

Benign anal conditions

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Background and epidemiology

BENIGN anal or perianal conditions are commonly observed in general practice; many are self-limiting or respond to simple conservative over-the-counter medications or lifestyle measures. This article will examine in some detail the most common of these conditions: haemorrhoids, anal fissure, pilonidal sinus, anal sepsis and fistula. Haemorrhoids are the most common perianal problem GPs manage, accounting for 43% of these problems. Rectal bleeding makes up 24% of perianal problems, while anal fissure and perianal abscess account for 19%. The management rate of perianal problems is significantly higher for male patients (0.8 per 100 encounters) than for female patients (0.6). The rate is significantly higher for patients aged 25-44 years (0.9 per 100 encounters) than for all other age groups.

Anatomy

THE anal canal is one of the most complex organs in the human body. It develops in the embryo from a fusion of the primitive cloaca and the hindgut tube. On a neurological level it responds to the entire gamut of neurological impulses, namely somatic and autonomic, generalised and specialised in function, and afferent and efferent. These nervous impulses serve a variety of functions from recognition of simple touch to the highly complex reflex functions of defecation. The distal anal canal is lined by skin and the proximal anal canal by a modified highly sensitive and thin epithelium, which is a modified continuation of the rectal mucosal lining, often referred to as the anal transitional epithelium. These two linings meet and interdigitate at the descriptively named dentate line. Deep to the epithelial lining is the internal sphincter, which is a thickened condensation of smooth muscle continuous with the circular muscle lining of the rectum. Therefore the lining and internal sphincter of the anus can be regarded as a modified continuation of the rectum to the skin at the anal verge. Deeper again is the somatic pelvic floor muscular component of the anus, the external sphincter and puborectalis muscles. The internal sphincter is an involuntary muscle that remains contracted and therefore closes the anus at all times other than during defecation. The external sphincter and puborectalis muscle are voluntary muscles and can be recruited to increase the force of closure of the anus and therefore defer defecation when required. The entire sphincteric complex works in conjunction with the sensations of the anal epithelium, invoking numerous local, sacral and spinal reflexes to maintain normal anal function and continence. The anal canal has a rich and diverse blood supply and therefore only rarely becomes ischaemic. For many anal conditions there is frequently little to see on examination, so diagnosis relies on a careful history. There are subtle differences in the history of these benign conditions but it is usually easy to distinguish them from one another. Although in general the main pathological conditions of the anal canal are rarely life-threatening, they can cause symptoms significant enough to reduce quality of life. Improving these symptoms may require careful and judicious surgery to treat the pathology but at the same time maintain normal function of the anal canal. Many patients with anal conditions are best served by obtaining an opinion from a dedicated proctologist. (Proctology is a field of clinical practice with a special interest in anal disease and has become a subspecialty discipline in its own right.) The box, left, gives a brief overview of comparative symptoms of different benign anal diseases.

Clinical features of benign anal disease

Haemorrhoids

Bleeding

Prolapse of anal cushions

Discomfort not pain

Associated only with defecation

Bright-red blood often in toilet bowl or in a quantity greater than a spot or small smear on toilet paper

No other symptoms of concern (see box, in next section)

Frequently nothing to find on examination

Anal fissure

Pain main symptom

Minor bleeding, mainly on toilet paper

Blood bright red
Constipation, opioid analgesics or childbirth associated with onset

Anal fistula

Previous history of perianal abscess
Recurrent discharge
Pain and swelling
Symptoms in same location on each occasion
Frequently associated with smoking
Bleeding minor — often older blood with pus

Pilonidal sinus

No anal symptoms
Recurrent localised infection
Primary pits in midline over sacrum
Secondary sinus or opening away from midline
Induration of subcutaneous tissues over sacrum on examination
Hirsute
Family history

Haemorrhoids

INSIDE the anus just proximal to the dentate line are 3-4 cushions of tissue formed by a rich arteriovenous network of blood vessels, the corpora cavernosa recti, covered by the fragile epithelial lining of the anus. The purpose of these cushions is to squash together when the anus closes after opening the bowels, giving the anus its final airtight and watertight seal. They are a normal part of the anatomy and function of the anus. However, when they cause problems, such as bleeding or itching, or even become so large as to protrude from the anus. They are called haemorrhoids or piles. In essence they are just a symptomatic exaggeration of the norm.

Risk factors and pathophysiology

Haemorrhoids are usually caused by a combination of factors (straining, hard stools, poor diet). The most important is excessive straining at stool, and certainly the most common cause in men. The most common cause in women is childbirth. Haemorrhoidal problems have a tendency to run in families although this is not an overly helpful feature in the history. Due to the lack of valves in the pelvic veins, straining puts an enormous pressure on the blood vessels that make up the cushions within the anal canal. As a result, over time they will slowly swell and enlarge. In response to the swelling, the arteries that supply the anus increase in calibre and pressure and therefore exacerbate the problem. Similar to a balloon that has been blown up, once the anal cushions swell past their original size, they rarely return to normal and over time will continue to stretch and enlarge. As they enlarge, the lining over them also stretches and eventually can become very thin and fragile, so thin in some patients that it can rupture during defecation and the haemorrhoids bleed. If the haemorrhoids do not bleed they can continue to enlarge in size until they present as a prolapse.

Symptoms suggestive of serious non-haemorrhoidal causes of PR bleeding

- The blood is altered, that is, dark or melaena
- PR bleeding is independent of defecation
- Blood is seen on or in the stool
- Change in bowel habit
- Weight loss
- Loss of appetite
- Abdominal pain or distension

Clinical features

The classic symptom of haemorrhoids is bright-red PR bleeding associated with defecation (also see box in previous section). However, the bleeding may be due to other (sometimes sinister) causes. The box, left, outlines the important aspects of the history ('red flags') that indicate that the bleeding may be due to a serious underlying condition. Most patients under 40 who do not have any symptoms of concern can have treatment focused on the haemorrhoids without the need for a colonoscopy. However, patients of any age who present with PR bleeding and have any of the symptoms listed here should be referred for colonoscopy to exclude a malignant lesion or inflammatory bowel disease as the cause of the bleeding. A family history of bowel cancer should not be ignored and in patients over 30 with a family history who present with PR bleeding, this could be used as an opportunity for their first screening endoscopy—colonoscopy. In many patients haemorrhoids will be short-lived and self-limiting, usually resolving spontaneously or with topical over-the-counter remedies within a few days or a week or two at the most. Others, unfortunately, will go on to experience more chronic

problems. These can include daily bleeding, itching, throbbing and/or discomfort, which — although varying from day to day — never seem to go away. Alternatively, the problems can be cyclical, with periods of more pronounced bleeding and throbbing and often prolapsed requiring haemorrhoids to be pushed back in. Most patients will seek some medical advice when their haemorrhoids cause either significant daily problems or cyclical symptoms. Frequently the true extent of the haemorrhoidal problem is not apparent on examination either in the general practice surgery or in specialist rooms. Not surprisingly, anxiety at the time of examination will contract the pelvic floor muscles and make the haemorrhoids less obvious. The treatment of haemorrhoids should therefore be based on the grade of the symptoms they cause and not on their size. These grades are defined as follows:

- **Grade 1:** piles that are internal to the anus and never prolapse. These piles often present with recurrent bleeding only, although in some patients this can still be very heavy bleeding. (Symptoms such as itching and throbbing are usually related to prolapse.)
- **Grade 2:** piles that prolapse on straining but return to their normal internal position spontaneously after evacuation without the need for any manual assistance. The patient will usually be aware of tissue prolapsing through the anus on defecation but deny the need to replace the tissue manually. Bleeding is often present on a regular basis.
- **Grade 3:** piles that prolapse on straining and need to be manually reduced after evacuation. When reduced back into the anus they remain there.
- **Grade 4:** piles that are permanently outside and cannot be reduced manually or, if they do reduce, will prolapse again on walking or mild exercise. Interestingly, bleeding is less of a symptom in significant haemorrhoidal prolapse, probably due to the fact that the excess pressure goes into producing the prolapsed rather than causing bleeding. It is important to take a full defecatory history, including time spent on the toilet, straining and if there is regular deferment of defecation. Many patients like to 'go' before they leave home in the morning, and will sometimes strain at this time when they don't have the urge to defecate. This should be discouraged as it will ultimately lead to either haemorrhoids or a fissure at some point.

Management

Conservative treatments

Many patients will respond to conservative measures including avoidance of straining, increasing fibre intake (methylcellulose from vegetables, as well as from wheat bran or psyllium husk) and adequate daily hydration. For patients with intermittent minor bleeding, an over-the-counter preparation (eg, Scheriproct, Proctosedyl, Anusol) is often the first-line treatment. These preparations often consist of a mixture of the following ingredients:

- Astringents (eg, cinchocaine). Astringents have a vasoconstrictive effect and may also have a local anaesthetic effect.
- Cortisones (eg, hydrocortisone, prednisolone). Topical steroids act to reduce oedema and inflammation as well as having an antipruritic effect.
- Topical antibiotics (eg, framycetin). Topical antibiotics act to reduce any superimposed infection that may increase the oedema, inflammation and pruritus. For many patients, an over-the-counter product will reduce or resolve the symptoms completely. For any patient for whom a single course of topical preparation is ineffective, or who returns for repeat courses after a short period, a specialist opinion is required to confirm that haemorrhoids are in fact the cause and to exclude any sinister pathology. Many patients present with haemorrhoids' and long-term failure of topical preparations to settle their haemorrhoidal symptoms when the true cause is a chronic fissure or fistula or even a squamous carcinoma of the anus.

Surgical treatments

When conservative measures fail, the following surgical treatments may be recommended. The goal of all treatments is to shrink the piles down and stop them from prolapsing.

Injections. The simplest and easiest treatment for early piles (grade 1-2) is to inject them with a mixture of phenol and almond oil. This is a sclerosant, causing intense irritation to the blood vessels, which become inflamed (temporarily) and the blood within them then thromboses, causing further inflammation. This irritation then adheres the lining of the haemorrhoid to the fascia/muscle underneath. The benefits of this treatment are that it is easy and practically painless and can be done without an anaesthetic. The downside is that the result is unpredictable and often needs to be repeated to get the desired result; also, the recurrence rate over time is high. There have also been occasional reports of injection of the sclerosant into the prostate, with a resulting chemical prostatitis, and therefore haemorrhoids in the anterior location should be injected with caution.

Rubber banding. This treatment involves placing a tiny rubber band, approximately 1mm in diameter, over the haemorrhoids towards their base. This treatment is mainly performed for slightly larger haemorrhoids, with grade 2-3 symptoms. This is done using special banding instruments but can be performed without anaesthetic,

although many patients do elect to be sedated in hospital for the treatment (with or without colonoscopy, as appropriate). The aim of the banding is to pinch off a section of the haemorrhoid so that it thromboses and necroses and at the same time causes enough irritation to adhere the remaining tissue to the sub epithelial tissues. As for injection, the results are a little unpredictable and the treatment often needs to be repeated. The main risk, however, is significant pain and bleeding after the procedure, and although rare this can sometimes be severe enough to require hospitalisation. For this reason, banding should be avoided within 10 days to two weeks of planned foreign travel, because of the risk of bleeding.

Haemorrhoidectomy. For more advanced cases of haemorrhoids (grade 3-4) a haemorrhoidectomy may be recommended. This is a surgical procedure in which the haemorrhoids are fully excised and open wounds are left within the anus, which can take up to 8-10 weeks to heal fully. The postoperative pain and discomfort of haemorrhoidectomy is unbearable for most patients. Daily dressings are required along with salt baths and the need to wear a pad in the underwear until healing is complete. Sexual activity is frequently not possible due to the pain. It is one of the only operations originally described in the 1930s still in common use today. There are many patients with large haemorrhoids who reject such surgery simply because they are (understandably) too frightened to undergo it.

Stapled haemorrhoidopexy. The stapled haemorrhoidopexy was introduced in 1998 and is aimed at avoiding surgery directly to the anus. A cuff of lower rectal mucosa (3-4 cm above the anus, where there are few pain nerves) is incorporated into a stapling device which, when fired, excises the cuff of mucosa with simultaneous anastomosis. The procedure includes the sub-mucosal vascular supply to the haemorrhoids in the cuff of tissue and at the same time reduces the haemorrhoids to their anatomical location. The operation is highly effective and postoperative pain is greatly reduced compared with haemorrhoidectomy, and there is no need for postoperative dressings, salt baths or external wounds. Unfortunately, adoption of stapled haemorrhoidopexy has been slow and cautious as a result of a few documented episodes of serious complications, such as prolonged postoperative pain, rectovaginal fistula and pelvic sepsis requiring stoma formation.

Haemorrhoidal artery ligation and recto-anal repair (HAL-RAR). This procedure was invented in 1995 and is another modern approach to haemorrhoid surgery. The operation is performed using a Dopplerguided ultrasound probe, inserted into the anus to locate the arteries that feed the haemorrhoids above the anus, where there are fewer pain nerves. Once located the probe allows a stitch to be placed around the artery, cutting off the blood supply to the haemorrhoids. Six or seven arteries feed the haemorrhoids and they are all tied during the procedure. The stitch is also configured such that any prolapsed associated with the haemorrhoids is dealt with simultaneously (the anal repair component of the procedure). As a result of HAL-RAR, the haemorrhoids lose their high pressure blood supply, shrivel up and return to their normal size (figure 2). No cuts or wounds are treated, and no salt baths or pads in the underwear are needed. There is discomfort and throbbing after the procedure for about a week to 10 days but most patients are back to normal very quickly.

Acute thrombosis of haemorrhoids. The only time haemorrhoids become exceptionally painful is as a result of an acute thrombosis. Although the exact cause is unknown it probably results from an episode of prolapse of the haemorrhoids, where the anus shuts tightly around the haemorrhoids before they have time to reduce back into the anal canal. This obstructs the venous return, causing stasis and thrombosis. Patients usually present in severe unremitting pain. The best management of acute thrombosis of haemorrhoids is conservative (if possible). The pain can be treated with strong analgesics, and stool softeners used to help with opening the bowels. The pain frequently causes a reflex spasm of the anal sphincters only serving to exacerbate the pain further, and this can be helped with the use of topical glyceryl trinitrate (Rectogesic) to help relax the sphincters (see the section below on anal fissure). Some of the pain is probably due to some anaerobic infection from the necrosis, and a five-day course of oral metronidazole is often helpful. If the patient manages to open their bowels within a day or two of the episode, the thrombosis will frequently resolve without surgery. If the pain is too severe to allow the bowels to open or the faeces become impacted, then referral for surgery is indicated. Many practitioners incise and drain thrombosed haemorrhoids in their surgery; the advantages of this compared with in-hospital surgery depends upon practitioner experience, patient stoicism and availability of local resources. In summary, haemorrhoids are common and although not life threatening can cause misery to those who have them. Many patients with haemorrhoidal bleeding will have a colonoscopy, but may not get their haemorrhoids treated. It is common for patients with recurrent bleeding to become anaemic without intervention and if it is thought that the cause of recurrent bleeding is haemorrhoidal it may be preferable to refer primarily for treatment of the haemorrhoids. Modern treatments, such as stapled haemorrhoidopexy and haemorrhoidal artery ligation, allow for much speedier and less painful recoveries and can be an end to the suffering from advanced haemorrhoidal disease. It is important to try to get haemorrhoids treated as soon as possible if the symptoms persist, as the earlier they are treated the more straightforward the procedure and the quicker the recovery.

Anal fissure

Aetiology

AN anal fissure is a common but often neglected condition. A fissure, in simple terms, is a split in the lining of the anal canal. The cause of anal fissure is unknown but numerous factors have been proposed to explain the aetiology, including local ischaemia, a raised resting pressure of the anal canal, and evacuatory dysfunction, usually excessive straining. It is difficult to know from the patient's history the exact precipitating factor but most patients will admit to being constipated at the time, either idiopathically or as a result of opioid analgesics. It is

likely that the most common cause is excessive straining and if early healing does not take place, the resulting rise in sphincter pressure from the pain and possible local ischaemia acts to prevent healing in the long term.

Clinical features

As for haemorrhoids, the diagnosis of anal fissure is based on a careful history of the presenting symptoms. The split is often small and sometimes almost impossible to see unless examined with a proctoscope; it usually traverses the entrance to the anal canal. The main symptom of anal fissure is pain on defecation. It may be a severe, often excruciating pain and is caused exclusively by opening the bowels. It is frequently described as a tearing sensation (which is not far from the truth). The pain usually settles within an hour or two of defecation and is not present until the next time the bowels are opened. There is usually some associated bleeding, although the bleeding is a minor component of the symptoms and usually only seen as a small smear of bright red blood on the toilet paper. Recurrent pain when not opening the bowels or on sitting can be a sinister symptom and should be referred for specialist opinion. Once a fissure occurs, the natural history is either acute or chronic. For many patients the symptoms persist for a week or two but with the use of topical preparations and stool softeners the fissure will heal and not cause any further problems. In some patients the pain of defecation causes a reflex contraction of the internal sphincter, inducing spasm and raising the resting pressure of the anus. If this spasm and raised pressure persist until the next evacuation, it is likely that the fissure will split repeatedly and the spasm become permanent; the fissure is likely to become chronic and may not heal with over-the-counter preparations. Eventually the fissure starts to scar, which serves only to worsen the situation.

Management

Conservative management

Interestingly, and as can be deduced from the explanation above, the aim of the treatment is not primarily to heal the fissure but to relieve the spasm of the sphincter muscles. The fissure will then heal as a consequence. The first option is to use a topical ointment designed to relax the anus. Only one topical preparation readily available on the market, Rectogesic (glyceryl trinitrate), is aimed at relaxing the anal sphincter. It penetrates the skin and on reaching the internal sphincter causes relaxation of the muscles by its pharmacological action of nitric oxide donation. None of the topical preparations aimed at treating haemorrhoids will be effective in the treatment of an anal fissure, as they have no effect on relaxing the internal sphincter. Rectogesic must be used regularly (2-3 times a day and often for 6-8 weeks) for it to be fully effective and to allow the split to heal without recurrence. Unfortunately, some anal fissures are too deep, scarred or longstanding for the Rectogesic to be effective and other approaches are required.

Surgical management

Anal stretch.

Historically, the first operation aimed at relaxing the internal sphincter was the anal stretch. The anal stretch was typically a four-finger stretch for four minutes and was very effective in causing temporary paralysis of the internal sphincter. However, it was associated with a high passive incontinence rate, which — with the advent of endoanal ultrasound — was shown to be due to tearing and disruption of the sphincter muscles. This operation is soon replaced by lateral internal sphincterotomy.

Sphincterotomy.

The lateral internal sphincterotomy operation is designed to make a tailored cut, for the length of the fissure, in the internal sphincter, causing relaxation of the muscle and subsequent healing. Unfortunately, the operation is associated with a small passive incontinence rate, which some patients find distressing. Nonetheless, it is an effective operation and is still the most commonly performed procedure for anal fissure.

Botulinum toxin.

Over the last 10 years or so the advent of botulinum toxin has revolutionised the surgical management of anal fissure. An injection of botulinum toxin into the internal sphincter has been shown to be effective in the surgical management of anal fissure, and when performed correctly can produce the same healing rates as sphincterotomy. The benefit of botulinum toxin injection is that the same degree of relaxation can be achieved as through sphincterotomy, but as the effect of the toxin is only temporary there is no long-term risk of muscle damage and incontinence. It is not; however, a cosmetic procedure and needs to be performed by a surgeon with appropriate experience and training. Many patients who have a botulinum toxin injection will become symptom-free within a few days due to the relaxation of the sphincter, and the fissure will heal completely over the next few weeks. Full healing should have been achieved in most patients within the three month effective period of the toxin; most patients will not notice when the toxin has worn off and a repeat injection will not be required. In some patients with very longstanding fissures over many years it may be necessary to repeat the injection at least once. Failure of the botulinum toxin injection to resolve a fissure, especially if repeated, is suggestive of an evacuatory disorder or possible pelvic organ prolapse. This is not necessarily failure of therapy, as the cause of the fissure may be complex, and further investigation may therefore be required.