

Fissures, pruritus ani and haemorrhoids

Tom D Eames

John H Scholefield

Abstract

Benign anal diseases are common. Patients may present with a variety of symptoms including pain, itching or bleeding. It is important for a surgeon to be able to accurately diagnose and treat these conditions. This article discusses the basic anatomy of the anal canal and the common causes, investigation and treatment of anal disease. Fissures are linear ulcerations in the anal canal of unknown aetiology and are a common cause of pain and bleeding. Treatment can involve both pharmacological and surgical management. Many people will suffer with pruritus ani at some point in their lives. Most causes are benign but it is essential to perform sufficient investigation as it can be a marker of some important diseases. Haemorrhoids occur in 4-36% of the population and often present with fresh rectal bleeding. Outpatient management is successful in the majority of patients but surgical intervention is sometimes required.

Keywords fissures; pruritus ani; haemorrhoids; benign anal disease

Anatomy

The anal canal is about 4–5 cm long in men and slightly shorter in women. At the midpoint of the anal canal is the dentate line (Figure 1). This demarcates mucosa from the embryonic endoderm and ectoderm. Above this the canal is lined with columnar epithelium and below with stratified squamous epithelium. The point between these zones is not always clear cut. There are several important differences between the upper and lower anal canal. The upper canal innervation is autonomic (meaning that it is relatively insensate), venous drainage is into the portal system and lymph drainage is to the abdominal nodes. The lower anal canal is somatic, venous drainage is systemic and lymph drainage is into the inguinal nodes.

Resting pressure in the anal canal is important for maintaining continence. It is composed of 55% from the internal anal sphincter, 30% from the external anal sphincter, and 15% from the anal cushions and mucosa.

The clock face is often used to describe the position of pathology in the anal canal. 12 o'clock is anterior with the patient lying supine.

Tom D Eames is a Research Fellow in Gastrointestinal Surgery at Nottingham University Hospitals, Nottingham, UK. Conflicts of interest: none declared.

John H Scholefield FRCS is a Professor of Surgery at Nottingham University Hospitals, Nottingham, UK, Conflicts of interest: none declared.

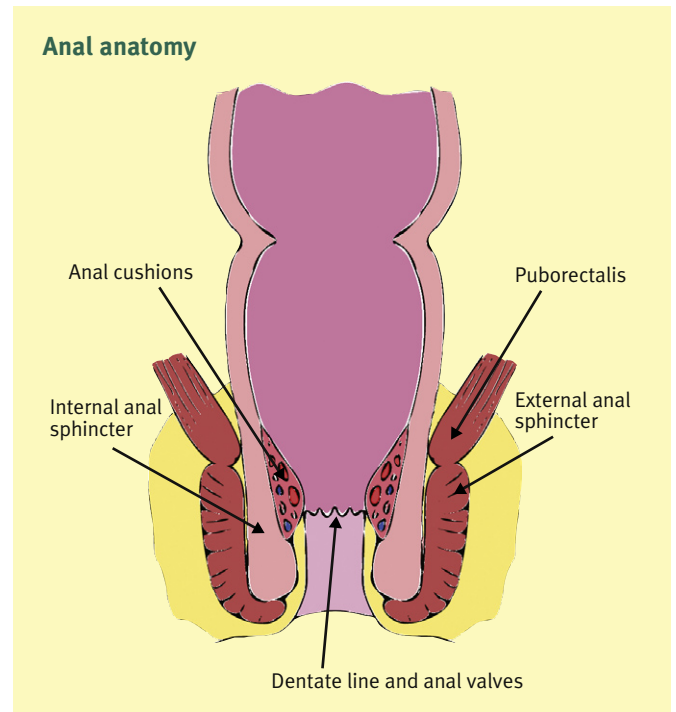


Figure 1

Fissures

Definition and epidemiology

Fissures are linear ulcerations of the anal canal below the level of the dentate line. They can occur secondary to infection, trauma and Crohn's disease, but most are primary in origin. They are a common cause of pain and bleeding, and most commonly occur in young patients between the ages of 20 and 40 years; however, they can present at any age. Most fissures are acute in nature and resolve spontaneously within a period of 6 weeks without any intervention (Figure 2). Any that continue beyond this point are considered chronic (Figure 3). Acute fissures are probably very common, although the exact prevalence is difficult to ascertain as many do not present to medical care.

Aetiology

The aetiology is uncertain. The precipitating event may be a trauma to the anoderm possibly associated with a period of constipation, although many fissures present with no history of changes in bowel habit. Previous anal surgery or infection may predispose to fissures.

It has long been known that there is an association between fissure formation and increased anal resting pressures. The increased pressure probably causes hypoperfusion to the affected region thereby increasing predisposition to anodermal damage and reducing healing rates. The most common sites of fissure formation are in the midline, almost exclusively (99%) posteriorly in men, and both anteriorly (10%) and posteriorly (90%) in women. This may well be due to the 'watershed' anatomy of the blood supply to these areas and studies have shown decreased blood supply to the posterior midline.

Multiple fissuring or fissures away from the midline suggest other pathologies, such as inflammatory bowel disease.

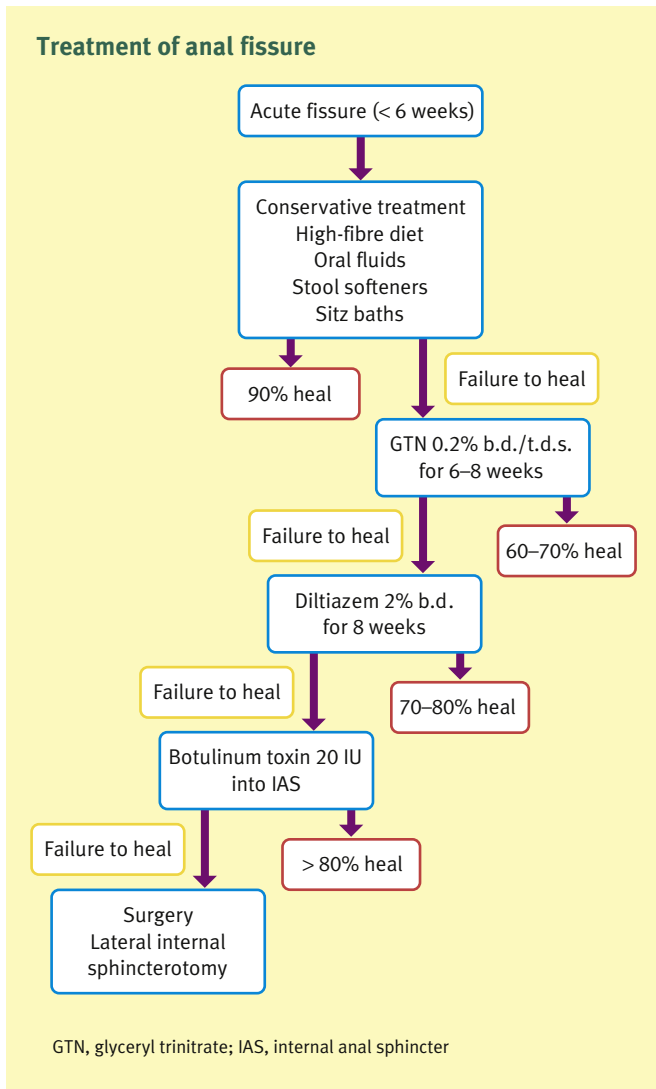


Figure 2

History and examination

The usual presentation is with a sharp or tearing pain localized to the anus, which increases in severity on defaecation and is sometimes described as like ‘passing glass’. This may be associated with blood, which the patient may notice on wiping. The pain may continue for minutes to several hours after passing stool and



Figure 3 Proctoscopy showing chronic anal fissure.

can lead to fear of defaecation, increasing the risk of constipation. There may be associated symptoms of pruritus ani.

The fissure may be visible on parting the buttocks. Chronic fissures appear as a linear or pear-shaped defect occasionally with indurated edges. The internal anal sphincter may be visible as horizontal white bands underneath. Acute fissures are usually more superficial and have sharply demarcated edges.

It may not be possible to visualize the fissure owing to sphincter spasm. This can often make digital examination or proctoscopy impossible. A skin tag may be visible externally. However, examination under anaesthesia may be required to make the diagnosis. Further investigation may be required to rule out a more sinister cause of bleeding.

Medical treatment

Treatment is aimed at breaking the cycle of sphincter spasm and pain. Traditionally the first-line treatment was stool softeners and a high-fibre diet, followed by sphincterotomy if symptoms did not abate. Over the past 15 years there have been several advances in the pharmacological management of fissures.

The use of glyceryl trinitrate (GTN), a nitric oxide donor, for pharmacological sphincterotomy was first described in 1994. Nitric oxide causes relaxation of the internal anal sphincter, which is responsible for the majority of resting tone. Randomized controlled trials have shown that GTN 0.2% two to three times daily heals fissures in over two-thirds of patients. The major adverse effect of GTN treatment is headache, although this is usually not severe enough to require discontinuation of treatment.

An alternative or second-line treatment is the topical application of calcium channel blockers. These also relax the internal anal sphincter. Topical diltiazem is most commonly used, although studies have shown topical and oral nifedipine also to be effective, but with a higher side-effect profile. Topical diltiazem 2% twice daily for 8 weeks heals similar numbers to GTN and is effective in treating those resistant to GTN.

Botulinum toxin has been shown to be effective for some fissures that do not heal with topical treatments. It is a neurotoxin produced by *Clostridium botulinum* which prevents the release of acetylcholine at the neuromuscular junction. 20 IU is injected into the internal anal sphincter at 3 and 9 o’clock. It has been shown to be superior to GTN in healing fissures in some studies. Transient flatal incontinence is the most common side effect.

Surgical treatment

Surgery used to be the mainstay of treatment for fissures. Historically one of the commonly used procedures was anal dilatation. This caused a decrease in the resting pressure in the anal canal; however, there was a high rate of incontinence associated with the procedure as it resulted in uncontrolled damage to the internal anal sphincter.

Surgery is now reserved mainly for those patients who fail to respond to medical therapy. Lateral internal anal sphincterotomy provides a more controlled way of lowering resting pressure, thereby increasing anodermal blood flow. The distal part of the sphincter is divided, going no more proximally than the length of the fissure. This procedure has been associated with varying levels of incontinence and patients should be warned of this. Owing to the shorter anal canal it is important to perform preoperative manometry and ultrasound examination in women.

Pruritus ani

Definition and epidemiology

Pruritus is a common symptom and many people will suffer with it at some point in their lives. Although often benign it is important that sufficient investigation is carried out as it can be a marker of some important diseases. The exact prevalence is unknown but it is commoner in men over 40 years of age. It is often worse in warm weather. It can become a self-perpetuating problem resulting in an ‘itch-scratch’ cycle that can be difficult to break and can cause chronic skin changes.

History and examination

Patients may present with a long history of perianal itch for which they have not previously sought medical intervention. They may give a history of the underlying condition. It is important to ask about bowel habit and pain or bleeding on defaecation. Examination may show excoriation of the perianal area or lichenification if the problem is long standing. It is important to carry out digital examination and proctoscopy.

Differential diagnosis and aetiology

The majority of cases of pruritus are probably idiopathic. Underlying pathology is likely in about 10%. Careful history and examination will reveal most causes.

Systemic diseases: diabetes mellitus is probably the most common systemic cause. It may be associated with the increased preponderance to candidiasis and is more common with poor glycaemic control. Haematological disorders such as leukaemia, lymphoma and aplastic anaemia can also cause pruritus. Any medication that alters gut flora or is immunosuppressive may cause itching.

Dermatological conditions: psoriasis is the most common cause. Atopic or seborrhoeic dermatitis may also cause perianal itching. A dermatological opinion may be required. Hyperkeratosis may be a sign of anal intra-epithelial neoplasia.

Infections: erythrasma (*Corynebacterium minutissimum*), other bacterial infections (such as folliculitis and abscess formation) and candidiasis may cause itching. *Candida* may be present commensally in the perianal region without being the cause of symptoms. Sexually transmitted diseases (syphilis, gonorrhoea, herpes simplex virus and human papilloma virus) can lead to pruritus. Pinworms are a common cause in children and their parents.

Anorectal disease: it is important to rule out chronic diarrhoea, anal incontinence, haemorrhoids, fissures, fistula and rectal prolapse.

Management

Investigation and treatment of the underlying cause is the most important first line. Biopsy of the skin may occasionally be required. The general treatment regimen is summarized in Table 1.

Haemorrhoids

Definition and epidemiology

Haemorrhoids are enlargements of the vascular cushions of the anal canal. The exact prevalence is unknown as many people

General treatment regimen for pruritis ani

- Avoid scratching
- Wash perianal area twice daily with water after defaecation
- Pat the skin dry with a soft towel or blow dry with a cool hairdryer
- Avoid soaps, perfumes and any non-prescribed medications
- Wear loose-fitting cotton underwear
- A cotton wool pledget against or just inside anal canal may help absorb moisture.
- Antihistamines such as chlorphenamine maleate 4 mg p.o. at night may help
- An injection of methylene blue has been shown to control itching if other measures fail

Table 1

do not seek medical attention; however, it may be somewhere in the region of 4–36% depending on population. The incidence is higher in Western populations and is low in sub-Saharan Africa, although this may be due to under-reporting of symptoms.

History and examination

Presentation is usually with fresh red rectal bleeding. This may occur after opening the bowels or on the paper when wiping. Any lower gastrointestinal tract bleeding in a patient over 40 years of age needs further investigation with colonoscopy or radiological imaging. Prolapse of haemorrhoids (often described as ‘something down below’), pain, leakage or pruritus ani may be other presenting features. The symptoms may be relapsing and remitting over a period of several years, and there may be an association with pregnancy or changes in life-style.

Full history and abdominal examination may reveal other causes of rectal bleeding. Inspection of the perianal area may reveal external haemorrhoids, skin tags or other perianal pathology. Digital rectal examination and proctoscopy should then be carried out. Proctoscopy may show haemorrhoids at 3, 7 and 11 o’clock, although this can vary especially in those who have had previous surgery.

Classification

Classification is usually by Goligher’s system, which describes four degrees of severity (Table 2). This is useful for helping in

Goligher’s classification of haemorrhoids

Severity	Description
First degree	Bleed but do not prolapse
Second degree	Prolapse but spontaneously reduce
Third degree	Prolapse and require manual reduction
Fourth degree	Prolapsed and irreducible

Table 2

determining treatment, but it does not convey any information on the severity of symptoms.

Conservative treatment

Although a topic of debate for some time, there is evidence that fibre supplements moderately improve symptoms and bleeding. Other treatments, such as perianal hygiene, increased fluid intake and relieving constipation, are commonly suggested although there is a lack of supporting evidence.

There are several over-the-counter medications that contain antiseptics, astringents, local anaesthetics and topical corticosteroids. These may help with acute symptoms. Long-term use of corticosteroids may lead to permanent skin damage.

Out-patient treatment

Rubber band ligation and injection sclerotherapy remain the two most commonly used techniques for out-patient treatment of first-, second- and third-degree haemorrhoids. Both rely on causing fibrosis to lift the haemorrhoid up in the anal canal, thus minimizing symptoms.

Rubber band ligation has been carried out since the 1960s. Proctoscopy is performed and the haemorrhoid is visualized. A suction bander is then applied to the mucosa above the haemorrhoid and the dentate line; this is important to minimize pain associated with the procedure. A rubber band is applied to the mucosa, which then sloughs off over a period of days leaving an area of fibrosis. Many surgeons only ligate one or two haemorrhoids at a session, although there is no evidence of increased complications with multiple bandings. The main acute complications are bleeding and pain; occasionally the band may need to be removed if the pain is severe. This usually occurs because the band has been applied too close to the dentate line. Later complications are sepsis and secondary haemorrhage (5–10 days after the procedure). The risk of late haemorrhage is increased in patients who are taking antiplatelet or anticoagulant medication, and these should be stopped if possible for a week before banding. Success rates as high as 80% in the short term have been reported and up to 46% of patients remain symptom free at 4 years.

Injection sclerotherapy involves injection of 5% oily phenol into the base of the haemorrhoid. This should be reserved for first- and second-degree haemorrhoids as it provides no benefit in prolapsed haemorrhoids. The failure rate is higher than that for banding, with only 8% of patients symptom free at 4 years. There is evidence to suggest that fibre supplementation alone may be equally effective.

Infrared coagulation can also be used to treat first- and second-degree haemorrhoids. It is less effective and less widely used than banding.

Surgical treatment

Haemorrhoidectomy has been carried out for the past 70 years. The most popular technique in the UK is the Milligan–Morgan

procedure. The haemorrhoid is grasped and lifted through the anal canal, and is then dissected away from the sphincter complex with scissors (electrocautery or harmonic scalpel can be used). This is repeated for each of the haemorrhoids, leaving a bridge of mucosa between each defect. The defects are then left open and healing is by secondary intention. A closed technique such as the Ferguson procedure is preferred in the USA. This involves a similar dissection, but the mucosal defects are closed with a continuous suture at the end of the operation. The results of both techniques are similar, but wound healing is faster with the closed procedure.

The main postoperative complication is pain. There is evidence that prophylactic oral metronidazole, topical diltiazem, topical GTN or injected botulinum toxin has a marginal benefit in pain reduction. Later complications include secondary haemorrhage (at 7–10 days), infection, faecal incontinence (as a result of sphincter damage) and anal stenosis (usually due to inadequate mucosal bridges).

Doppler-guided haemorrhoidal artery ligation is becoming popular. A specially designed proctoscope with a Doppler probe is used to locate the haemorrhoidal feeding vessels. These are then ligated with absorbable sutures. Short-term results are good.

Stapled haemorrhoidectomy was first described in the late 1990s. This technique is useful in the treatment of third- and fourth-degree haemorrhoids. A circular stapler is inserted into the anal canal above the dentate line and a strip of mucosa is removed circumferentially, hitching up the haemorrhoids. Long-term results suggest that recurrence rates are higher than for haemorrhoidectomy, although the procedure may be less painful and return to normal activities after surgery is quicker. Complications are similar to those of haemorrhoidectomy, with the additional potential risks of rectovaginal fistula and anastomotic leakage.

Acutely thrombosed haemorrhoids

These can be very painful but can be treated conservatively with icepacks, stool softeners and analgesia, without the need for admission to hospital. Topical nifedipine has been used to treat the pain. Emergency surgery is occasionally needed to remove the thrombosed haemorrhoid. This can be a difficult operation as there is a risk of anal stenosis due to sloughing of the mucosal bridges. ◆

FURTHER READING

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