Perianal fistula is a very unpleasant condition. It is also quite difficult to be solved without recurrence or with complete preservation of sphincter function. This paper summarizes the etiology, classification of fistulas along with the long term surgical experiences in the approach and the treatment of this condition.

Key words: perianal fistula, preservation, sphincter function

NATURAL HISTORY

The patient with fistula is often young. The sex ratio is about 2/1 in favour of males. There appears to be a higher incidence in patients from the Mediterranean littoral, Middle East and Indian subcontinent. There may have been a previous history of anal abscess. The main symptom is discharge of pus from the external opening. This may vary in volume depending on the presence of secondary abscess formation. In this circumstance, the patient may suffer exacerbations of symptoms of abscess including pain and fever, which are relieved by discharge of pus only to recur at some time in the future.

The discharge may require the application of several pads per day. The pus may smell. These symptoms are extremely distressing for the patient. They should not be underestimated.

Very rarely a fistula persisting for many years may develop a mucinous carcinoma in the track.

Associated disease

Patients with inflammatory bowel disease are at risk of anorectal sepsis. This includes those with extensive ulcerative colitis as well as those with Crohn’s disease. In the former, about 5% of total proctectomy specimens will have an anal lesion, usually fistula or fissure. Crohn’s disease confers a much higher risk however. The incidence of anorectal sepsis increases the more distal the intestinal involvement. Thus when this is confined to the small bowel it is about 10-15% but when the rectum is involved, this rises to over 50%.

Other associated diseases include hidradenitis suppurativa and anal fissure. The infective lesions of hidradenitis may resemble the external opening of a fistula track, but this condition also has an increased chance of a fistula being present. Anal fissure may be associated with an intersphincteric abscess. Occasionally anal fistula may be tuberculous or caused by actinomycosis. In a young female patient who has had previous failed operations for fistula,
the possibility of a post-rectal dermoid inclusion cyst should be considered.

The patient should be fully examined and investigated to exclude these diseases. Rigid rectoscopy performed during the initial consultation should remain part of the examination and not be deferred to a subsequent colonoscopy. Most of the conditions are diagnosed by clinical means, including dermoid cyst, but a magnetic resonance imaging (MRI) scan should be performed when this is suspected.

**Surgical Anatomy**

The anatomy of the anal canal with reference to anorectal sepsis requires an understanding of the fascial spaces and the anal sphincter mechanism. The anal sphincter complex includes the internal and external sphincters proper and the puborectalis sling.

**Parks’ Classification**

The cryptoglandular theory of the aetiology of fistula is generally accepted although the evidence for this is not uniform. It nevertheless forms the basis of Parks’ Classification of anal fistula in which the type of fistula is defined by the relationship of the track to the external sphincter and puborectalis muscles. Infection of a crypt gland body will result in an abscess which if in the intersphincteric space will tend to track in certain directions as it seeks to find a way to the surface. If it passes down the intersphincteric space it will form an abscess emerging just lateral to the anal orifice as a perianal abscess. When this discharges spontaneously or is drained surgically, an intersphincteric fistula is produced in which the external opening leads to the primary track which then passes to the internal opening in the crypt formed by the orifice of the gland. If an intersphincteric abscess penetrates through the external sphincter via one of the fasciculi in the muscle it then enters the ischioanal fossa to present in the perineum as an ischiorectal abscess. Once an external opening is formed, a transphincteric fistula is created.

Almost all anal fistulae are inter- or transsphincteric.

The Parks’ Classification includes the categories of suprasphincteric and extrasphincteric fistula. With the former, the intersphincteric abscess tracks upwards over the puborectalis muscle, penetrates the levator plate into the ischioanal fossa, and the perineum. There is doubt whether this form occurs naturally. The condition is extremely rare and the few cases have often had previous surgery. It might have arisen iatrogenically as a result of the incorrect drainage of a supralevator abscess through the ischiorectal fossa.

In extrasphincteric fistula the track arises from an internal opening within the abdomen or pelvis and passes directly to the perineum lateral to the sphincter complex. Examples include fistulation from the intestine caused by cancer, inflammatory bowel disease or diverticular disease. Extrasphincteric fistula may also be caused by gynaecological or urological pathology. It is a separate disease to anorectal sepsis. It should be suspected in patients with an external opening in the perineum without any apparent involvement of the anal sphincter or anal canal. A water soluble enema will demonstrate the track passing directly upwards to the fistulating organ. This will also be shown by and MRI. Almost all anal fistulae are of the inter- or transsphincteric types. The primary complex is defined as consisting of the internal and external openings joined by the primary track. In about 20% of cases, the primary complex is complicated by secondary track formation due to the formation of an abscess branching from the primary track.

**Digital Examination**

Digital examination must be performed on the awake patient unless abscess formation would render this too uncomfortable. It should be taken seriously and performed in a systematic manner. Digital examination can identify the site of the internal opening in about 80% of patients. This will lie in the posterior midline in about two thirds of cases and its location can be judged to some extent by the position of the external opening(s) in relation to a transverse line drawn through the middle of the anus (Goodsall’s rule).

Having found the internal opening, the examining finger should be advanced to the level of the anorectal junction identified by the sling of the puborectalis. This will allow an assessment of the distance between the opening and the junction which will in turn be an indication of how much sphincter would be left behind in the event of laying open of the fistula. This is the only means available to make this judgment. No form of imaging currently available can do so.

The examining finger is then advanced into the rectum and brought downwards to palpate the levator plate. A judgment is then made whether there is supralevator induction (Latin; durus=hard) or not. If unilateral, the difference in elasticity of the levator on each side can be easily felt, but if bilateral, as in a horse shoe fistula, it can be more difficult. It is here that MRI can be useful.

To summarise, the intent of the digital assessment is to identify the pathological anatomy of the primary track and the presence of any secondary tracks.
MRI

MRI has an accuracy of over 95% in identifying secondary track formation and any residual track after surgery. It is less useful in patients with a simple low fistula. In those with supralevalar induration, MRI can demonstrate with great clarity whether the secondary track lies above or below the levator ani. This knowledge is important in allowing the surgeon to drain any abscess or track in the correct direction. Thus an abscess above the levator should be drained into the rectum, while one below (more common) should be drained through the ischioanal fossa.

Simple or Complex

The above assessment will have identified an associated disease such as Crohn’s disease. The management of this is beyond the scope of this article.

In a patient with an ordinary anal fistula, a decision should be made on whether it is complex or simple. A complex fistula can be defined as one, which has any of the following factors together or in isolation: previous failed treatment, a high internal opening and a weak sphincter. The definition of 'high' is a little subjective but is can be thought of as one in which there appears to be little sphincter above the internal opening. Often a patient with this feature has had previous surgery. In about half of transspharincteric fistulae the track passes upwards as well as laterally as it goes through the external sphincter. This should be borne in mind, since laying open of the track will divide more external sphincter than was apparent from the level of the internal opening. It is essential to be aware of the strength of the sphincter muscle which can be weakened by various factors including previous surgery, general trauma and childbirth.

It is important to ascertain the pattern of bowel function particular to the patient. The presence of urgency should be determined and the consistency of the stool is important. If loose, the stool will be more difficult to hold than if it is formed. In some patients a loose stool may be the consistency normal for them.

An anterior fistula in a female patient should be regarded as complex since the anterior sphincter in the female is very short and there will be even less above the internal opening.

Treatment

Failure of treatment is due to any of the following: failure to identify the primary track, failure to identify secondary tracks, inadequate intraoperative drainage, failure of adequate postoperative dressing and failure to identify an associated condition such as Crohn’s disease.

The treatment options include:

- No treatment
- Fistulotomy
- Seton
- Closure or obliteration of the primary track
- Advancement flap

VAAFT
- LIFT
- Glue
- Plug

No Treatment

There may be a case to be made not to treat a fistula. This is more likely to arise in a patient with Crohn’s disease with an asymptomatic fistula, but patients with non-Crohn’s fistulae may also be encountered from time to time.

Division of the Primary Track

Fistulotomy

Fistulotomy is the most reliable treatment for curing a fistula with success in well over 90% of patients. In recent years it has been criticised owing to the possibility of causing "incontinence". Of course this is a serious complication, but its incidence has been variously reported to range from less than 5% to over 30%. The word "incontinence" has an absolute connotation, which understandably is frightening to patients. In reality the term "continence disturbance" more accurately describes any functional disturbance and should be used in discussing the possible consequences of various treatment for fistula with the patient. It is often forgotten that patients with fistula may be suffering considerably from unpleasant symptoms of pain and malodorous discharge. They are very grateful for relief. There is evidence that patients’ quality of life after laying open is little different among those who experience no continence disturbance and those who do. This implies that for them it is cure of the symptoms of the fistula which is the most important outcome.

Patients who are initially treated by sphincter saving methods, which fail should be seriously considered for fistulotomy.

Cutting Seton

A seton can be used as a gradual means of performing a fistulotomy of the primary track. The results indicate that it is less effective than surgical laying open and there is a significa of "continence disturbance".

Sphincter saving treatments

These can be divided into treatment to drain the track hoping that it will close gradually and treatments aimed to close or obliterate the primary track in some way.

Loose Seton

The insertion of a seton to drain the track may have three aims.

1) Most surgeons use it intraoperatively to mark the primary track so that it can be easily identified postoperatively to allow an assessment of the level of the internal opening in relation to the anorectal junction. On being satisfied that there is sufficient sphincter above the opening,
a fistulotomy or other intended definitive treatment is carried out.

2) A few surgeons would use the loose seton technique as a means of cure of the fistula. Left in situ for weeks to months, the track will gradually close around the seton to a point at which it may close completely when the seton is removed. Success with this method of 40% has been reported, but there is likely to be an incidence of recurrence.

3) In some patients a seton may be inserted for a long period of time with the aim of relieving symptoms, such as discharge and exacerbations of abscess formation where other treatments are too risky or unlikely to help. Some patients with an anal fistula associated with Crohn’s disease may be managed successfully in this was, at least for some time.

Closure or Obliteration of the Primary Track

There are now many procedures available aimed to achieve this aim. Their success has been variously reported to range from over 90% to less than 15%. Reports of specific treatments are often published by enthusiasts. The duration of follow up is often short and its quality may be poor. There are, of course, reports in the literature of good quality and these allow a present assessment of the results for most of the treatments listed above. These are those which are of current interest since they aim to cure the fistula without any risk of deterioration of function.

As an overview, an earlier article will not deal with these in any detail but a few comments are required. In general none will work in the presence of secondary track formation. This will need to be dealt with beforehand. It also seems to be the case that the success rate in healing the fistula is about 50%. This is a somewhat facile statement, but it indicates that the chance of failure is high while at the same time there is a reasonable prospect of cure without sphincter division.

Advancement Flap

In this technique the track is removed from the external to the internal opening and a flap of rectal wall is mobilised and brought down into the anal canal to close the internal opening. In the hands of most surgeons, the flap contains some of the circular muscle of the rectum. Technical points of value include the need to take a flap of adequate circumferential extent, for example up to one half and to mobilise it as far proximally as is possible. In a patient who has a tendency for rectal mucosal prolapse, tension will be avoidable and the results may be better.

Some surgeons have reported success in 80-90% of patients, but the average rate from the literature is nearer 50%. It should be appreciated that in the event of failure, the patient may be in a worse position than if fistulotomy had been performed, as the circular muscle of the rectum and the internal sphincter at the anorectal junction has been disrupted by dissection of the flap.

This is an operation for the surgeon who has made it a special interest.

Ligation of Intersphincteric Track (LIFT)

This procedure was described in the early 1990s and has recently been revised. The track is approached via the intersphincteric space and divided between ligatures. No other dissection is carried out. The wound is left open to heal by secondary intention.

There are now several reports in the literature, which indicate a success rate of around 60%. In the event of failure no damage to the sphincter has occurred and all treatments are still open, including a repeat LIFT procedure.

Fibrin Glue

The injection of fibrin glue along the track seemed to be promising when it was initially described 15 years ago. Further experience has shown a high failure rate owing to areas of persisting sepsis. This can be demonstrated by MRI and the presence of continuing track formation is associated with subsequent recurrence.

Fistula Plug

The introduction of the fistula plug has been one of the most important developments in the treatment of fistula. The plug is a bioabsorbable xenograft made of lyophilized porcine intestinal submucosa. Technically its insertion is easy and avoids any incision.

Success rates were over 80% when the first reports were published, but these have now fallen to around 30%. Nevertheless the procedure is worth trying given this reasonable chance of cure with no adverse physical consequence if it fails.

Video Assisted Anal Fistula Treatment (VAAFT)

This recently described procedure includes the debridement of the fistula track complex by irrigation via an endoscope introduced through the external opening. This is followed by closure of the internal opening. Early results are encouraging.

Overall Conclusion

Fistulotomy is the most reliable treatment for anal fistula. All sphincter avoiding procedures require prior treatment of secondary track formation. Seton management for cure is no longer attractive in the light of new developments. Advancement flap has been used for many years. It is likely that the results are surgeon-related. LIFT has great potential. The results of the fistula plug operation are sufficiently satisfactory for this still to be a treatment that should be considered, since if it works, the patient will have had treatment with minimal trauma.

SUMMARY

PERIANALNA FISTULA

Perianalna fistula je veoma neprijatno oboljenje. Često je veoma teško rešiti ovo patološko stanje bez receivada i sa kompletnom prezerbacijom funkcije sfinktera. Ovaj članak sažima etiologiju, klasifikaciju fistula, kao i dugo-
godišnje hirurško iskustvo u pristupu i tretmanu ovog oboljenja.

Ključne reči: perianalna fistula, sfinkter,

REFERENCES


