Anal and perianal disorders

Bruce D George

Abstract

Most anal diseases can be diagnosed by a careful history and examination. Management of haemorrhoids involves exclusion of more serious pathology, adequate explanation of the disorder, and dietary and defecatory advice. Moderate haemorrhoids may be treated with out-patient procedures, such as injection sclerotherapy or rubber-band ligation. Surgical haemorrhoidectomy is usually indicated in patients with persistently prolapsing haemorrhoids, haemorrhoids with a significant external component or haemorrhoids that have been thrombosed. Anal fissures are managed initially with bulking laxatives and non-constipating analgesics. Glyceryl trinitrate ointment 0.2—0.4%, topically twice daily for 6 weeks, is now the standard first-line specific pharmacological treatment. Botulinum toxin injection is commonly used as second-line non-surgical treatment. Lateral internal sphincterotomy is indicated for patients with fissures that do not heal after pharmacological management, although it is associated with a small risk of impaired continence. Anal fistulae and abscesses represent extremes of a single disease spectrum. Perianal abscesses should be treated by prompt adequate surgical drainage. Fistulae should be thoroughly evaluated by ultrasound or magnetic resonance imaging (MRI) to assess the relationship of the fistulae to the sphincter muscles. Low fistulae are treated by fistulotomy. High fistulae require more complex sphincter-preserving techniques. Patients with faecal incontinence should be investigated with anal physiological tests and endo-anal ultrasound. Conservative treatment includes dietary modification, constipating drugs, physiotherapy and biofeedback. Surgical treatment should correct specific abnormalities, such as rectal prolapse or discrete sphincter defects. Sacral nerve stimulation represents a new, expensive but relatively non-invasive treatment option for patients with faecal incontinence after failure of first-line conservative therapy. Patients with functional constipation should be assessed to distinguish slow transit from obstructed defecation. New techniques, such as laparoscopic ventral rectopexy, may be appropriate for selected patients with intractable obstructed defecation.

Keywords anal abscess; anal fissure; anal tumour; faecal incontinence; fistula; haemorrhoids; pruritus ani; sacral nerve stimulation

What's new?

- Sacral nerve stimulation is a new, NICE-approved treatment option for patients with faecal incontinence after failure of first-line conservative therapy
- A careful history is important in patients with long-term constipation to detect features of obstructed defecation. Surgical correction of rectocoeles or rectal intussusceptions may be helpful in carefully selected cases

Anatomy

Lining of anal canal (*Figure 1*) — the upper anal canal is lined with columnar epithelium; it has an autonomic nerve supply and is insensitive, except to distension. The lower anal canal is lined with stratified squamous epithelium similar to the adjacent skin, but without skin appendages; it has a somatic nerve supply and is exquisitely sensitive. The anal transition zone lies between these two areas, approximately at the level of the dentate line. The anal submucosa comprises largely blood vessels, some smooth muscle and connective tissue. Normal thickenings of the submucosa, termed 'anal cushions', probably have a role in fine control of continence. About four to eight mucin-secreting glands open into the anal canal just above the dentate line.

Anal sphincter musculature (*Figure 2*) — the anal canal may be considered to be surrounded by a small inner 'doughnut' and an outer large doughnut. The small doughnut is the internal anal sphincter and is the thickened continuation of the circular smooth muscle layer of the rectum; it is responsible for 70—80% of the resting tone in the anal canal and is under autonomic and local nervous control. The outer, larger doughnut is the external anal sphincter, which is a striated muscle supplied by the pudendal nerve (S2,3,4); it is under voluntary control and is responsible for reflex increases in anal canal pressure. At the upper border of the external sphincter is the sling-like puborectalis muscle, which angulates the anorectal junction forwards and is thought to be particularly important in maintaining continence.

Physiology

Continence is defined as the ability to perceive, retain and excrete the rectal contents at socially appropriate times. This depends on a combination of factors.

Mechanical barrier to defecation is provided by the anal muscles and the anal cushions.

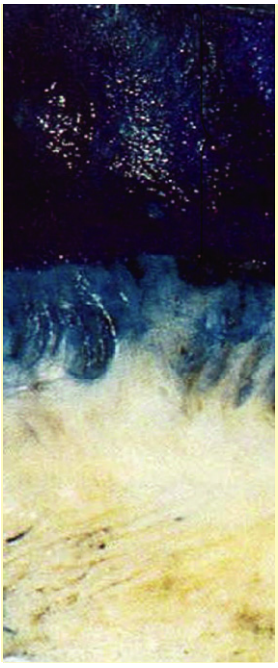

Figure 1 Opened strip of anal canal.

Bruce D George *MS FRCS is Consultant Colorectal Surgeon at the John Radcliffe Hospital, Oxford, UK. Competing interests: none declared.*

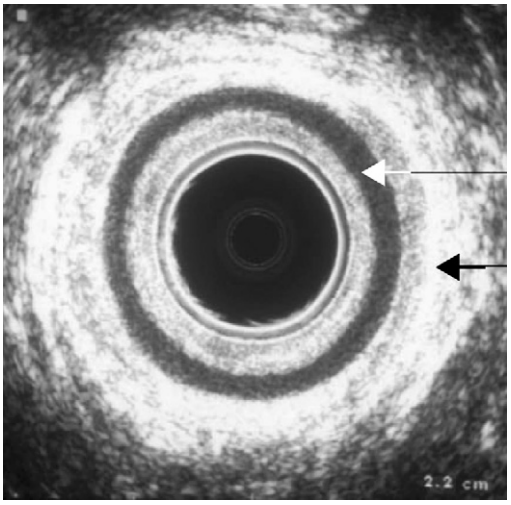

Figure 2 Endoluminal ultrasound scan of normal anal canal (white arrow, internal anal sphincter; black arrow, external anal sphincter).

Normal anorectal sensation — the rectum is sensitive to distension only. Transient equalizations of pressure between the rectum and the anal canal allow the rectal contents to come into contact with the sensitive lining of the anal canal. This process has been termed 'sampling' and is thought to be important in discriminating between gas, liquid and solids.

Rectal reservoir — the rectum, and probably the sigmoid colon, provide a reservoir to store faeces before defecation.

Stool consistency — excessively watery stools may result in leakage despite an otherwise normal sphincter mechanism.

Reflex responses — increases in intra-abdominal pressure (e.g. during coughing or straining) threaten continence. When the intra-abdominal pressure increases, stretch receptors in the pelvic floor are stimulated, resulting in reflex contraction of the striated muscles of the anal sphincter and thereby protecting continence.

Ability to evacuate — faecal contents are delivered to the rectum by colonic mass movements. Normal evacuation involves raising intra-abdominal pressure by a Valsalva manoeuvre, descent of the pelvic floor and relaxation of internal and external sphincters. The precise co-ordination of this process is poorly understood. Loss of this ability results in troublesome constipation and sometimes overflow incontinence.

Diagnosis

The symptoms of specific anal disorders are discussed below. Common anal symptoms are bleeding, pain, discharge, swelling, pruritus, urgency and incontinence. Anal bleeding is typically bright red, not mixed with stool, and noticed on toilet paper or in the lavatory pan. Dark red blood or blood mixed with motions is more likely to be caused by pathology in the rectum or colon. Symptoms of weight loss, abdominal pain, diarrhoea or general malaise in association with anal problems should raise the possibility of Crohn's disease.

A thorough general and abdominal examination is important. Examination of the anorectum requires careful inspection, digital examination, proctoscopy and rigid sigmoidoscopy.

Anorectal physiology is assessed mainly in patients with faecal incontinence, in severe constipation and before surgery (e.g. restorative proctocolectomy, low anterior resection) to ensure an adequately functioning sphincter. Anal canal pressure is measured at rest (mainly internal sphincter function) and during maximum voluntary squeeze (mainly external sphincter function). Rectal sensation is assessed by balloon distension, and anal canal sensation by mucosal electrosensitivity. Pudendal nerve function is assessed by its terminal motor latency.

Ultrasonography *(**Figure 2**)* — endo-anal ultrasonography enables accurate assessment of the integrity of the sphincter muscles, which is particularly useful when examining patients with faecal incontinence and anal fistulae.[1]

MRI (magnetic resonance imaging) *(**Figure 3**)* provides detailed visualization of perianal structures both above and below the pelvic floor. The tissues around the anal canal are difficult to assess by routine clinical examination, and MRI is particularly helpful in patients with complex perianal fistulas[2] and obscure anal pain.

Examination under anaesthesia is commonly undertaken immediately before surgery in many anal and perianal disorders, and may also be used as a diagnostic procedure, particularly in patients who are difficult to examine (e.g. children, those with anal pain).

Common anal and perianal disorders

Haemorrhoids (Figure 4) are enlarged, prolapsed or symptomatic anal cushions. They are classified as first-degree (i.e. they bleed but do not prolapse), second-degree (i.e. they prolapse with straining but reduce spontaneously) and third-degree (i.e. they prolapse with straining and require digital reduction).

Clinical features — the common symptoms are bleeding, prolapse and discomfort.

- It is important to exclude upstream pathology before attributing bleeding to haemorrhoids. In young adults with typical anal bleeding, clinical examination, proctoscopy and rigid sigmoidoscopy are sufficient. Barium enema or colonoscopy is advisable when the symptoms are atypical, when there are other symptoms of gastrointestinal pathology and in older patients.
- Prolapse of haemorrhoids is usually noticed in association with defecation.
- Discomfort around the anus is common in second-degree and third-degree haemorrhoids. Severe pain suggests another pathology (e.g. fissure, abscess).

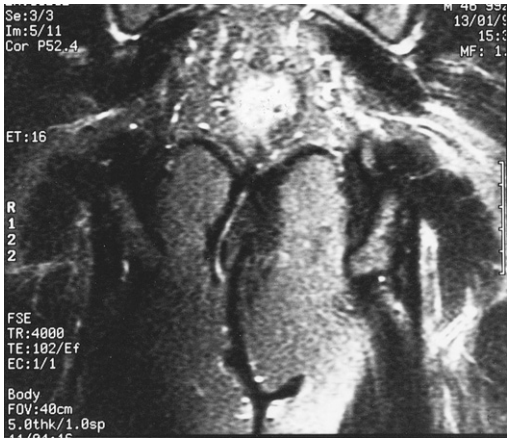

Figure 3 Coronal T_2-weighted MRI (with fat suppression) showing a high signal intensity track entering the upper anal canal just below the levator muscles.