Benign anorectal conditions

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Abstract

Benign anorectal conditions relate to a collection of common pathologies with varied presentations. These conditions make up a significant proportion of patients seen on the general surgical on-call and are frequently referred to colorectal outpatient clinics via the 'two-week wait' pathway. Benign disorders can occur concomitantly with colorectal carcinoma and the clinician should be wary in ascribing the patients' symptoms to the presence of benign pathology only. Certain disorders, such as rectal prolapse, have a devastating impact on the patients' quality of life; however, accurate diagnosis and appropriate management strategies, including setting patient expectations and a multi-disciplinary approach where appropriate, can improve patient outcomes. This article is a summary of common benign anorectal conditions; abscesses, fistula-in-ano, pilonidal disease, anal fissure, haemorrhoids, rectal prolapse and anorectal syndromes; pain, pruritus ani, obstructive defaecation syndrome and faecal incontinence. The definition, epidemiology and aetiology of these conditions will be considered along with salient points in the clinical assessment and management.

Keywords: Abscess; fissure; fistula-in-ano; haemorrhoids; obstructive defaecation and faecal incontinence; pain; pilonidal; prolapse; pruritus ani

Abscess

Definition, epidemiology and aetiology

An abscess is a fluid-filled collection of pus surrounded by a capsule composed of fibrinous exudate. The natural history is to spread along tissue planes of least resistance, fistulate leading to fistula-in-ano disease and occasionally cause sepsis (systemic inflammatory response syndrome secondary to infection). Abscesses that originate from the anorectum are common; with peri-anal abscesses being the most frequent followed by ischiorectal, intersphincteric and supralevator (Figure 1).

There are two main theories for the development of an abscess in this region; the first is the consequence of a skin appendage infection due to skin commensals, the second is Parks cryptoglandular theory in which a crypt gland at the level of the dentate line becomes blocked with resultant bacterial overgrowth due to rectal commensals. Any underlying immunocompromised state, Crohn’s disease or undiagnosed fistula-in-ano will increase the risk of development.

Diagnosis

Pain with a tender lump with or without discharge is typical. There may be features of systemic illness. The history should include previous abscesses, their management, and underlying risk factors. Often the patient will have been commenced on antimicrobial therapy. Examination will reveal the location and size of the abscess without the need to perform a digital rectal examination (DRE); however if there is no demonstrable abscess a DRE may be helpful in identifying a supralelevator collection. There is no need for further investigations which may delay treatment.

Management and patient explanation

The management of an abscess is surgical drainage. Antimicrobial therapy is only indicated in spreading cellulitis or sepsis. Examination under anaesthesia (EUA) of the anus and rectum is performed with the patient in the modified Lloyd-Davies position. An internal opening can be assessed by palpating the abscess cavity externally and observing for the presence of pus within the anorectum. If present, a seton may be appropriate after drainage of the abscess, however care is needed to avoid forcing a tract and creating a fistula. A cruciate incision over the area of maximum fluctuance is performed with care if close to the sphincter complex. It is vital that the incision is large to allow for adequate drainage to reduce the risk of recurrent infection. Digitation, curettage, wash and loose packing, to prevent skin edges apposing, is undertaken. For large cavities, corrugated drains secured into the cavity and removed at 24–48 hours whilst the patient remains in hospital may be appropriate.

A sample for microbiology does not routinely need to be taken except in an atypical presentation or immunocompromised patient or in recurrent disease. Rarely, an anal malignancy may present with an infective abscess component and tissue from the wall of the cavity will need to be sent for histology.

The patient must be informed that the cavity will continue to discharge fluid for several days to weeks and will require regular dressing changes with or without change of pack with the district nurse. Warn patients about the risk of fistula-in-ano disease which occurs 26–37% of the time.1

Fistula-in-ano

Definition, epidemiology and aetiology

A fistula is an abnormal tract between two epithelialized surfaces. Fistula-in-ano is a communicative tract of infected granulation tissue between the anorectal mucosal lining internally and perianal skin externally. Fistula formation represents the sequelae of cryptoglandular infection and abscess formation. Conditions such as Crohn’s disease, tuberculosis, lymphogranuloma venereum, actinomycosis, malignancy and trauma can result in fistula-in-ano. The incidence is 9 per 100,000 per year in western populations.

Classification

These can be classified into high or low, simple or complex but the most widespread and useful classification system is that devised but Parks, based upon the route the primary tract takes...
nography and pelvic MRI scan should be employed.

or significant extension, or the patient has undergone multiple

the fistula tract, or if there is complex disease with multiple tracts

an internal opening. If there is doubt regarding the anatomy of

blue or hydrogen peroxide intra-fistula injection can help locate

ings. A Lockhart-Mummery probe can be gently used, methylene

performed.

is the only sign. Rigid sigmoidoscopy and proctoscopy should be

asymmetric thickening and induration of the sphincter complex

be felt as a nodule, with the tract a fibrous cord. Occasionally

expressed on palpation. On digitation, the internal opening may

notice peri-anal discomfort, discharge and can sometimes feel a

Management and patient explanation

The key to management is to treat the sepsis, allow for adequate

drainage, protect the anal sphincters and allowing healing by

primary or secondary intention to occur. It is well worth informing

the patient the longevity of treatment to set expectations.

The surgical treatment of fistulae may involve one or a com-

bination of the methods described:

- Fistulotomy is the laying-open of the fistula tract. This

involves dividing all tissue between the internal opening

and external opening, curettage of the infective granulation

tissue with or without marsupialization. This is saved for

low-lying inter-sphincteric fistula and trans-sphincteric fis-

tula involving less than 30% of the sphincters (due to the

risk of incontinence if greater). Anterior tracts in women is

a contra-indication to this method.

- Fistulectomy is the removal of the fistula tract, it allows for

better anatomy of the tract and quicker healing when

compared to fistulotomy but risks damaging sphincter

fibres.

- Setons can be placed through the tract or part of the tract.

Loose setons allow for drainage of any infective fluid,

preventing anorectal sepsis. Cutting setons apply tension

to the muscle hence cutting through slowly over time and

leaving fibrous scar behind.

- Advancement flaps involve suturing muscosa, submucosa

and IAS muscle fibres over the internal opening to exclude

communication of the tract. Variations include donor

origin, flap thickness and orientation. Alternative methods

of excluding the tract from the internal opening is ligation

of the inter-sphincteric tract (LIFT) procedure or placement

of a fistula plug. Novel methods such as fibrin glue and

radiofrequency ablation therapy have been proposed.\(^3\)

Pilonidal sinus

Definition, epidemiology and aetiology

Pilonidal means ‘nest of hair’ this condition of the natal cleft is

characterized by multiple midline openings which communicate

with a fibrous tract containing granulation tissue and hair. It has

an incidence of 26 per 100,000 with men twice as often afflicted

as women with a mean age of presentation 21 in males and 19 in

females.\(^4\) Postulated pathogenesis relates to friction and shearing

forces resulting in damaged hair causing microtrauma, pit and

sinus formation with consequential infection.

Diagnosis

Patients may be asymptomatic or they may present with an acute

abscess or describe chronic pain and discharge. The region be-

tween the sacrum and the anococcygeal raphae should be care-

fully inspected for pits with or without hair, a fibrous cord like

structure may be palpated in the midline and there may be evi-

dence of infection. No investigations are indicated.

Management and patient explanation

If an acute abscess is present incision and drainage is required, off

the midline, with thorough curettage and removal of any hair that is

present. Antibiotics only have a role for systemic upset or cellulitis.

Conservative methods to reduce the risk of recurrence include

hair removal via waxing, creams or laser depletion along with

strict natal hygiene, smoking cessation and if obese, weight loss.
For recurrent or chronic disease various surgical techniques have been described. The principles are to remove all diseased tissue, ensure no infection and allow for healing by primary or secondary intention. Laying open the tracts with or without marsupialization or excision of the tracts with primary closure, off the midline have been described.

The Karydakis procedure involves a semi-circular incision around the pilonidal disease, with excision of all disease tissue, mobilization of a tension free flap which is sutured off the midline (Figure 4).

The Bascom procedure involves a lateral incision and removal of the tracts, granulation tissue, and hair with excision and closure of the midline pits with the lateral incision left open to allow for drainage. Modifications of flap procedures with off midline closure can be employed for recurrent or complex disease such as the Limberg procedure or Z-plasty. Recurrence rates are in the region of 7%, lower for open wounds healing by secondary intention but offset by much higher time for wound healing.4

If the patient can manage their natal cleft with conservative measures then surgery is rarely indicated, indeed even if symptoms are severe the patient ought to trial conservative measures as good postoperative natal hygiene will reduce wound infection, breakdown and recurrence. It is important to inform the patient that a complication may result in more symptoms than the original pathology.

**Anal fissure**

**Definition, epidemiology and aetiology**

An anal fissure is a linear ulceration of the squamous epithelium of the anus distal to the dentate line. The majority occur posteriorly in the midline but one-fifth occur anteriorly. These are common with a lifetime incidence of 11% with anterior fissures accounting for 10% in women, due to vaginal delivery, but only 1% in men.5

The aetiology is not clearly understood, trauma to the anal lining can occur on passage of hard stool, the posterior midline may be particularly vulnerable due to shearing forces and...
relative inelasticity with increased longitudinal muscle fibres. High sphincter tone with resultant reduced blood flow, most pronounced in the posterior region, gives rise to ischaemic ulceration and inability to heal.

Diagnosis
Severe perianal pain on defaecation typically lasting 1–2 hours afterwards with the passage of fresh blood is typical. In the chronic setting, there may be a noticeable lump representing the sentinel tag, pruritus ani and an alteration of bowel habit to avoid defaecation. External examination may reveal the fissure, sentinel tag and sphincter spasm, attempting to digitate in this setting will inflict unnecessary pain on the patient and will not elucidate further information. If the fissure is atypical or in an unusual location (i.e. not posteriorly in the midline) diagnoses such as Crohn’s disease, sexually transmitted infections (STIs) and malignancy should be considered. No further investigations are required at this stage.

Management and patient explanation
Confirmation of the diagnosis and exclusion of other causes may be obtained in the outpatient setting or under anaesthesia. Conservative measures include increasing liquid intake, stool softeners, high fibre diet and sitz baths these methods are superior to topically applied local anaesthetic or hydrocortisone cream.6 Treatment is aimed at reducing sphincter tone, allowing increased blood flow and healing to occur. Glyceril trinitrate (GTN) 0.2% cream (Rectogesic) is commonly prescribed but induces severe headaches in 25% of individuals. Topical calcium channel blockers such as diltiazem 2% is as effective as GTN but with far less headaches; systemic therapy can also be given, i.e. nifedipine. Botulinum toxin (up-to 100 units total) administered under general or local anaesthetic (perineal block) in the intersphincteric space bilaterally, can be used for fissures resistant to topical agents.

Lateral sphincterotomy is more effective at healing fissures compared with medical therapies but associated with disruption to continence up to 30%. The inter-sphincteric plane is opened, the lateral fibres of the IAS are divided along a length equivalent to the length of the fissure but not more than half the length of the IAS. Fissurectomy includes the excision of the fibrotic edges, curettage of the wound, removal of the sentinel tag and when associated with intramuscular Botulinum toxin therapy it enhances healing without the risk to continence. Anal dilation is not employed due to high rates of incontinence and low rates of healed fissures. An advancement flap or rotational flap in which squamous epithelium is placed over the fissure site can be utilized.

Figure 5 shows an algorithm for the management of anal fissures.7
Haemorrhoids

Definition, epidemiology and aetiology
Haemorrhoids are vascular cushions lining the anal canal that are a normal part of anatomy and functionally important in feedback and continence. Only if haemorrhoids are problematic should patients be labelled as having ‘haemorrhoids’. They are common with over 50% of patients aged over 50 experiencing haemorrhoidal disease.5

Internal haemorrhoids originate superior to the dentate line and are autonomically innervated, external haemorrhoids originate from the inferior haemorrhoidal plexus deep to the perianal skin, distal to the dentate line with somatic innervation, these are not true haemorrhoids and can give rise to peri-anal haematomas.

Goligher’s classification of internal haemorrhoids is widely used as clinically relevant:
- first degree – bleed with no evidence of prolapse
- second degree – prolapse but spontaneously reduce
- third degree – prolapse requiring manual reduction
- fourth degree – permanently prolapsed.

Aetiology of primary haemorrhoids is related to connective disruption, loss of elastic fibres, ageing with resultant disruption and displacement of the anal cushions. Secondary internal haemorrhoids arise due to other conditions such as ascites, abdomino-pelvic tumours and connective tissue disorders.

Diagnosis
Frequently patients will describe the passage of fresh blood either on the stool or on the toilet tissue which may have been preceded by a short history of constipation. A lump may be noticed immediately post defaecation or all the time, relating to the degrees of haemorrhoids. Anal pruritus, leakage and irritation are all consistent with prolapsing haemorrhoids. Acute thromboses and strangulation can be extremely painful. Further examination and investigations are to exclude other causes of bleeding per rectum.

Management and patient explanation
It is important to explain and reassure patients that haemorrhoids are a normal part of the anal anatomy, as fresh rectal bleeding can be distressing. Very often this is sufficient and the patient will not seek further intervention. Conservative measures include increasing oral liquids, fibre and ensuring soft stools; avoidance of straining and behavioural changes may be required as will a review of medications such as opiates (constipating) and antiplatelets or anticoagulants (if possible).

Injection sclerotherapy with 5% phenol for patients with first or secondary degree haemorrhoids in whom bleeding is the major symptom can be performed in the outpatient setting. Under proctoscopic view, 5 ml of sclerosant can be injected into the apex of each vascular pedicle. Banding is appropriate for second and third degree haemorrhoids; up to three bands may be applied in one sitting and the procedure can be repeated if necessary.

Acute thromboses of external located haemorrhoids, third and fourth degree or peri-anal haematoma may require surgical incision and evacuation of clot. Haemorrhoidectomy should not be performed in the acute setting due to the distortion of the mucosa and risk of excessive removal resulting in anal stenosis.

Indications for haemorrhoidectomy include third and fourth degree haemorrhoids with significant symptoms, secondary haemorrhoids refractory to conservative and outpatient interventions and fibroed haemorrhoids. The open Milligan-Morgan technique involves prolapse of the haemorrhoid, dissection and transfixation of the pedicle, ensuring adequate epithelial bridges between the haemorrhoidectomies. The closed Ferguson technique involves excision of the haemorrhoid with closure of the mucosal defect with sutures.

Stapled haemorrhoidectomy is an alternative method involving the partial or circumferential excision of mucosa and submucosa via a trans-anal staple gun. This is a quick, reproducible method with advantageous short term pain relief but higher rates of recurrence. A recently published randomized-control trial (RCT) demonstrated that quality of life (QoL) scores were higher for patients undergoing open surgical excision (Milligan-Morgan) rather than stapled procedure at 24 months.9

Targeted devascularization procedures such as transanal haemorrhoidal dearterilization (THD), which employ the use of a Doppler signal to identify the artery supplying the symptomatic pedicle such that it can be ligated with shrinkage of the haemorrhoidal complex, can be performed with or without muscopey. These procedures have low recurrence rates and low rates of postoperative pain.10 A comparison of haemorrhoidal artery ligation (HAL) versus rubber band ligation (RBL) demonstrated significantly less recurrence at 1 year (30% v 49%, p = 0.0005) but no difference in QoL and HAL is less cost-effective.11

Rectal prolapse

Definition, epidemiology and aetiology
Rectal prolapse can be either external or internal, full or partial thickness. External rectal prolapse (ERP) is characterized by a full thickness protrusion of all the layers of the rectal wall through the anus and is diagnosed by the presence of concentric rings of rectal mucosa. Internal rectal prolapse (IRP) is an intussusception of the rectal mucosa and is graded by the Oxford method (Figure 6):12
- grade I – high rectorectal
- grade II – low rectorectal
- grade III – high rectoanal
- grade IV – low rectoanal
- grade V – external rectal prolapse.

Mucosal prolapse is a partial thickness prolapse often associated with third or fourth degree haemorrhoids. ERP and IRP is associated with conditions that increase intra pelvic pressure (e.g. obesity), a reduction in the quality (e.g. Ehlers-Danlos syndrome) or quantity (e.g. post-hysterectomy) of connective tissue support and behavioural factors (straining). Women are six times more affected than men and this often follows obstetric trauma. It is not clear whether IRP precedes ERP or is a separate disease entity.

Diagnosis
Patients with ERP will report a lump that occurs on straining which may or may not be reducible. Those with IRP may report a dragging sensation without a noticeable lump. Often there is
associated functional symptoms including problems with defaecation, continence, there may be evidence of middle compartment or anterior compartment prolapse as well. Pain is a significant symptom in roughly half of patients which can be their main complaint. A thorough proctological, gynaecological and urological history should be elicited. On examination, ask the patient the bear down, this may reveal perineal descent, prolapse of mucosa or full thickness ERP. Gentle palpation of the prolapsed tissue will inform whether this is ERP or partial thickness mucosal prolapse. The anus may be patulous and tone reduced. Rigid sigmoidoscopy and proctoscopy can be helpful and may show evidence of rectal ulceration (solitary rectal ulcer syndrome, SRUS). Investigations should be tailored towards the individual patients, with endoluminal studies to exclude other pathology, physiology studies and imaging such as a proctography or dynamic defaecation magnetic resonance imaging (MRI) scans can be helpful in those with obstructive or continence dysfunction.
Management and patient explanation

Patients should be managed in a pelvic floor centre with discussion at a pelvic floor multi-disciplinary meeting to optimize care. Expectations should be set early and interventions should aim to improve functionality and QoL.

Conservative measures for ERP and IRP include dietary advice, behavioural modifications that can be aided with appropriate physiotherapy (e.g. biofeedback), and psychological support including cognitive behavioural therapy. Validated symptom severity questionnaires should be used to gauge impact and assess response to therapy; examples include Wexner constipation score and the Cleveland Clinic Incontinence score.13,14

Surgical interventions can be broadly divided into perineal or abdominal approach, open or minimal invasive, degree of mobilization, fixation and resection are all variable and there are hundreds of techniques described.

Delorme’s procedure involves excision of the prolapsed mucosa circumferentially with plication of the muscular wall and suturing of the anal mucosa with the rectal. The Altemeier’s procedure is an excision of the rectum and sigmoid colon with the formation of a coloanal anastomosis, this may be required in the setting of acute ischaemic prolapse.

Current management of ERP and IRP is towards minimally invasive abdominal approaches, with limited dissection of the rectum to preserve pelvic lateral ligaments hence autonomic function and placement of a mesh secured in position with sutures, laparoscopic ventral mesh rectopexy (LVMR). Posterior mobilization of the rectum and resection of redundant sigmoid, along with concomitant repair of middle and anterior compartment prolapse can be performed in the same operation.

Anorectal syndromes

Anal pain

Pain in the anal or perianal region in the absence of demonstrable organic pathology has been labelled chronic idiopathic anorectal pain, a subset of chronic idiopathic pelvic pain. The prevalence has been estimated to be 10%. Various syndromes have been described:

- Chronic proctalgia — this syndrome describes a dull ache or pressure sensation within the rectum, episodes lasting for more than 20 minutes for at least 3 months.
- Levator ani syndrome — Like chronic proctalgia with pain worse on sitting and defeaovation with tenderness elicited on palpation of the puborectalis.
- Proctalgia fugax — Sudden severe attacks of pain in the rectum lasting seconds to minutes with complete resolution between episodes.

These pain syndromes may be difficult to distinguish from other pelvic regional pain syndromes, musculo-skeletal including referred pain from spinal origin, gynaecological and urological causes should be investigated. Peripheral neuralgia of somatic nerves innervating this region will cause pain initially in the region of the nerve distribution (e.g. pudendal, ilioinguinal, iliohypogastric, genitofemoral, obturator and inferior cluneal). Pain in this region can be the main symptom of rectal prolapse disease and chronic pain is often associated with stress, anxiety, depression and sexual disorders.

Management will involve exclusion of organic pathology, chronic pain specialist referral, physiotherapy and psychological input, analgesics, antidepressants and antiepileptics. Whilst opiate-based analgesics are often used, these have significant constipating effects and psychological dependency, resulting in a precipitous pain-reward cycle with reinforcement of chronic pain behaviours. Amitriptyline and gabapentin influence central pain pathways without significant gastrointestinal or psychological-reward effects and should be considered in treating chronic pain patients. Injections with local anaesthetic or steroid and nerve decompression may be effective in peripheral neuralgia and central neuromodulation with sacral nerve route stimulation has a role in selective refractory patients.15

Pruritus ani

This is a common symptom characterized by irritation and itching of the perianal region. Often this is due to seepage with subsequent irritation of the perianal region. Predisposing factors include:

- anatomical — obesity, hirsutism, deep natal cleft
- anorectal — haemorrhoids, prolapse, fissures, sepsis, tags, incontinence, tumours
- dermatological — psoriasis, eczema, lichen planus, lichen sclerosis, dermatitis, hidradenitis suppurativa.
- infective — bacterial (e.g. impetigo), fungal (e.g. candidiasis), viral (e.g. herpes), parasitic (e.g. pinworm)
- others — systemic (e.g. diabetes), gynaecological (e.g. vaginitis), behavioural (e.g. poor hygiene) and psychological.

A thorough history and examination should be performed to identify the underlying cause. Conservative measures will include hygiene advice, avoidance of scratching, lower fibre diet to increase firmness of stool may help. Topical steroid, antifungal or barrier creams can be used as required. Biopsy should be considered if no resolution or atypical features.

Obstructive defaecation syndrome (ODS)

ODS is a disorder of defaecation resulting in constipation secondary to anatomical and functional abnormalities of the pelvic floor. Animus can result in ODS and is due to mal-coordination and relaxation of the striated pelvic floor muscles during defaecation with adequate propulsive force, suggested clinically and confirmed by electromyography (EMG).

ODS is characterized by patients straining, passing fragmented stools, tenesmus, urgency and self-digitation. Even though it is a constituting condition faecal incontinence can be present. 90% of patients with ODS have a rectocele or IRP.

As with rectal prolapse, these patients require a careful history and examination of all pelvic floor compartments. Validated symptom questionnaires should be used to assess severity and monitor response to therapies.

Patients require discussion in a dedicated pelvic floor MDT. Management strategies include dietary, biofeedback, rectal irrigation and psychological support. Surgical interventions depend on underlying pathology, patient preference and selection and local expertise. Intramuscular botulinum toxin therapy is effective in those with anismus. Transvaginal approaches such as posterior colporrhaphy may be appropriate for isolated rectocele, transanal approaches such as stapled transanal rectal resection (STARR) is indicated in those with ODS and IRP, transabdominal
approach includes LVMR with the advantage of treating pelvic organ prolapse.

**Faecal incontinence (FI)**

Incontinence to flatus, liquid or even firm stool. Continence is dependent on higher neurological centres, peripheral nerves and the anorectum, a disruption to at any level can result in incontinence. Sphincteric damage and disruption, such as following vaginal delivery, or iatrogenic post-surgical can result in FI. Traditional approaches have therefore focused on repairing, pli-cating or augmenting the anal sphincters. More recently artificial sphincters and sacral nerve stimulation have been used.

FI may represent underlying pelvic floor dysfunction as it is present in 75% of those with IRP. In those with normal anal manometry, proctography will demonstrate high grade IRP in two thirds of patients. In these individuals’ correction of underlying prolapse can improve FI.

**REFERENCES**