strip on during defecation. Afterwards, remove it, clean the buttocks, and replace it with a fresh strip (26-10). Ask the parents to repeat this after each bowel movement, and give them some vaseline gauze, plain gauze, and strapping, with which to do it. After a time, the rectum will stay up where it belongs. Strapping is often all that is necessary.

If, after 3-4 reductions the prolapse soon recurs after defecation, put up gallows traction.

CAUTION! Too much trauma trying to reduce a prolapse causes bleeding; in this case proceed to gallows traction.

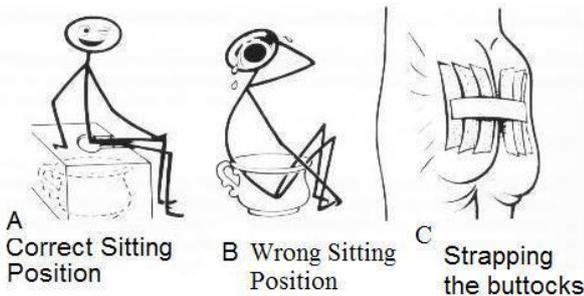


Fig. 26-10 CORRECT SITTING POSITION FOR DEFECTION & CORRECT METHOD OF STRAPPING FOR RECTAL PROLAPSE. A, correct sitting position. B, avoid the squatting position. C, only the transverse strip requires replacement after defecation. After Jones PG, Woodward AA. *Clinical Paediatric Surgery Blackwell 3rd ed 1986 p.324.*

GALLOWS TRACTION usually allows the prolapse to reduce: use this for a maximum of 2wks.

SCLEROSING PHENOL INJECTIONS.

Put 0.5mL of 5% phenol in almond oil into the submucosa at three equally spaced points, 2cm above the dentate line. This will cause some fibrosis; use this method only if strapping and gallows traction fail in those cases with loose stools and flabby tone.

THIERSCH'S OPERATION FOR RECTAL PROLAPSE (GRADE 2.1)

This method is really only applicable to children with severe anal hypotonia or other neurological problems: *it is absolutely contra-indicated in cases of constipation!* Use the lithotomy position and give ketamine; replace the prolapsed rectum (26-11A). Put your finger in the anus and feel the sphincter. It may be so loose that you can hardly feel it.

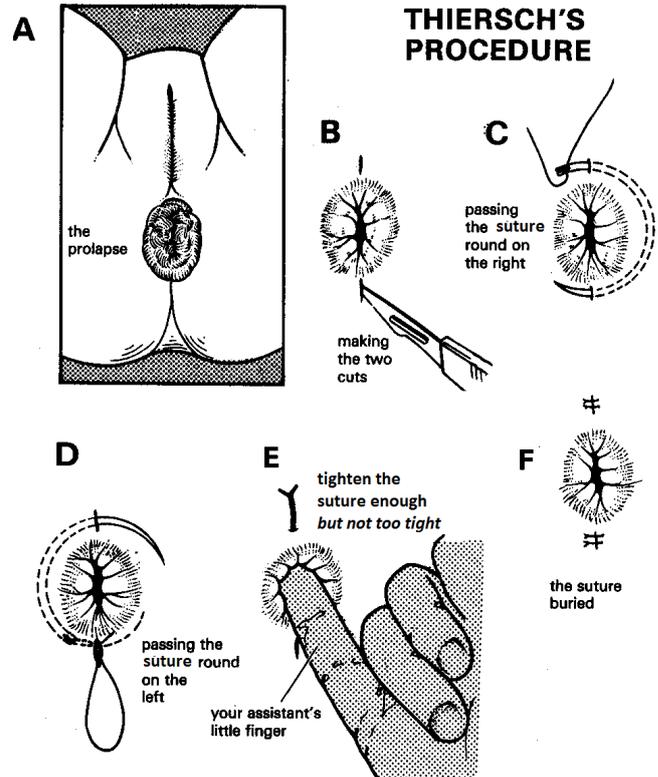


Fig. 26-11 THIERSCH'S PROCEDURE.

A, child's prolapsed anus. B, make two cuts in the skin 2 cm from the anus. C, pass the suture material from anterior to posterior on the right hand side. D, now pass it round on the other side. E, tighten the suture material with your assistant's little finger in the child's anus. F, finally bury the sutures. After Goligher JC. *Surgery of the anus, rectum and colon. Ballière Tindall 4th ed 1980 Fig 187 with kind permission.*

Make short incisions in the anteriorly and posteriorly in the midline 2cm from the anus (26-11B). Then, put a large curved round-bodied needle with #1 absorbable suture into the skin anteriorly in the midline 1cm from the anus. Pass it subcutaneously round the anus 1cm from it and out again posteriorly in the midline (26-11C). Pull the suture material through. Put the needle back into the posterior hole from which it has just come. This time pass it round the other side of the anus and out at the anterior incision (26-11D). Ask your assistant to put the little finger into the child's anus (26-11E). Tie the suture round the finger. Secure it with several knots, cut the ends 1cm long and bury them. Close the 2 skin wounds.

CAUTION!

(1) You must be able to get the tip of your little finger into a child's anus. Getting the tension of the suture material right is difficult. If it is too tight, it will interfere with defecation, and cause faecal impaction, or the wire may cut out. If it is too loose, it will not cure the prolapse.

(2) *Do not forget to make sure that he can pass stools normally before discharge.*

The major complications are breakage of the suture, and difficulty in passing even a soft stool, if the suture is too tight.

(B) ADULTS WITH RECTAL PROLAPSE

If there is an incomplete prolapse and the tone of the sphincter is fairly normal, you can treat it in much the same way as large third degree haemorrhoids (26.9). Reduce the prolapse and inject 2mL 5% oily phenol at three equally spaced points under the redundant mucosa.

If there is a complete prolapse, try to reduce it manually with adequate lubrication. If this proves difficult because the prolapsed rectum is very oedematous, inject 10mL solution of 3,000 units of hyaluronidase submucosally, and squeeze gently after 2-3mins.

If the prolapsed recurs frequently, you can either excise the prolapsing bowel leaving no more slack to allow further prolapse (perineal rectosigmoidectomy), or pull up the rectum from inside the abdomen and fix it (abdominal rectopexy). The Thiersch procedure does not work well in adults, being either too tight causing constipation (when often the suture breaks on straining), or too loose resulting in recurrent prolapse.

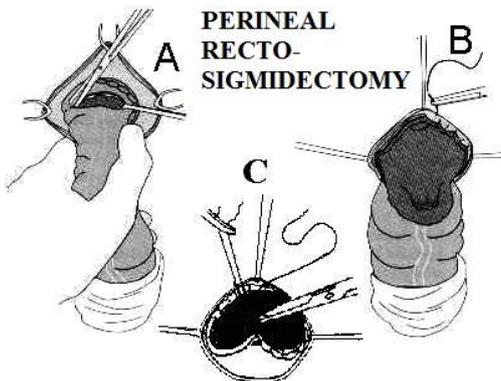


Fig. 26-12 PERINEAL RECTOSIGMOIDECTOMY.

A, after putting stay sutures and dividing the outer tube of rectum, pull down the inner tube to bring the sigmoid to the pelvic floor. **B**, divide the redundant bowel superiorly and suture outer and inner rectal tubes. **C**, after dividing the redundant bowel inferiorly, complete the suturing by fixing the anal remnant to the sigmoid, leaving no slack for further prolapse to occur.

After Morris PJ, Malt RA. *Oxford Textbook of Surgery*, OUP 1994 p.1106 Figs 6-7

PERINEAL RECTOSIGMOIDECTOMY (ALTERMEIER OPERATION) (GRADE 3.2)

Administer bowel preparation and use the lithotomy position with the legs elevated. Use LA or spinal anaesthesia, rather than GA, as these patients are often old.

Do not reduce the prolapse, but rather pull it fully out; put 4 stay sutures anteriorly, posteriorly, left and right through the outer rectal wall 1.5cm above the dentate line and divide the two layers of prolapsed colorectal tube circumferentially (26-12A).

Then hold the inner colonic tube with Allis forceps and pull it down till no more protrudes; it is important that you take up all the slack in order to prevent further prolapse. Close any gap or laxity in the puborectal sling (the *levator ani*) posteriorly, if necessary by overlapping the muscle layers. Place 4 stay sutures on the inner tube in the same way as before, just proximal to where you intend to cut off the redundant bowel, and then divide it anteriorly, preferably with diathermy. Clip the anterior stay sutures together, and likewise the others: this aligns the 2 rectal tubes nicely. Then suture the remaining parts of both rectal tubes anteriorly with continuous long-acting absorbable suture (26-12B). You can then safely divide the remaining posterior part of the inner tube and complete the suturing (26-12C). Finally, pull on the stay sutures to check your anastomosis, and when you are satisfied, cut them and allow the bowel to retract inside the anal canal.

CAUTION. *Do not let go of the inner colonic tube*; if you do and cannot retrieve it, perform a laparotomy to find the retracted portion of bowel in order to bring it down again.

ABDOMINAL RECTOPEXY. (GRADE 3.3)

Expose the pelvis through a lower midline incision, and pack away the bowel. Mobilize the rectum down to the pelvic floor, anteriorly and laterally by incising the peritoneum, but *not* dissecting posteriorly. *Do not divide the lateral ligaments* (the sacro-uterine ligaments in a woman, 21-18), but use them to keep the bowel up out of the pelvis when you pull up the rectum. Using non-absorbable #1 multifilament sutures, pull the rectum firmly upwards towards the sacral promontory, and fix it there. Then suture the taut 'lateral ligaments' to the presacral fascia.

CAUTION!

- (1) *Do not penetrate the wall of the rectum.*
- (2) Be sure to put all the sutures in first and then tie them later.
- (3) Make sure the rectum is pulled up well out of the hollow of the sacrum.

26.9 Haemorrhoids (Piles)

The arterio-venous haemorrhoidal plexuses of the anal canal may become swollen and start to protrude. They form in the left lateral, and right antero- and postero-lateral (*i.e.* the 3, 7 & 11 o'clock) positions, and although they usually cause no symptoms, they can bleed and cause severe anaemia; the bleeding is painless, fresh and not mixed with stool, coming especially after defecation. They can also cause an irritating mucous discharge.

They can prolapse, and spontaneously reduce, being known as 2° haemorrhoids, or prolapse permanently as 3° haemorrhoids. These may then thrombose and become very painful.

Untreated, however, 1° (non-prolapsing) haemorrhoids usually eventually shrink. They may be the site of porta-systemic blood shunting in portal hypertension: check for this before you decide to operate!

N.B. Haemorrhoids are NOT painful unless prolapsed. Pain is usually due to an anal fissure or ulcer (26.5). *Do not treat normal anal structures when there are minimal symptoms.*

A simple and very effective treatment of haemorrhoids is by sclerosant injections (26-13).

EXAMINATION.

You cannot see haemorrhoids unless they are prolapsing, except through a proctoscope. Prolapsing haemorrhoids form large projecting bluish swellings protruding from the anus, only their outer parts covered with skin, and their inner parts with purple anal mucosa, separated by a groove, at the three main positions. There may be accessory haemorrhoids in between.

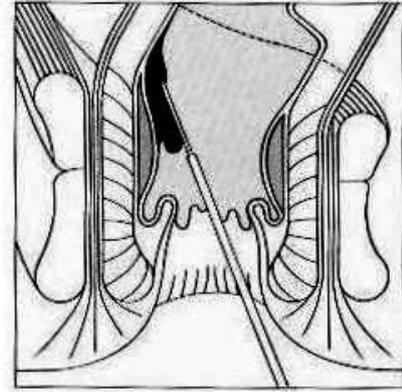
You may see distended veins at the anorectal junction in portal hypertension: these do not look exactly like haemorrhoids.

If you see a single tender bluish swelling c.1cm diameter at the anal verge, totally covered by skin, this is a perianal haematoma, *not a haemorrhoid*. If it is <24 hrs old, you can incise and drain it under LA. Otherwise leave it to organize and resolve, providing the patient laxatives and analgesia.

Never incise prolapsed haemorrhoids: the bleeding is catastrophic! Do not confuse skin tags with haemorrhoids, which have an internal mucosal lining.

PROCTOSCOPY (26.1) is the only satisfactory way to diagnose 1° and 2° haemorrhoids. They bulge into a proctoscope like grapes, as you withdraw it and ask him to strain. Withdraw it just to the anus, and then ask him to continue straining.

SIGMOIDOSCOPY (26.1) must be a routine if there is a history of bleeding to exclude serious pathology, especially a carcinoma, particularly after age 40yrs and you cannot see any haemorrhoids!



SCLEROSANT INJECTION OF HAEMORRHOIDS

Fig. 26-13 SITE OF INJECTION OF SCLEROSANT FOR HAEMORRHOIDS. Site of injection under the mucosa.

After Geile D, Scheidter KH. Proctological Compendium. PMS Munich 1981.

SCLEROSING PHENOL INJECTIONS.

Put 2mL 5% phenol in almond or peanut oil under the mucosa just proximal to the haemorrhoids at each site (26-13): you will need a proctoscope and a light to do this, and it helps to have an assistant. The oil is viscous and so you need a long wide-bore needle: attach this to a syringe small enough to fit inside the proctoscope. The procedure should be virtually pain-free; if you are causing pain, it may be you have injected deep into the prostate; withdraw and re-insert the needle.

You can use this method safely with HIV+ve patients, where other methods (such as open haemorrhoidectomy or tying with rubber bands which anyway needs special equipment) are not advisable. With large haemorrhoids, the injections may need to be repeated after 6wks, and again at 12wks. If this fails, you should think about haemorrhoidectomy.

Do not use sclerosants on prolapsed haemorrhoids; you should wait till they are reduced.

PROLAPSED 3° HAEMORRHOIDS

Do not rush into recommending haemorrhoidectomy for these: the surgery may be difficult and bloody.

Try to reduce them after applying gauze with fine sugar and vaseline to absorb oedema fluid, and using sedatives and laxatives, for 4-5days. This will, however, not work if the haemorrhoids are already thrombosed.

NEVER PERFORM AN ANAL STRETCH

HAEMORRHOIDECTOMY (GRADE 2.3) INDICATIONS.

- (1) Irreducible 3rd degree haemorrhoids.
- (2) Chronically thrombosed 3rd degree haemorrhoids.

CONTRAINDICATIONS.

- (1) HIV+ve patients.
- (2) Septic haemorrhoids.
- (3) Acutely thrombosed haemorrhoids
- (4) Portal hypertension.

RELATIVE CONTRAINDICATION

Severe constipation.

TYING & EXCISING HAEMORRHOIDS

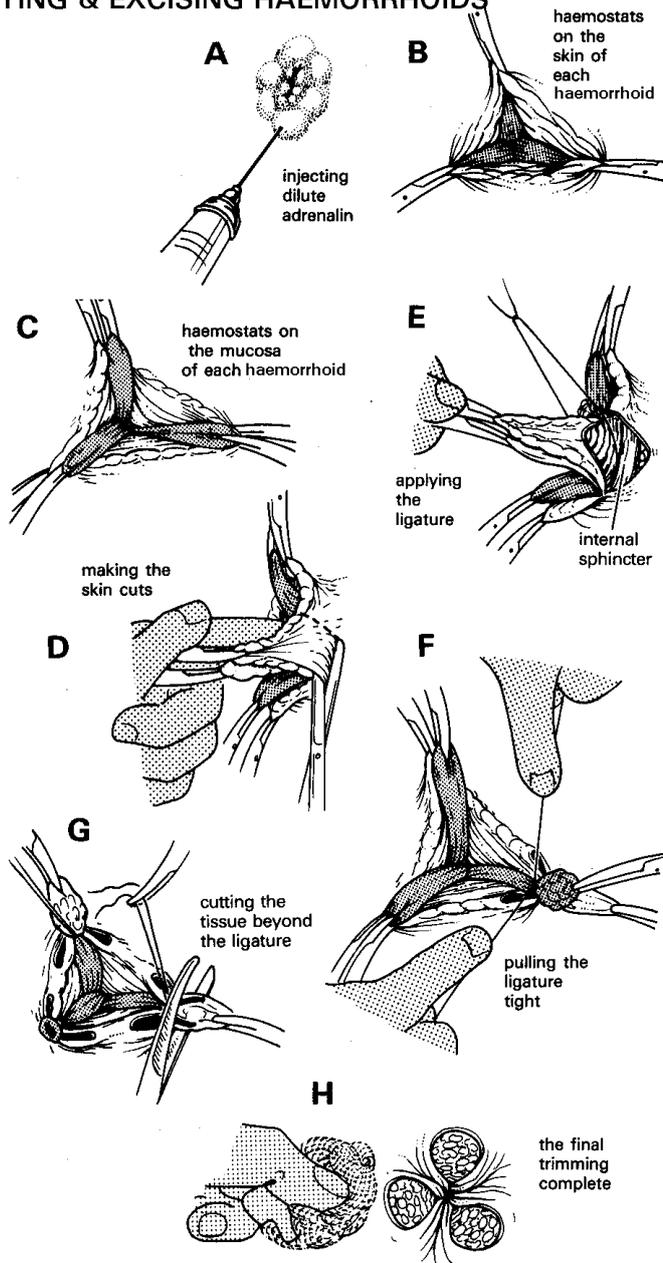


Fig. 26-14 TYING AND EXCISING HAEMORRHOIDS.

A, inject adrenaline in saline or lidocaine to control bleeding. B, apply forceps to the skin of each primary haemorrhoid. C, apply a 2nd pair of forceps to each haemorrhoid where it is covered by mucosa. D, make the skin cuts for the left lateral haemorrhoid. E, snip the mucocutaneous junction at the neck of each haemorrhoid and tie it. F, pull strongly as you tie a haemorrhoid, release the forceps as you do so, and allow the ligature to sink into the tissues. G, after you have tied all 3 haemorrhoids, excise the left lateral and then the right postero- and antero-lateral haemorrhoids, taking care to leave adequate stumps and skin bridges. H, final skin wounds trimmed.

After Goligher JC, *Surgery of the anus, rectum and colon*. Ballière Tindall 4th ed 1980 Figs 80-7 with kind permission

PREPARATION.

Treat with bowel preparation (an enema is usually too uncomfortable) and metronidazole pre-operatively. Check the HIV status, and cancel the operation if the test comes back +ve.

You can use LA (with sedation) if you are gentle: infiltrate 30-60mL 1% lidocaine with 1:200,000 adrenaline in the perianal skin, ischiorectal fossae (26-1), retrorectal space and haemorrhoidal pedicles.

Use the lithotomy position, with the buttocks well beyond the end of the table. A sandbag under the sacrum helps exposure. Clean the anal region, and do a careful digital examination to make sure that there is really no other pathology. Perform a sigmoidoscopy if you have not already done so.

If you do not have diathermy, infiltrate the subcutaneous tissues round the anus with 1:100,000 adrenaline in saline or lidocaine (26-14A).

METHOD.

Push some dry gauze into the rectum, and slowly pull it out. The haemorrhoids will prolapse with it. Grasp the skin at the mucocutaneous junction of each haemorrhoid with haemostats, and pull them outwards (26-14B). Take the purple mucosa-covered part of each haemorrhoid in other larger haemostats, and draw them downwards and outwards. This will bring all 3 haemorrhoids well out of the anus, so that you see the pink rectal mucosa at their upper ends (26-14C). Pull on all 6 haemostats until you see the rectal mucosa, not only at the upper end of each haemorrhoid, but also between them, and secure the haemostats with towel clips to give you a clear field. Draw the haemorrhoids out as far as they will go, which will allow you to tie them at their upper poles, rather than around their middles.

With cutting diathermy make a V-shaped cut in the anal and perianal skin opposite the left lateral haemorrhoid (26-14D). The ends of the V should reach the mucocutaneous junction, but not extend into the mucosa beyond it. The point of the V should lie 2½-3cm from the junction. You will see the lower edge of the internal sphincter laid bare. This is a firm, whitish ring which should be clearly visible and you should avoid damaging. If you hold the haemorrhoid aside (26-14E), you will see it quite clearly.

Transfix the pedicle of each haemorrhoid using #0 or #1 long-acting absorbable suture (26-14F), cut off the haemorrhoid 1cm beyond the transfixion suture (26-14G) and transfer the haemostats holding the haemorrhoid to hold the ends of the ligature, retracting them laterally once more. Leave the ligature ends long. Cut them short after 24hrs.

CAUTION! A slipped ligature can cause fearsome bleeding, so always *transfix* the haemorrhoid!

Treat the other haemorrhoids in the same way, *leaving 1cm skin and mucosal bridges between each pedicle, but do not be tempted to remove any accessory haemorrhoids.*

Push some dry gauze into the anus, and examine for haemostasis; you may need a lubricated speculum to look at the ligatures. Infiltrate 2ml bupivacaine into each pedicle for post-operative pain relief. The end result should look like a clover leaf (26-14H). Apply petroleum jelly gauze to each of the three raw areas on the anus, and cover this with cotton wool. Hold it in place with a T-bandage.

Remove the dressings in the bath the next day. Use showers on subsequent days. Treat with laxatives and adequate non-constipating analgesia, paracetamol or NSAIDs. If no stool is passed by the 3rd day, use a glycerine suppository. *Do not discharge the patient before he passes stool* because otherwise faecal impaction may result!

DIFFICULTIES WITH HAEMORRHOIDECTOMY

If there are accessory haemorrhoids, only excise the main ones, so that that you only make 3 skin wounds. *Leave the accessory haemorrhoids*: they will shrink of their own accord. *Do not try to excise separate skin tags outside the main skin wounds*.

If there is an associated anal fissure, treat it (26.5) and leave the haemorrhoids alone.

If there is postoperative PAIN, treat with pethidine. If severe pain follows defecation, a hot bath will soothe the discomfort.

If there is difficulty passing urine, try using pethidine and encourage passing urine in a warm bath. If this fails, catheterize the bladder, and remove the catheter after 48hrs. Or, alternatively perform a suprapubic aspiration.

If there is bleeding within 12hrs (reactionary haemorrhage), usually due to a slipped ligature, adrenaline wearing off, or a rise in BP: pull down on the ligatures, which you left long deliberately for this eventuality, and try to secure the bleeding vessel with artery forceps in the ward. If this fails, return to theatre to perform a formal proctoscopy to find and ligate the bleeding vessel under GA.

N.B. There maybe torrential bleeding from portal hypertension if the haemorrhoids are the sites of portosystemic shunts: in this case use Vitamin K, fresh frozen plasma and tranexamic acid if you can get these.

If there is bleeding between 7 & 10days (secondary haemorrhage), this may occur into the rectum, appearing as clotted blood with the next stool. It is due to infection eroding into a blood vessel.

Bleeding may stop spontaneously; if it does not, try pushing a lubricated, adrenaline-soaked pack into the anus and lower rectum. If this is inadequate or impractical, insert a large Foley catheter, inflate it, tie a 500g weight to it, and exert traction on the bleeding site. If bleeding persists after 24hrs, prepare theatre as above.

If the stools become impacted, this is probably the result of being allowed home without adequate or with constipating analgesia. You will need to extract faeces manually under anaesthesia. If the wounds are still raw, start metronidazole and use sufficient laxatives.

If a stricture develops, you probably did not leave adequate bridges of tissue between the excised haemorrhoids. Provide the patient with an anal dilator and show him how to pass this daily for 3months.

If there is mucous prolapse post-operatively, *do not rush in to excise further tissue*. Healing will in most cases cause the anal mucosa to retract spontaneously.

26.10 Pilonidal infections

Long straight hair sometimes works its way into the skin; this occurs especially in the natal cleft just posterior to the anus but also at the umbilicus to form an abscess, sinus or fistula. This occurs in people with copious long straight hair, most commonly young males. There may be one or more openings, sometimes with hairs coming out of them, exactly in the midline 5cm posterior to the anus. Often, there is another sinus, 2-5cm superiorly, and slightly to one or other side of the midline, with an indurated track joining it to the first one.

Do not mistake a pilonidal sinus for a subcutaneous or perianal fistula (26.3). If you are in doubt, remember:

- (1) In a pilonidal sinus there will be no induration between the lowest sinus and the anus.
- (2) There will be no fistulous opening inside the anus.
- (3) When you probe the lowest sinus, the probe will pass towards the sacrum, not the anus.

Aim to excise the sinus without any surrounding tissue, make sure that the wound heals properly, and prevent hairs growing into it as it heals.

If there is no infection, excise the affected area, otherwise if infected, aim initially only for simple drainage. The most important part of the postoperative care, after either method, is to make sure that new hair does not grow into the granulating wound.

PILONIDAL SINUS

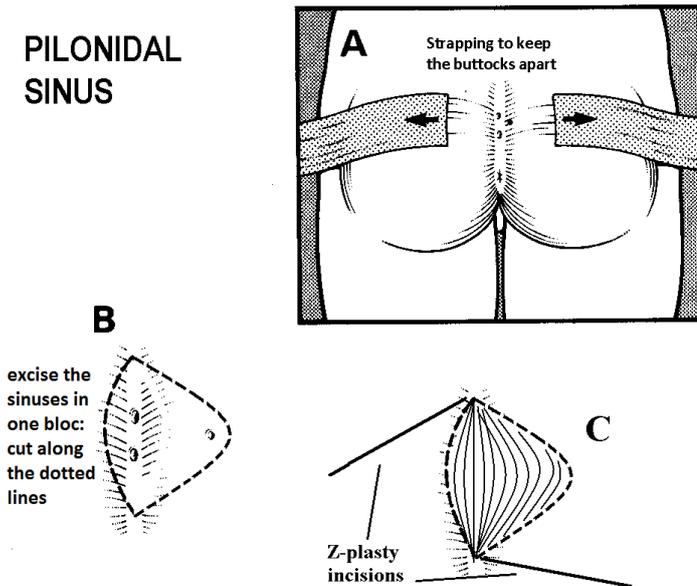


Fig. 26-15 EXCISION OF A PILONIDAL SINUS. A, strap buttocks apart to show openings of the sinuses. B, excise all the sinuses *en bloc*. C, close the wound with a Z-plasty without tension (34.2). After Rob C. Smith R. *Operative Surgery: Abdomen II*, Butterworth 1981 with kind permission.

ACUTE INFECTION. Incise and drain the abscess through a short incision, taking particular care to remove all hair and granulation tissue with a curette. Insert a drain. Treat any sinus developing later.

EXCISION OF PILONIDAL SINUSES (GRADE 2.4)

INDICATIONS.

At least 2 episodes of infection, and a persistent discharge. Be sure to operate at a time when the symptoms are quiescent, and infection absent.

PREPARATION.

Advise the use of depilatory creams, or to pull out offending hairs individually. Shave the area near the buttocks. Use gentamicin and metronidazole perioperatively. Draw lines on the lines of contact of the buttock edges when they are pushed together.

Use the left lateral position, with the buttocks over the edge of the table. (If you use the prone position, you will need intubation and GA). Put a piece of gauze soaked in an antiseptic, such as chlorhexidine, over the anus, and towel up carefully. Ask your assistant to stand at the other side of the table, and to retract the right buttock (or use strapping, 26-15A). Injection of methylene blue dye makes the tracks much more visible, although this might not be necessary.

ANAESTHESIA.

If the area is limited you can operate under LA, otherwise with the patient on his side, with the hips flexed, there is no need for intubation; you can use ketamine or GA.

Do not use spinal or epidural anaesthesia as there is a potentially septic lesion too close to the injection site.

METHOD.

Probe all the openings to find in which direction the sinus tracks run. If this is difficult to elucidate, gently inject methylene blue dye into the tracks to mark their pathways: *beware not to inject too brusquely*, otherwise the whole area will be coloured blue!

If there are individual sinuses, remove a core of tissue 5mm around each pit, so that the midline defect remains <7mm wide. Clean the track you have made, if possible with a very small brush (as made for electric razors), or a small curette. Treat all side openings in the same way. When you are sure that there are no more pockets that might contain hairs, close the wounds primarily and apply a gauze dressing.

N.B. Do not try to pack the cavity.

If you cannot excise all the sinus tracks individually because there are lateral extensions, lay open the main sinus track and cut round the subsidiary sinus openings. Excise the whole affected area, down to the sacral periosteum (26-15B). *Do not leave any hairy sinuses behind*, because recurrence is then inevitable.

Avoid a midline closure. An effective way to do this is to perform the Bascom II cleft lift procedure; separate the skin from the side of the wound nearest the midline from its underlying fat, and advance this across the midline as an advancement flap.

If there is a wide area involved, which a simple advancement flap will not close, (especially if your excision goes beyond the lines you draw on the buttock edges) perform a Z-plasty (26-15C, 34.2) to alleviate tension which would give rise to ischaemia and a high risk of re-infection and wound failure.

If you can, mobilize the gluteal fascia off the sacral edges, and resuture it over the sacral bone, so that skin closure above is neat and totally without tension. *There is no indication for deep tension sutures!* Close the wound only if there is really no infection, otherwise leave it open for several days, use daily showers and perform a delayed closure when there is no longer any sepsis.

For more complex extensive sinuses, you can achieve tension-free closure using the Limberg flap: make a rhomboid incision, with an extension arm as a transposition flap (26-16).

Postoperatively, regular sitz baths, a douche or shower are important. Keep the back and buttocks shaved free of hairs while the wound heals, or the sinus will recur. Eventually, the scar will become strong enough to withstand them.

LIMBERG FLAP

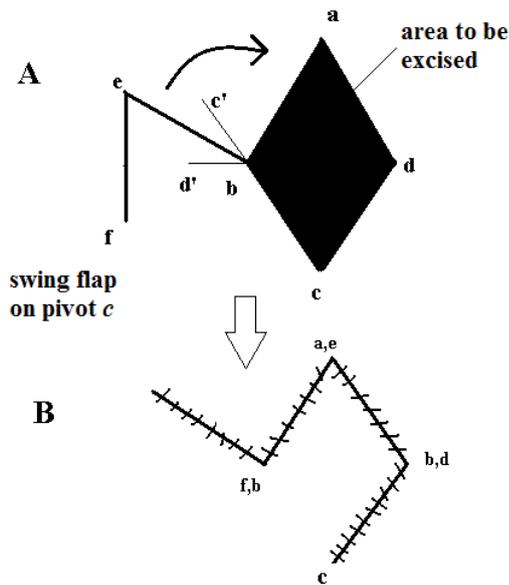


Fig. 26-16 LIMBERG FLAP.

A, Draw a rhomboid with equal side around the area you want to excise, and make a line be bisecting the angle $c'bd'$ where bc' and bd' are extensions of cb and db respectively, and drop a perpendicular, ef , the same length, parallel to ac . Deepen the incisions along be and ef down to the gluteal fascia. B, Swing the rhomboid flap ($cbef$) round into the excised area ($cdab$) without tension.

After Akca T, Colak T, Ustunsoy B et al, Randomized clinical trial comparing primary closure with the Limberg flap in the treatment of primary sacrococcygeal pilonidal disease. *Br J Surg* 2005;92:1081-4.

DIFFICULTIES WITH PILONIDAL SINUSES

If the wound BLEEDS postoperatively, apply some gauze, and apply pressure.

If the wound shows signs of infection postoperatively, reopen the wound, use daily sitz baths and perform a delayed closure once the wound is free of infection

If there is excessive granulation tissue, curette it. Remove loose hairs.

If the skin forms a bridge across the lesion, with a dead space underneath, the sinus will recur. This is the commonest cause of recurrence, and is the result of poor operative technique, or poor postoperative care; so try to get it right next time. Debride the wound and leave it open.

26.11 Other anorectal problems

RECTAL ULCERATION.

An ulcer of the rectum may be benign or malignant; the distinction may not be obvious and so biopsy is important. All result in constipation, tenesmus (the feeling of something left behind after evacuation of a stool), mucus discharge and rectal bleeding.

Persistent digital self-evacuation of faeces (common in some communities) may produce a solitary linear ulcer 8-10cm from the anus.

An amoebic granuloma (14.5) is a soft proliferative ulcer associated with amoebic trophozoites in the stools, and responds to treatment with metronidazole.

Gonorrhoea produces an ulcer with thick yellowish purulent discharge, most commonly in active homosexuals. Treatment is with doxycycline or ciprofloxacin.

Primary syphilis produces multiple eccentric irregularly located ulcers (chancres), which may be painful but often give no symptoms. The VDRL test is +ve. Treatment is with intramuscular penicillin.

Carcinoma of the rectum (12.11) usually has a distinctive craggy hard feel, with an ulcer having rolled everted edges and a central crater.

Tuberculosis may likewise produce a hard rectal ulcer.

Lymphogranuloma venereum (caused by *chlamydia*) can produce an ulcer, especially in HIV-patients, as well as a stricture. Treatment is with doxycycline for 3wks or azithromycin.

Radiation >45Gray from treatment of uterocervical, ovarian or prostatic cancer can lead to ulceration particularly resistant to treatment.

Herbal enemas, in some communities, are used not just to ease bowel motions, but as aphrodisiacs or abortifacients. Potassium chromate as an ingredient can cause serious mucosal burning, and may be carcinogenic. Resultant ulceration or scarring may be extensive.

Colorectal leiomyopathy is a strange condition affecting children and young adults possibly also related to enema use, where the bowel muscle wall becomes replaced by fibrous tissue. The rectum and the colon progressively distend enormously and fail to evacuate stools properly, but usually the patient's abdomen remains soft and he eats well. You might confuse this with Hirschsprung's disease (33.7).

Do not be tempted to fashion a defunctioning colostomy! This too becomes grossly distended! Treat these patients conservatively with bowel wash-outs.

LONE STAR ANORECTAL RETRACTOR

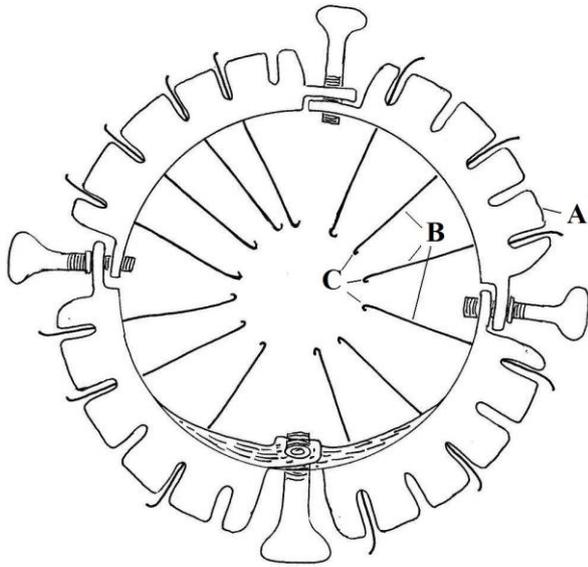


Fig. 26-17 LONE STAR RETRACTOR.

This very versatile device can be home-made. It consists of an outer ring (A), which can be jointed. You can fix skin hooks (B) to retract the anal margin, and attach them to elastic bands inside plastic tubing (C) onto the outer ring.

MANAGING A RECTAL ULCER

Make a careful examination under anaesthesia in theatre with good illumination. Assess the extent of the ulcer, its consistency, its fixity, and its spread to prostate, vagina, cervix or bladder. Look for adjacent fistulae, suggestive of tuberculosis. Take a biopsy; if you cannot get a histology report, smear cells onto a microscope slide and look for AAFB's and irregular cancer cells. *Do not forget to check for amoebic trophozoites in the stool.*

A defunctioning colostomy (11.6) is only indicated when a rectal tumour is causing bowel obstruction, or if there is intolerable intractable faecal incontinence. If amoebiasis is common, try metronidazole whilst waiting for stool tests and biopsy results. The only medication that may help a radiation ulcer is sucralfate instilled rectally.

FOREIGN BODIES IN THE RECTUM

Any number and size of objects may be found in the rectum, or higher up in the sigmoid colon. It may be a stick or device to remedy constipation, or any sort of supposedly therapeutic tool, even a humming vibrator for sexual stimulation! Insist on good bowel preparation, and then do a sigmoidoscopy to try to coax the foreign object down. Ask the patient to perform a Valsalva manoeuvre.

You may have to use your ingenuity to grasp it; pushing on the abdomen from above may help. Extracting a round smooth object may produce an insurmountable vacuum; in this case, pass a catheter beyond the foreign body and introduce some air.

You can fill an open glass jar with plaster around a long forceps. For a smooth ball, use two long spoons and apply traction as with obstetric forceps! For a soft object, you can try skewering it with a myomectomy screw. *Beware if the object, or the tool you use, is sharp, that you do not lacerate the colorectum on removal; if you do so, and the damage is retroperitoneal, keep the patient nil orally and treat with metronidazole. If the damage is intra-peritoneal, perform a laparotomy to find the perforation and close it primarily in 2 layers (11.5).*

Beware the 'body stuffer' who carries opioids in plastic containers within the rectum: these may burst releasing a toxic dosage of drug which is rapidly absorbed, if you are too aggressive with laxatives or instrumental extraction.

RECTAL STRICTURE

This may partly obstruct the rectum and cause alternating constipation and diarrhoea, with faecal incontinence, and ultimately cause total obstruction.

It may be due to:

- (1) Lymphogranuloma venereum.
- (2) Fibrosis following a corrosive traditional enema (usually producing a long stricture).
- (3) Schistosomiasis.
- (4) Amoebiasis (14.5).
- (5) Haemorrhoidectomy without adequate skin bridges (26.9)
- (6) Excision or diathermy of very extensive anal warts (26.6).
- (7) Tuberculosis.
- (8) Carcinoma (12.11).

A stricture due to lymphogranuloma venereum is usually a localized shelf-like lesion of hard fibrous tissue about 1cm deep, 5cm in from the anus, and lined by thin adherent anal skin. Sometimes there is a rectovaginal fistula below the stricture. There may be multiple colonic strictures also.

If you remove the stricture entirely, the result may be incontinence.

The options are:

- (1) carefully dilate it with Hegar's dilators under GA. Try not to tear it, or you will cause further inflammation and fibrosis.
- (2) using the lithotomy position, and, preferably using diathermy, make four V-shaped incisions (the V pointing inwards) in the 12, 3, 6 & 9 o'clock positions to remove four triangular pieces of fibrous tissue. (This way you do not completely excise the stricture)

If obstruction is severe, fashion a defunctioning sigmoid colostomy (11.6) whilst you prepare for an abdominoperineal resection and a permanent end colostomy. If you have an anastomosis gun, it may be possible to place the anvil proximal to the stricture and thereby resect it endo-anally whilst at the same time improving the luminal diameter.

PROCTITIS

Inflammation of the rectum may be localized or spread proximally into the colon. You can really only make a diagnosis by proctoscopy and biopsy. Look to see if the inflammation is patchy or continuous, and assess its extent and severity. The mucosa initially appears red, and then becomes heaped up, sometimes with polypoid protuberances; if severe, there is contact bleeding, and it may then be too painful to proceed without an anaesthetic.

Symptoms are pain with loose blood-stained stools. You should exclude dysentery (*shigella* may cause quite a florid proctitis). There are indeed many causes, and so a biopsy is essential, as well as stool examination.

Proctitis may be due to:

- (1) *Chlamydia trachomatis*.
- (2) Gonococcus.
- (3) Amoebiasis.
- (4) *Schistosoma mansoni*.
- (5) Tuberculosis.
- (6) Herpes simplex virus and fungal infections, especially in HIV disease.
- (7) Ulcerative colitis.
- (8) Crohn's disease.
- (9) Radiation (best treated by sucralfate).

Suspect (1 or 2) where there has been anal sexual penetration.

PRURITIS ANI

The commonest cause of perianal itching is worm infestation with threadworms (*enterobius vermicularis*), whose adult females deposit ova on the perianal skin. You can detect these by examining transparent sticking tape to the anus, but bathing in the morning will wash off ova laid in the night! Scratching transmits ova to the fingers, and hence to food and to the mouth.

All members of a household require treatment, which is fortunately very simple: mebendazole 5mg/kg stat, or albendazole 7mg/kg stat, either repeated after 2wks, or piperazine 30mg/kg, stirred in water or milk, od for 2 consecutive days.

Look for other parasitic skin infections, especially scabies and body lice, as well as dermatoses such as eczema, seborrhoeic intertrigo, and lichen planus.

Examine the perineum for excessive moisture, skin excoriation, faecal soiling, and purulent discharge. Ask about the use of ointments, perfumed powders and creams which can cause an allergic dermatitis. Candidiasis may be present, especially in HIV+ve patients, or those treated with a multitude of broad-spectrum antibiotics.

Occasionally, you may see a raised, erythematous, straight or snaking subcutaneous ridge (cutaneous myiasis) due to deposition of fly or nematode larvae through the hair follicles when in contact with contaminated soil. The larva migrates after an incubation period of 2-10days, especially at night, at speeds of up to 2cm/day. Albendazole 7mg/kg for 3days is curative; the larvae can be extracted with a sharp needle followed by douching the wound with 15% chloroform in vegetable oil.

You should, however, do a proctoscopy and look for haemorrhoids (26.9) or a polypoid lesion.

Sometimes you won't find anything, and may suspect a psychological problem. First exclude diabetes, diarrhoeal and other dermatological diseases, and allergies to soaps. Miconazole 2% with a low-dose hydrocortisone (1%) can be put as a cream, with an antihistamine (chlorphenamine or promethazine) often abolishes a vicious cycle of itching, scratching, and irritation.

IMPERFORATE ANUS

Rectal agenesis can occur with or without fistulation into the vagina or bladder (33.6); always remember to examine for an anal opening on the neonate.

FAECAL INCONTINENCE

Involuntary leakage from the anus is common in children, after traumatic childbirth with a 3rd degree perineal tear, the debilitated, homosexuals, paraplegics and the elderly. It happens often after a cerebrovascular accident; it is important to know whether the incontinence is because the rectum is loaded with faeces and only loose stool come past, or whether the anal sphincter mechanism is not working. *So always do a rectal examination!* Check if there is a fistula (26.3).

If you find hard obstructed faeces, do a manual evacuation under ketamine. Then use daily laxatives, and make sure he mobilizes (if possible) and eats a high-fibre diet.

If there is a 3rd degree post-partum perineal tear (21.16), effect a repair taking care to look for the retracted sphincter muscle.

If you find a loose anal sphincter, the patient may benefit from a postanal repair. This is surgery for the expert. Check first for HIV.

If there is no sphincter tone, you can train the rectum to evacuate by stimulating the medial thighs. You need to start with a bowel wash-out and then establish a regular bowel routine. This needs patient persistence, and a regular dietary regime and laxative use.