

ANAL SEPSIS

Acute infection in the perianal area is common and causes much morbidity. It presents as 2 forms of the same disease, anorectal abscess and fistula. In about 10% of patients, anorectal sepsis is associated with other diseases. The sepsis varies in anatomical complexity and in its relationship to the muscles of continence. Inappropriate management may result in faecal incontinence.

The pre-operative management of anorectal sepsis has 3 aspects: diagnosis, exclusion of other pathology and definition of the anatomical extent.

Diseases associated with anorectal sepsis

- Crohn's disease
- Ulcerative colitis
- Hidradenitis suppurativa
- Carcinoma of the anus or lower rectum
- Tuberculosis
- Secondary to pelvic sepsis
- Foreign bodies
- Lymphogranuloma venereum
- Actinomycosis

apply in all cases, but provides an accurate classification of fistula-in-ano.

Surgical Anatomy

A fistula consists of an internal opening, a primary tract, and one or more secondary tracts with their associated external openings.

The internal opening is the point where the anal gland enters the anal canal. There is usually only one opening, and it is most commonly situated in an anal crypt. The majority open in the posterior midline.

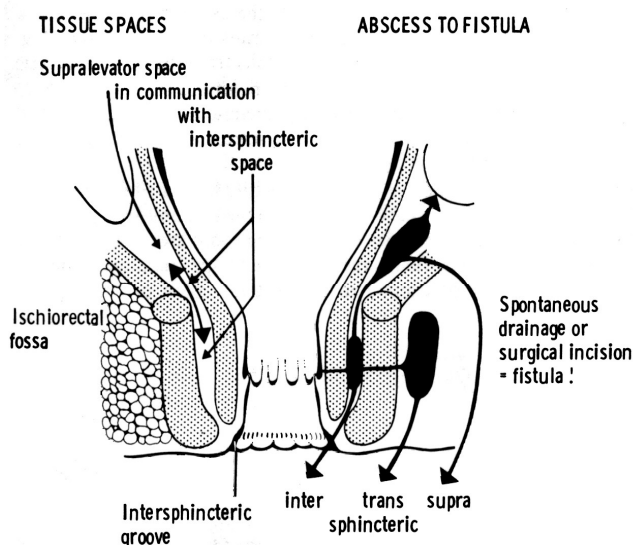
The primary tract extends from the internal opening either to the external opening or to a chronic abscess cavity. Its relationship to the external sphincter is used to classify the fistula.

The primary tract may:

Pass directly downwards in the intersphincteric space to open as a perianal abscess (Intersphincteric fistula)

Pass through the external sphincter. This transphincteric fistula may tract circumferentially to form a horseshoe abscess, or a unilateral ischiorectal fossa abscess.

The pus may extend upwards in the intersphincteric space over



Pathogenesis

Up to 80% of perianal abscesses originate within the intersphincteric space probably because of an infection of a perianal gland. The anal gland duct communicates with the anal canal lumen. As the abscess expands, it tracts along the line of least resistance to the perianal region, where it drains either spontaneously or by surgical incision to create the external opening of the fistula. This crypto-glandular hypothesis does not

puborectalis creating a supralelevator abscess, which may penetrate levator ani resulting in a suprasphincteric fistula. It is likely that many suprasphincteric fistulas are iatrogenic.

Extrasphincteric fistulas pass directly from the rectum to the perineum and are usually either iatrogenic or associated with underlying diseases such as Crohn's disease, tuberculosis, trauma, or carcinoma.

From a practical point of view, fistulas are either simple or complex. A simple fistula is one with a single external opening and an easily identifiable primary tract. The internal opening is situated just above the dentate line. The tract passes through the lower third of the internal sphincter. Surgical management will result in little damage to the external and internal sphincters and the chance of incontinence is minimal. These are usually intersphincteric fistulas. A complex fistula may have multiple external openings and secondary tracts. The internal opening and primary tract may not be easy to identify, or may be high in the anal canal. Management of the anterior fistula in the female is often difficult because most of the sphincter muscles may be below the tract. Management of these complex fistulas is associated with a high risk of incontinence and recurrence.

Diagnosis

Clinical presentation is with an abscess or a fistula.

Symptoms

Acute abscess. The patient with an acute abscess presents with pain that has increased in severity over a few days. It is throbbing and made worse by defaecation. There may be an associated fever. The patient may have noticed a discharge of pus or a painful swelling. Sometimes the patient may complain of episodic anal pain that lasts a few days and resolves spontaneously.

Fistula in ano. The patient complains of a purulent discharge, which may be continuous or intermittent. Episodes of pain may occur, relieved by the discharge of pus. There may be a history of the surgical drainage of a perianal abscess.

Signs

Acute abscess. An abscess or cellulitis is usually visible in the perianal region. A rectal examination is painful and should be avoided. If these signs are absent, the pus is deep seated. Here a rectal examination, provided it is not too painful, is essential. Sometimes, a 1cm tender nodule of an intersphincteric abscess may be felt within the anal canal in the absence of any external signs.

Fistula-in-ano. The external opening is usually visible. There may be scars of previous surgery. It is usually possible to palpate the tract of a simple fistula. The internal opening is often palpable.

Differential diagnosis

Other painful anal conditions are listed in table below. The true diagnosis becomes apparent with a good examination under anaesthetic.

Other causes of acute anal pain, which may be confused with a perianal abscess
<ul style="list-style-type: none">• Fissure• Perianal haematoma• Strangulated internal haemorrhoids• Anal carcinoma• Cutaneous furuncle• Infected sebaceous cyst• Hidradenitis suppurativa

Management

Acute abscess

The management is surgical drainage. Conservative management with antibiotics is unlikely to be successful and may result in delay of drainage with further extension of the abscess.

Most acute abscess can safely be managed in the outpatients department without admission to hospital. However, patients with the problems listed below should be admitted to hospital. They should receive broad-spectrum intravenous antibiotic cover.

Some conditions that usually require inpatient management of perineal abscesses

- Very large abscesses
- The immuno-compromised patient
- The patient with diabetes and other systemic disorders

The procedure should be performed under general anaesthetic. Local anaesthesia does not provide adequate analgesia to allow accurate examination of the anal canal. Regional anaesthetic may be dangerous in the presence of sepsis. An examination under anaesthetic is performed. The internal opening can often be identified. This confirms the presence of a fistula. Rigid sigmoidoscopy should be performed to exclude rectal disease.

An incision should be made at the site of maximum fluctuation or where the abscess appears to be pointing. The pus is drained and obvious loculi are gently broken down with a finger. The skin edges are then trimmed to allow adequate ongoing drainage. A saline soaked gauze followed by a dry pad is applied and held in place by a disposable panty.

It is unwise to deal with the underlying fistula at the time of abscess drainage unless the surgeon is very experienced because it is difficult to be sure of the anatomy of the tract and easy to create false tracts at this time. It is useful to culture the pus where a perianal furuncle is suspected, as if cutaneous organisms are grown, a fistula is unlikely.

Dressing changes should start the day after surgery. The patient sits in a bath or on a bidet, if this is available, twice a day and after each bowel action. Once the area has been cleaned, a saline soaked dressing is applied. The gauze should be tucked into the wound to prevent premature healing of the wound edges. The cavity should not be packed as this is uncomfortable and delays healing. A dry pad is placed over the gauze and held in place by disposable panties.

It is useful to examine the patient under anaesthetic 7 to 10 days later. The wound healing can be accessed and the fistula laid open.

Fistula-in-ano

It is safe to divide the lower third of the external and internal sphincter in a patient with normal musculature. They should however be informed that they might have trouble with the control of flatus. Continence may be impaired in the presence of pelvic floor weakness.

Preoperative assessment

The key to safe management of fistula-in-ano is the identification of the primary tract and its relationship to the anal sphincter muscles. This is best defined in the un-anaesthetised patient as voluntary contraction of puborectalis allows the accurate identification of the upper end of the anal canal.

Initially inspect the perineum to determine the number and site of the external openings. Palpate the direction of the tracts. The internal opening is usually palpable as an area of induration on digital rectal examination. Note this site and its relationship to puborectalis. Ask the patient to contract the pelvic floor. Puborectalis should be clearly palpable. Make a decision concerning the amount of sphincter that will be left behind after the fistula is laid open. If there is concern that too little sphincter will remain, the operation should be modified or the patient referred. The

The principles of surgical management of fistula-in-ano

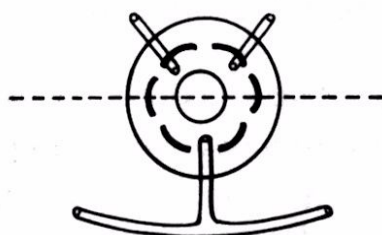
1. Lay open the primary tract
2. Drain secondary tracts and abscesses
3. Create a wound that is easy to dress
4. Preserve continence.

direction of the primary tract can usually be determined by palpating an indurated cord extending from the external to internal openings. Goodsall's rule is useful for determining the direction of the tract. A rigid sigmoidoscopy is essential to exclude rectal disease.

Pre-operative preparation is usually unnecessary, but a phosphate enema may be useful provided it is given more than 4 hours prior to surgery.

Goodsall's rule.

Anterior fistulas tend to be straight and radial, while posterior ones are more likely to have complex tracts but usually have a midline internal opening.



Operation:

The operation should be performed under general anaesthetic. An alternative is regional anaesthesia, but this makes the intraoperative assessment of the height of the internal opening more difficult.

Position the patient in lithotomy with the buttocks right down to the end of the table. An alternative is to use the prone-jack knife position.

An examination under anaesthetic is performed. Note any areas of induration that have not been identified pre-operatively. Perform a sigmoidoscopy if this has not been done pre-operatively.

The skin is cleaned with a water based antiseptic solution containing either chlorhexidine or iodine, and the patient is draped.

Pass a bi-valved proctoscope (Eisenhammer) into the anus. Gentle pressure on the fistula tract may result in a bead of pus egressing from the internal opening, thus making its identification easier.

Some surgeons inject methylene blue or hydrogen peroxide into the external opening using a 10 cm syringe and the plastic cannula from a drip needle. The methylene blue stains the tract and some believe it makes the tract easier to identify. Others find that the granulation tissue within the tract makes it clearly visible and methylene blue makes a mess because it extravasates into surrounding tissue during the operation. Hydrogen peroxide produces bubbles at the internal opening. This may be very helpful if the internal opening is not immediately obvious.

If the fistula is obviously simple, with minimal sphincter muscle below it, pass a blunt probe through the tract and lay it open. If secondary tracts are present, these should also be laid open.

If there is any concern that the fistula may be more complex, and there is a risk of long term incontinence, the secondary tracts may be laid open, and a seton placed in the primary tract. (A soft silastic tube is ideal). Alternatively, the operation should be abandoned and the patient referred to a surgeon with special expertise in dealing with complex fistulas.

It is important not to create false tracts as these may result in the conversion of a simple fistula with extensive secondary tracts to a complex extrasphincteric fistula. The skin edges of the wounds are trimmed and the wound dressed with saline soaked

gauze. A dry pad is applied and kept in place with a disposable panty.

Post-operative care:

Adequate analgesia should be provided. Oral tramadol (2-3mg/kg) for the first 24 hours is a good choice because it provides the analgesia of opioids without the constipating side effect. A non-steroidal anti-inflammatory should be started on the first post-operative evening.

A psyllum containing bulk laxative should be started on the first post-operative day. It may be necessary to augment this with senna for the first week.

The patient should bathe the wound or use a bidet twice a day and after each bowel action. On each occasion, saline soaked gauze, and a dry pad should be applied. The gauze should be applied so that the skin edges do not approximate in order to prevent premature healing of the skin.

The patient may be discharged from hospital on the same day as the operation provided the wound is small, the patient has passed urine and the social circumstances are adequate. Longer periods in hospital are required for larger wounds.

Thrombosed perianal varix

This common condition has many names such as thrombosed external piles or haemorrhoids, perianal haematoma or thrombosed perianal varix. The term perianal haematoma is incorrect because the thrombus is contained within the venous plexus. It is not a haemorrhoid because it is in the superficial or external vascular plexus and not arising from the internal anal cushions. The best terms are probably thrombosed perianal varix or thrombosed external vascular channels.

The cause is unknown but it usually occurs during or after straining at stool.

Clinical features:

Differential diagnosis:	
Neoplasm	
Benign –	Naevus Condyloma acuminatum
Malignant –	Squamous carcinoma (anal verge) Malignant melanoma
Infection – peri anal sepsis	
Other – skin tag External component of a thrombosed internal haemorrhoid. (Painful oedematous tissue protruding from the anus).	

Pain is the major complaint. It is of sudden onset, rapidly increases in severity and plateaus as a persistent throbbing pain at 48 to 72 hours. The pain is made worse by walking and sitting. It subsides over 8 to 10 days. Spontaneous bleeding is uncommon.

Presentation:

The patient complains of a painful perianal lump.

Examination:

An obviously tender lump is present at the anal margin. It is covered by stratified squamous epithelium, is bluish and has a soft rubber consistency.

Management:

Two factors should be considered when planning management:

1. Pain
2. Size of the lesion

If at the time of consultation, the pain is decreasing in intensity and it is bearable, the aim should be to relieve the pain with analgesics such as non-steroidal anti-inflammatory drugs. Personal hygiene can be maintained by bathing the area with warm water twice daily and after each bowel action. A bulk laxative such as psyllum should be given to prevent constipation.

If the pain is increasing or is incapacitating, a surgical option is

indicated. The surgical approach is governed by the size of the thrombosed varix. Lesions under about 1cm are easily excised, while larger ones may be incised. It is said that the risk of recurrence is higher after incision rather than excision, but the data supporting this is limited.

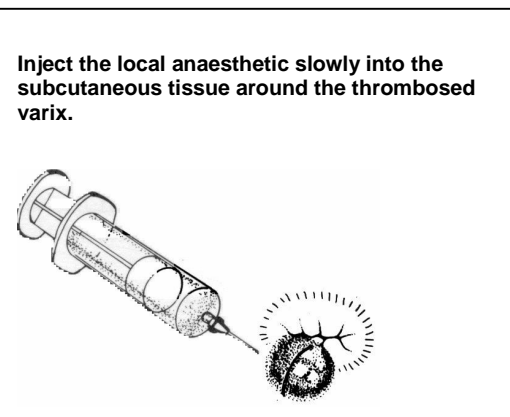
Procedure:

The local anaesthetic mixture

Agent	Usual dose required	Maximum dose when used alone	Maximum dose when used in combination with adrenaline
Lignocaine	10ml of ½%	3mg/kg	7mg/kg
Bupivacaine	10ml of 5mg/ml	2mg/kg	2mg/kg
Adrenaline	0.5ml of 1:10000	2ml of 1:10000 diluted to 40mls	

This is best done in an outpatient operating theatre. The patient is positioned in lithotomy. The perineal skin is cleaned with a water-based iodine or chlorhexidine-containing antiseptic. It is useful to place one sterile drape under the patient's buttocks. Gently apply local anaesthetic jelly to the perianal region. Prepare the local anaesthetic solution for injection while waiting the 5 or so minutes for the local anaesthetic in the jelly to take effect. A mixture of lignocaine and bupivacaine with adrenaline provides both rapid onset and prolonged duration of anaesthesia.

Inject the local anaesthetic slowly into the subcutaneous tissue until an area of anaesthetised tissue surrounds the pile. Allow a few minutes for the full affect of the local anaesthetic.



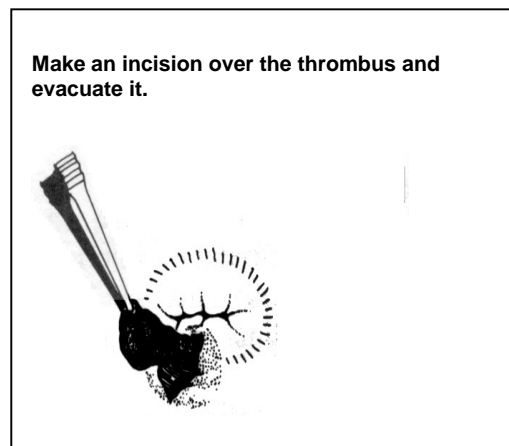
Excision: Make an elliptical incision at the margins of the lesion using a scalpel so that the axis of the wound is radial to the anus. The incision is deepened under the thrombosed vessels and these are excised. Any bleeding vessels are controlled with diathermy or ligation. The wound may simply be left open or closed with one

or two absorbable sutures and dressed with an absorbent pad held in place by a disposable pair of panties.

Incision: A radial incision is made over the centre of the lesion and deepened until the thrombus entered. The thrombus is evacuated. Small thrombi in the adjacent smaller veins can be removed if they are easily accessible. Any bleeding usually stops after the application of gentle pressure. The wound may simply be left open or closed with one or two absorbable sutures and dressed with an absorbent pad held in place by a disposable pair of panties.

Post-operative management:

Non-steroidal anti-inflammatory drugs usually provide adequate analgesia. Personal hygiene can be maintained by bathing the area with warm water twice daily and after each bowel action. A bulk laxative such as



psyllum should be given to prevent constipation.



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