

# CHAPTER 79

## OTHER ANORECTAL CONDITIONS

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### Introduction

Children have a variety of anorectal problems that cause considerable distress to the patients and challenges to the surgeons. The presentation of these conditions may be age specific. Abscesses, fistulas, and fissures appear more commonly in infants and young children, whereas hemorrhoidal diseases are more common in older children and teenagers. The anorectal conditions discussed in this chapter include:

- Anorectal abscess and fistula-in-ano
- Fissure-in-ano
- Rectal prolapse
- Haemorrhoids
- Condylomata acuminatum
- Acquired rectovaginal fistula

### Anorectal Abscess and Fistula-in-Ano

An anorectal abscess is essentially a “boil” of the perianal region. The abscess and the fistula are usually part of a continuum, the latter presenting as a progression of the former. Up to 85% of children with perianal abscess (PAA) may progress to form a fistula-in-ano (FIA).<sup>1</sup>

#### Demographics

Perianal abscess is relatively common in infants.<sup>2</sup> The true incidence is not known, but in some large series of patients with perianal fistula (adults and children),<sup>3–5</sup> 0.5% to 4.3% are children. The disease presents before the age of 1 year in 57%–86% of affected children,<sup>6,7</sup> mostly in males.

In reports of small numbers of patients from parts of sub-Saharan Africa, the median age of children with PAA and FIA was 3 years, again mostly in boys.<sup>8</sup>

#### Aetiology/Pathogenesis

The aetiology in infants has been a subject of controversy. The derivation of FIA from PAA has long been accepted.<sup>9</sup> Infection within the crypts of Morgagni at the dentate line gives rise to an abscess and triggers an inflammatory response that may result in a fistula.

Dermal infections, especially diaper dermatitis, might be a cause of PAA that may not necessarily develop into FIA after drainage.<sup>10</sup>

An androgen imbalance (androgen excess or imbalance in the androgen-estrogen ratio) has been incriminated as a congenital aetiology. This is thought to create abnormal anal glands that favour the formation of fistulas.<sup>6</sup> These abnormal crypts were noted in continuity to the fistula in 33 consecutive patients, and opening these crypts reduced their recurrence. Others have disputed the crypts' role in the aetiology of FIA.<sup>11</sup> Some have described irregular thickened tissue at the dentate line that predisposes to cryptitis by trapping bacteria,<sup>12</sup> whereas others have suggested that aberrant migration of the urogenital sinus or hindgut could give rise to fistulous tracts.<sup>13</sup> In addition, entrapped migratory ectopic transitional cells have been demonstrated in the histology of excised fistulous tracts and have been suggested as

the cause of the fistula,<sup>13</sup> although inflammatory metaplasia can also explain the cellular ectopia. In some cases, FIA may be a complication of an anorectal surgery.<sup>8</sup>

#### Clinical Evaluation

Perianal abscess is often a very painful swelling in the perianal region. There may be associated pyrexia and passage of loose stools, particularly in ischioanal and supralelevator abscess. In sub-Saharan Africa, the abscess may burst spontaneously before presentation, and this may progress to rapidly developing necrotising fasciitis of the perineum.<sup>8,14</sup>

Fistula-in-ano frequently follows a spontaneously discharged or surgically drained PAA.

Digital rectal examination and anoscopy should be performed. In PAA, severe tenderness may preclude this, and a general anaesthetic may be required, especially in younger patients. The internal opening of the fistula should be identified; the opening is usually a small area of heaped up granulation tissue with pus in the punctate opening, often located at the dentate line. The tract is a cord-like structure leading to the anal sphincter.

Duhamel noted that FIA in infants and children have certain characteristics that seem to separate them from adult cases.<sup>7</sup> The characteristics of FIA in children can be summarized as follows:

- FIA mostly occurs in males.
- FIA mostly occurs in infants <1 year of age.
- All fistulas appear to be contiguous with the closest crypt.
- Multiple but separate tracts are fairly frequent (17–20%).
- Complex ramifying tracts are rare.
- Recurrence is not uncommon.

#### Investigations

##### Microbiology and serology

Any discharging fluid or pus should be cultured and antibiotic sensitivity obtained. Staining for acid-fast bacilli is necessary if tuberculosis (TB) is suspected in FIA.

Human immunodeficiency virus (HIV) serology should be done in cases that are recurrent or difficult to treat, after appropriate counselling.

##### Haematological

A complete blood count should be done. In PAA, leucocytosis is usually present.

##### Biochemical

If diabetes mellitus is suspected as an underlying condition, this should be ascertained by doing a urine and blood sugar assay.

##### Histopathology

Any tissue obtained at surgical treatment should be subjected to histopathology, particularly in the African setting, to exclude chronic granulomatous disease, including tuberculosis.

### Radiology

If TB is suspected, a chest radiograph should be done to identify any evidence of the disease.

### Management

#### General measures

Appropriate broad-spectrum antibiotics, effective against gram-negative enteric bacilli, gram-positives, and anaerobes is given. In early stages of PAA, this may be enough to control the infection and prevent progression.

Analgesics are given in PAA after establishing a diagnosis, as the condition is quite painful.

#### Specific measures

- **PAA.** Once an abscess is fully formed, adequate incision and drainage is done under general anaesthetic. It is important that appropriate antibiotics be started before the abscess drainage to prevent dissemination of the infection, which may cause portal pyaemia. Following drainage, the abscess cavity is lightly packed with gauze soaked in EUSOL (Edinburgh University solution) or native honey. The cavity is cleaned and lightly packed daily to allow gradual filling of the cavity by granulation tissue.
- **FIA.** The use of appropriate antibiotics and a sitz bath is done initially to control infection. Most FIA in children is of the intersphincteric type, and the aim of treatment is to completely lay open the fistulous tract. The definitive treatment of these fistulas is fistulotomy or fistulectomy.<sup>1</sup> If the corresponding anal crypt can be identified, it should be included in the fistulotomy or fistulectomy. If fistulotomy is done, a biopsy is taken from the tract and sent for histopathology. Following fistulectomy, the entire specimen is sent for histopathology. Any primary underlying condition, such as tuberculosis and immunosuppression, should be appropriately treated.

### Outcome

After incision and drainage or spontaneous drainage of PAA, up to 35% develop a FIA. Following fistulotomy or fistulectomy for FIA, a recurrence rate of up to 68% has been reported.<sup>1,15-17</sup> Figures 79.1 and 79.2 illustrate the result in one large series.<sup>1</sup> Most recurrences follow shortly after treatment, and late recurrences are uncommon.<sup>1</sup> In a few instances, poor healing may result in perianal scarring, which may interfere with proper cleaning. Although some mild faecal soilage may occur initially, this would usually resolve and rarely causes any functional problems.

### Fissure-in-Ano

Anal fissure (AF) is a tear in the anal mucosa that extends distally from the dentate line to the anal verge. With each bowel movement, the anal mucosa is stretched and the fissure reopened. Most acute fissures heal spontaneously within a few weeks, but some become chronic. AF is a common cause of haematochezia and anal pain in children.

### Aetiology/Pathogenesis

The aetiology for anal fissure is still largely obscure. Initial trauma occurs with subsequent failure of healing. This initial trauma is usually caused by hard stools following constipation, although diarrhea can also be associated with the condition. Other diseases, such as HIV infections and Crohn's disease, or previous surgery can also be responsible. Repeated sexual abuse<sup>17</sup> (Figure 79.3) can also cause AF.

Fear of painful defaecation may lead to faecal retention and rectal distention, resulting in decreased rectal sensation. This may result in frequent bulky and hard stools that prevent healing of the fissure, creating a vicious circle.<sup>18</sup> The failure of healing can also be attributed to ischemia, which usually results from intense associated muscle spasm and sphincteric hypertonicity.<sup>19</sup>

### Clinical Evaluation

The classic presentation of AF is that of a child crying with each bowel motion and the presence of bright red blood streaks in stools. The pre-

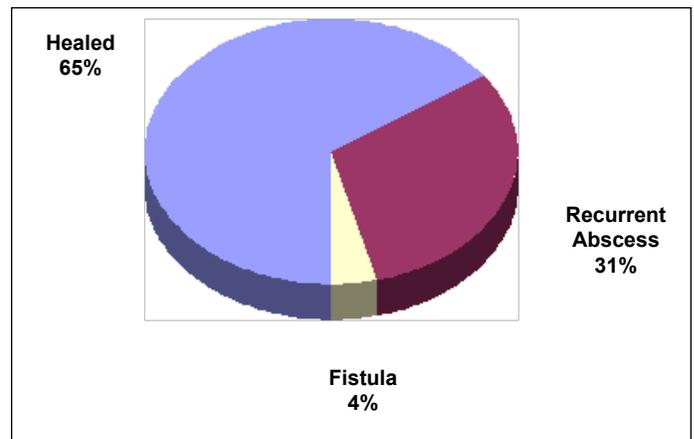


Figure 79.1: Results of incision and drainage of 26 PAA cases in children.

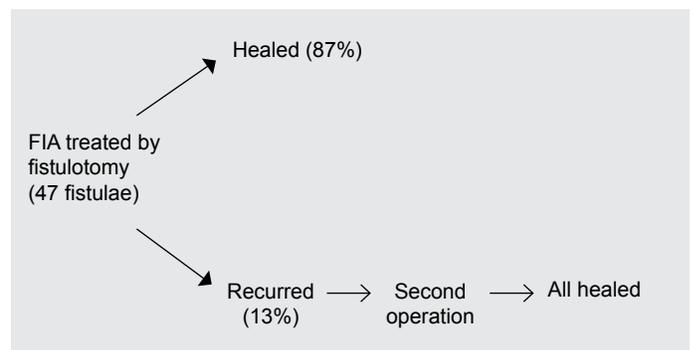


Figure 79.2: Results of treatment of 47 FIA cases in children.



Figure 79.3: Fissure-in-ano resulting from repeated anal sexual abuse in a boy.

sensation is often associated with constipation.

Firm faecal masses may be palpated on the left side at abdominal examination, usually the result of faecal retention from the severe anal pain.

The diagnosis is made on anal inspection. AF is usually identified as a posterior midline longitudinal mucosal tear distal to the dentate, but it may be found anywhere along the anal circumference. Chronic fissures can be associated with a finding of hypertrophied anal papillae, sentinel tags, polyps, or haemorrhoids.

The fissures from chronic anal sexual abuse may be multiple, and the anus may appear rather patulous.

Digital rectal examination is best avoided, as this may produce severe pain.

### Management

The goal of treatment for anal fissure is to relieve pain, aid normal defaecation, and achieve and maintain healing of the fissure. The majority of anal fissures will heal on medical treatment, but surgery may be needed if medical measures fail.

### Medical treatment

Control of pain helps to relieve sphincter spasm and encourage defaecation. Oral analgesics can achieve this. If the pain is acutely severe, topical analgesics/anaesthetics using lignocaine gel (or another appropriate topical agent) help to produce quick relief of pain.

To aid normal defaecation, treatment should include the following measures:

- Encourage a high-fibre diet to help avoid constipation and the formation of hard stools.
- The use of stool softeners in addition to analgesia helps to establish normal defaecation and interrupts the vicious process created by fissure and hard stools.
- The use of topical 0.2% glyceryl trinitrate *cream* has been found to be effective in healing fissures in children.<sup>20,21</sup> However, one randomized control study concluded that topical 0.2% glyceryl-trinitrate *paste* is not beneficial in relieving pain in acute fissures.<sup>22</sup>
- Injection of botulinum toxin into the internal anal sphincters has been used to reduce internal sphincter spasm. This enhances defaecation as well as relieving pain.

With medical treatment, most fissures should heal. In a minority of patients, medical treatment may fail and surgical measures may become necessary.

### Surgical treatments

Anal dilatation under general anaesthetic helps to interrupt sphincter spasm. This would aid defaecation and allow the fissure to heal. Anal dilatation should be combined with medical measures to achieve maximal benefits. Anal dilatation should be used with caution in children, however, as overenthusiastic dilatation may result in faecal incontinence.

Lateral internal anal sphincterotomy<sup>23,24</sup> is a surgical disruption of the internal anal sphincter aimed at relieving spasm and enhancing defaecation. It produces symptom relief in up to 98% of patients.<sup>23</sup> After sphincterotomy, the fissure usually heals in about 10–14 days. Continue medical measures for about 2 weeks after fissure healing to avoid recurrence.

Fissurectomy entails complete excision of the fissure, and should be reserved for the occasional nonhealing fissure or those with troublesome recurrence.

## Rectal Prolapse

Rectal prolapse is a relatively common, self-limiting condition in children between 1 and 3 years of age.

### Aetiology

Rectal prolapse occurs frequently as a result of diarrheal illness, constipation, weight loss or malnutrition, recurrent straining, and prolonged sitting on the toilet (usually due to tenesmus from parasitic infestation). Commonly implicated parasites include *Enterobius vermicularis*, *Trichuris trichuria*, and *Entamoeba histolytica*.

### Pathology

Dilatation of the levator mechanism results in herniation of the rectum, causing prolapse. Due to persistent straining, the pelvic peritoneum is stretched and so are the suspensory vessels and adjacent structures,



Figure 79.4: Differentiating between rectal prolapse and intussusceptions protruding through the anus (note the extent of insinuated finger into the sulcus between bowel loop and anal wall).

resulting in a prolapse. Other contributing factors are a short, straight sacrum and a redundant sigmoid colon.

In some congenital conditions, such as bladder exstrophy and myelomeningocele, rectal prolapse is one of the symptoms and is the result of true weakness of rectal supports. Nonoperative management is rarely successful in these situations.

### Evaluation

Diagnosis is usually based on a history of a protruding mass and discomfort in the anus during defaecation, which either reduces spontaneously or is returned manually. The rosette rectal mucosa is usually noted. This can be differentiated from intussusception by insinuating a finger in the sulcus between the mass and perianal skin; the sulcus is endless in the latter, but blind-ended in the former (Figure 79.4). Confusing a rectal prolapse with intussusception is known to cause delays in referral for intussusceptions in parts of sub-Saharan Africa.<sup>25</sup>

Rectal examination is indicated to exclude polyps and lead points.

### Stool microscopy

Microscopic examination of the stool is necessary to identify any parasite ova or trophozoites of *Entamoeba histolytica*.

### Barium enema

In recurrent cases, a barium enema may be needed to exclude other rectal pathology as well as elongated and redundant rectum.

### Colonoscopy

Colonoscopy is helpful in difficult recurrent cases to help identify any rectal pathology that may be preventing resolution of the prolapse.

### Management

#### Nonoperative treatment

In most cases, the condition is self-limiting, so nonoperative treatment should be employed at the outset. This consists of prompt reduction of the prolapse and teaching the parents how to reduce it. This reduction should be done each time the rectum prolapses.

The cause of any diarrhoea or constipation should be treated. Anthelmintics should be given for parasites identified at stool microscopy.

Nutritional rehabilitation should be instituted for those who are malnourished.

In symptomatic prolapse, the treatment should be nonoperative. In exstrophy, the prolapse usually disappears after correction of the primary cause. In myelomeningocele, the success of treatment depends on the severity of the condition.

#### Operative treatment

Surgery is indicated in cases with intractable prolapse after 6 months of nonoperative management.

A Thiersch suture may be applied to keep the prolapse reduced while treating the precipitating cause.

More radical surgical options include excision of redundant rectal mucosa and plication of the rectum. More extensive procedures, such as rectopexy, are rarely required and should be reserved for troublesome recurrent cases.

Occasionally, the prolapsed rectum undergoes desiccation, ulceration, and may become infected. A few may develop necrosis of the prolapsed rectum (Figure 79.5). These complications put the patient at risk of pyelephlebitis. The patient should be quickly resuscitated and any gangrenous or compromised rectum resected transanally. If the rectum is only infected or ulcerated, control of infection and nonoperative measures are usually successful.



Figure 79.5: Rectal prolapse with oedema, ulceration, and necrosis in a 2-year-old boy following acute diarrhea.

### Outcome

Rectal prolapse is usually self-limiting in a vast majority of patients and should resolve after appropriate treatment of the precipitating cause. Even in those requiring surgery, recurrence is unusual.

### Haemorrhoids

Haemorrhoids are an uncommon condition in the paediatric population. Aetiology is mainly related to other conditions such as portal hypertension or cystic fibrosis and rarely is a result of straining at stool. Presentation includes painless bleeding and perianal pruritus. On examination, bluish discoloration or a prolapsed haemorrhoid may be noticed in the perianal area. Treatment is mainly conservative with local hygiene and cold packs. If conservative management fails, injection sclerotherapy with phenol in almond oil is a safe option in children.

### Acquired Rectal Fistula

With the surge of HIV infection especially in sub-Saharan Africa, acquired rectal fistula has become one of the commonest surgical pathologies seen among children with HIV.<sup>26-30</sup> It is more common in girls,<sup>27</sup> but boys can also be affected.

### Aetiology/Pathogenesis

The pathophysiology of acquired rectal fistulas is largely unknown. Such fistulas have been noted to arise from the dentate line, and anal gland infections are proposed as the initiating factors.<sup>28</sup> There is, however, a recognized clinical pattern in these patients, in which HIV-related rectal fistula follows a diarrhea infection, and crypt abscess and fistulation into the vagina in girls and the urethra in boys. However, the exact mechanism of this process remains unknown.

Pathologically, the fistula is usually located at the dentate line. There is nonspecific inflammatory ulceration and acute chronic proctitis.<sup>27</sup> One postmortem examination of the fistula edge showed a nonspecific ulcer.<sup>31</sup> Cytomegalovirus (CMV) has been noted in the rectal mucosa in a small minority of patients.<sup>27</sup>

### Management

In patients not already known to have HIV infection, the serum should be tested for HIV to confirm diagnosis. In boys, a voiding cystourethrogram is helpful in identifying the urethral site of the fistula.

The main focus of initial treatment should be the administration of appropriate antiretroviral drugs. Appropriate antibiotics should be given if there are superimposed infections, and the nutritional status of the child should be significantly improved.

Once the CD4 count has improved to adequate levels, the fistula can be excised and the wound repaired, preferably under a protective diversion colostomy.

Initial surgical excision of the fistula should be avoided as much as possible because wound healing is not so good in these patients, and such wounds would break down with recurrence of the fistula.

### Condylomata Accuminatum

Condylomata acuminatum (CA) is an infection caused by the human papillomavirus. It is normally a sexually transmitted disease in adults, but may occasionally be found in children of affected mothers. Sexual abuse should always be excluded.<sup>32,33</sup>

CA presents as a warty or verrucous growth in the perineal and anal region. It may be only a few growths, but it could be extensive. Diagnosis is confirmed at the histology of the biopsied growth.

The treatment may be medical, using such local agents as podophyllin, but this needs to be applied for several weeks, and recurrence may be a problem.

Fulguration or surgical excision is effective. Cryosurgery has also been found to be effective.

### Evidence-Based Research

Table 79.1 presents evidence-based research for HIV-positive African children with rectal fistulas.

Table 79.1: Evidence-based research.

Title	HIV positive African children with rectal fistulae
Authors	Wiersma R
Institution	Department of Paediatric Surgery, Nelson R. Mandela School of Medicine, University of Natal, Durban, South Africa
Reference	J Pediatr Surg 2003; 38:62-64
Problem	Occurrence and treatment of HIV-related rectal fistulae in children.
Intervention	Fistula closure/repair.
Comparison/control (quality of evidence)	A 6-year (1996 through 2001) retrospective study found 39 children presenting with HIV-related rectal fistulae. Thirty-seven girls were seen with rectovaginal fistulae (RVF), and supportive documentation shows an increase in this condition throughout Southern Africa. Until now, boys have not been described with this condition. Two boys who complete this spectrum of HIV-related acquired rectal fistulae are presented.
Outcome/effect	All patients were found to have rectal fistulae at the dentate line. In girls, they varied in size from pinpoint to 5 mm in diameter, tracking anteriorly into the vagina. When closure of the fistula was attempted, it broke down. The two boys had large fistulae, which tracked to the prostatic urethra on the right of the verumontanum. The first patient underwent a successful repair. The second patient had a Y-shaped fistula based at the dentate line, with the second limb passing into the bladder. The parents refused further treatment and took the child home.
Historical significance/comments	HIV disease affects increasing numbers of children. A spectrum of rectal fistulae now has been seen in both girls and boys. These acquired rectal fistulae arise at the dentate line in both genders. Girls with these fistulae are seen more commonly, presenting with RVF. The closure of a fistula has been successful in only one boy.

## Key Summary Points

1. Noncongenital anorectal conditions affect children and are commonly infective in nature.
2. Some rectal fistula diseases may be the result of sexual abuse, and these children should be evaluated for abuse when relevant.
3. Rectal fistula is now a common presentation in HIV-infected children, and HIV infection should be excluded in children presenting with noncongenital rectal fistula.
4. Most of these anorectal conditions can be treated by simple measures, and several are self-limiting.
5. Radical or extensive surgical treatment should be avoided as much as possible, except in difficult recurrent cases.

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