Practice Parameters for the Management of Perianal Abscess and Fistula-in-Ano

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Prepared by the Standards Practice Task Force of the American Society of Colon and Rectal Surgeons

The American Society of Colon and Rectal Surgeons is dedicated to ensuring high-quality patient care by advancing the science, prevention, and management of disorders and diseases of the colon, rectum, and anus. The Standards Committee is composed of Society members who are chosen because they have demonstrated expertise in the specialty of colon and rectal surgery. This Committee was created to lead international efforts in defining quality care for conditions related to the colon, rectum, and anus. This is accompanied by developing Clinical Practice Guidelines based on the best available evidence. These guidelines are inclusive, and not prescriptive. Their purpose is to provide information on which decisions can be made, rather than dictate a specific form of treatment. These guidelines are intended for the use of all practitioners, health care workers, and patients who desire information about the management of the conditions addressed by the topics covered in these guidelines.

It should be recognized that these guidelines should not be deemed inclusive of all proper methods of care or exclusive of methods of care reasonably directed to obtaining the same results. The ultimate judgment regarding the propriety of any specific procedure must be made by the physician in light of all the circumstances presented by the individual patient.

STATEMENT OF THE PROBLEM

Anorectal abscess is a potentially debilitating condition most often originating from a cryptoglandular infection in the anal canal,[1] and remains one of the more common anorectal conditions encountered in practice. Although the underlying pathogenesis is the same in the majority of patients, these abscesses are classified into perianal, ischi-

orectal, intersphincteric, and supralevator based on location.[2] As such, patients may present with a variety of signs and symptoms ranging from fever, pain, tenderness, erythema, and a fluctuant mass to relatively normal external findings and deep-seated rectal pain.[2]

In approximately 30% to 50% of patients with an anorectal abscess, a persistent tract, or fistula-in-ano, develops, extending from the anal canal to the perineal skin.[3,4] Unfortunately, there is no definitive way to predict who will develop one, or how to prevent one. Patients often report persistent purulent drainage or intermittent perianal swelling and tenderness followed by spontaneous discharge. Fistulas are categorized based on their anatomical course relative to the sphincter complex: intersphincteric, transsphincteric, suprasphincteric, and extrasphincteric.[4] Fistulas can also be classified as "simple" or "complex," with simple fistulas including low transsphincteric and intersphincteric fistulas that cross <30% of the external sphincter.[5] Complex fistulas include high transsphincteric fistulas with or without a high blind tract, suprasphincteric and extrasphincteric fistulas, horseshoe fistulas, and those associated with inflammatory bowel disease, radiation, malignancy, preexisting incontinence, or chronic diarrhea, as well.[6−8] Given the attenuated nature of the anterior sphincter complex in women, fistulas in this location deserve special consideration and may be considered complex as well. This practice parameter will focus on the evaluation and management of both perianal abscess and fistula-in-ano.

METHODOLOGY

These guidelines are built on the last set of the American Society of Colon and Rectal Surgeons Practice Parameters for treatment of perianal abscess and fistula-in-ano published in 2005.[9] An organized search of MEDLINE, PubMed, EMBASE, and the Cochrane Database of Collected Reviews was performed through February 2010. Key word combinations included abscess, fistula, fistula-in-ano, anal, rectal, perianal, perineal, rectovaginal, anovaginal, seton, fistula plug, fibrin glue, advancement flap, and

TABLE 1. The GRADE system: Grading recommendations[a]

	Description	Benefit vs. risk and burdens	Methodologic quality of supporting evidence	Implications
1A	Strong recommendation, high-quality evidence	Benefits clearly outweigh risk and burdens or vice versa	RCTs without important limitations or overwhelming evidence from observational studies	Strong recommendation, can apply to most patients in most circumstances without reservation
1B	Strong recommendation, moderate-quality evidence	Benefits clearly outweigh risk and burdens or vice versa	RCTs with important limitations (inconsistent results, methodologic flaws, indirect or imprecise) or exceptionally strong evidence from observational studies	Strong recommendation, can apply to most patients in most circumstances without reservation
1C	Strong recommendation, low or very low quality evidence	Benefits clearly outweigh risk and burdens or vice versa	Observational studies or case series	Strong recommendation but may change when higher-quality evidence becomes available
2A	Weak recommendation, high-quality evidence	Benefits closely balanced with risks and burdens	RCTs without important limitations or overwhelming evidence from observational studies	Weak recommendation, best action may differ depending on circumstances or patients' or societal values
2B	Weak recommendations, moderate-quality evidence	Benefits closely balanced with risks and burdens	RCTs with important limitations (inconsistent results, methodologic flaws, indirect or imprecise) or exceptionally strong evidence from observational studies	Weak recommendation, best action may differ depending on circumstances or patients' or societal values
2C	Weak recommendation, low or very low quality evidence	Uncertainty in the estimates of benefits, risks and burden; benefits, risks, and burden may be closely balanced	Observational studies or case series	Very weak recommendations; other alternatives may be equally reasonable

GRADE = Grades of Recommendation, Assessment, Development, and Evaluation; RCT = randomized controlled trial.
[a]Adapted from Guyatt et al.[10] Table 2. Used with permission.

Crohn's disease. Directed searches of the embedded references from the primary articles were also performed in selected circumstances. Primary authors reviewed all English language manuscripts and studies of adults. Recommendations were formulated by the primary authors and reviewed by the entire Committee. The final grade of recommendation was performed using the Grades of Recommendation, Assessment, Development, and Evaluation (GRADE) system[10] and reviewed by the entire Standards Committee (Table 1).[11]

RECOMMENDATIONS

Initial Evaluation of Perianal Abscess and Fistula-in-Ano

1. A disease-specific history and physical examination should be performed, emphasizing symptoms, risk factors, location, and presence of secondary cellulitis or fistula-in-ano. Grade of Recommendation: Strong recommendation based on low-quality evidence 1C

The diagnosis of anorectal abscess is usually made based on the patient's history and physical examination. It is important to distinguish anorectal abscess from other perianal suppurative processes such as hidradenitis suppurativa, infected skin furuncles, and infectious processes in-

cluding herpes simplex virus, HIV, tuberculosis, syphilis, and actinomycosis.[12] In addition, features suggestive of Crohn's disease, including large skin tags or multiple fistulas, require a more detailed workup and potentially additional medical therapy.[13]

On examination, a tender, fluctuant mass is almost always present with perianal and ischiorectal abscesses. Patients with intersphincteric or supralevator abscesses may have a paucity of external findings, with only pelvic or rectal tenderness or fluctuance on digital rectal examination. Careful inspection may detect the presence of other anorectal pathology or an external opening suggestive of a fistula-in-ano.[14,15] Palpation of the perianal area, digital rectal examination, and careful probing of the tract(s) often aids in defining the presence and anatomy of the fistula. Anoscopy and sigmoidoscopy may be performed to try to visualize the internal opening of a fistula and other mucosal abnormalities such as proctitis secondary to Crohn's disease. In general, laboratory evaluation is not necessary, with the exception of patients with systemic symptoms such as fever, serious underlying medical problems, or an unclear diagnosis.

2. Studies such as fistulography, endoanal ultrasound, CT scan, and MRI may be considered in selected

patients to help define the anatomy of an anorectal abscess or fistula-in-ano and to guide management. Grade of Recommendation: Strong recommendation based on low-quality evidence 1C

Although anorectal abscess and fistula-in-ano are most commonly diagnosed and managed on the basis of clinical findings alone, adjunctive radiological studies can occasionally provide valuable information in complex tracts or recurrent disease. The vast majority of fistulas, however, do not require any imaging. Traditionally, fistulography was the method of choice.[16] Reported accuracy rates as low as 16% have largely led to this test falling out of favor.[17] Endoanal ultrasound is very effective for characterizing anorectal abscess and fistulas with accuracy rates as high as 80% to 89% for delineating fistula tracts, and is especially effective in identifying horseshoe abscess extensions.[18–20] Three-dimensional ultrasound techniques provide even better imaging, especially in patients with complex perianal sepsis or high-riding tracts.[21] Combining 3-dimensional ultrasound with hydrogen peroxide injection through the external opening has demonstrated accuracy rates comparable to MRI, with close to 90% concordance.[22–24] CT scan can be useful for patients with complex suppurative anorectal conditions, and is especially helpful in identifying supralevator abscesses, or for those patients who would otherwise be difficult to examine without anesthesia.[25] In patients with Crohn's disease who have perianal pathology, CT has proven reliable in helping to delineate fistulas and abscesses from isolated rectal inflammation.[26]

MRI with or without endoanal coils has reported accuracy rates of more than 90% for mapping fistula tracts and identifying the internal opening.[27,28] The majority of studies comparing pelvic MRI with endoanal ultrasound have shown slightly higher[20,22,29,30] rather than lower[31,32] rates of sensitivity and accuracy—depending, in part, on operator experience (ultrasound) and patient population (ie, recurrent disease, abscess/fistula location, Crohn's disease).

Perianal Abscess

1. Patients with acute anorectal abscess should be treated in a timely fashion with incision and drainage. Grade of Recommendation: Strong recommendation based on low-quality evidence 1C

The primary treatment of anorectal abscesses remains surgical drainage. In general, the incision should be kept as close as possible to the anal verge to minimize the length of a potential fistula, while still providing adequate drainage. With an adequately sized elliptical incision, postoperative wound packing is usually not necessary. A variation of incision and drainage uses a small latex catheter (eg, 10–14F Pezzer catheter) placed into the abscess cavity with the use of local anesthesia and a small stab incision. The catheter is removed when the abscess drainage stops and

the cavity has closed down around the catheter (usually 3–10 days).[33,34]

After simple incision and drainage, the overall recurrence rate ranges from 3% to 44%, depending on the abscess location and the length of follow-up.[35,36] Additional factors associated with recurrence and the need for early repeat drainage include incomplete initial drainage, failure to break up loculations within the abscess, missed abscess, and undiagnosed fistula.[37] Horseshoe abscesses have been associated with especially high rates of persistence and recurrence ranging between 18% and 50%,[37,38] and often require multiple operations before definitive healing.[39]

2. Antibiotics have a limited role in the treatment of uncomplicated anorectal abscess. Grade of Recommendation: Strong recommendation based on moderate-quality evidence 1B

3. Antibiotics may be considered in patients with significant cellulitis, underlying immunosuppression, or concomitant systemic illness. Grade of Recommendation: Weak recommendation based on low-quality evidence 2C

In general, the addition of antibiotics to routine incision and drainage of uncomplicated anorectal abscess does not improve healing time or reduce recurrences, and it is therefore not indicated.[40–42] However, limited data suggest that antibiotics be considered for use in patients with extensive cellulitis, systemic symptoms, or failure to improve with drainage alone.[43] In patients with underlying immunosuppression, the data also suggest that antibiotics may play a role. Although patients with a higher absolute neutrophil count ($>1000/mm^3$) and fluctuance on examination demonstrate higher resolution rates with incision and drainage, patients with lower neutrophil counts (ANC $<500–1000/mm^3$) and/or lack of fluctuance on examination have been successfully treated with antibiotics alone in 30% to 88%.[44–46]

The emergence of community-acquired methicillin-resistant *Staphylococcus aureus* in otherwise routine anorectal abscesses[47] raises the question whether wound culture is indicated after incision and drainage. Although wound culture is rarely helpful, it may be considered in cases of recurrent infection or nonhealing wounds. Patients with underlying HIV infection with either concomitant infections or atypical microbes, including tuberculosis[48] may benefit from wound culture and targeted antibiotic treatment.

Finally, recent guidelines from the American Heart Association recommend preoperative antibiotics before incision and drainage of infected tissue in patients with prosthetic valves, previous bacterial endocarditis, congenital heart disease, and heart transplant recipients with valve pathology. Unlike prior guidelines, antibiotic prophylaxis is no longer recommended in patients with routine mitral valve prolapse.[49]

Fistula-in-Ano

The goal in the treatment of fistula-in-ano is to obliterate the internal fistulous opening and any associated epithelialized tracks with minimal sphincter division. Thus, it is imperative to identify the internal opening and the course of all tracts relative to the sphincter muscles. Goodsall's rule attempts to predict the location of the internal opening in relation to its external (secondary) opening. External openings posterior to a transverse line through the anal verge will open into the anal canal in the midline. Conversely, anterior placed openings will run in a radial direction, analogous to "spokes on a wheel." Although Goodsall's rule accurately predicts the location of the internal opening in 49% to 81% of patients, the location of the external opening can be a poor predictor of the location of a fistula, in particular, in patients with long fistula tracts, recurrent fistulas, or Crohn's disease.[14,50–52] In addition to direct visualization and palpation, the surgeon must be familiar with adjunctive intraoperative measures, including hydrogen peroxide/methylene blue injection of the external opening, to assist in the identification of tract origin, with reported success rates greater than 90% and 80%.[50,51] In addition, the etiology should be determined. Approximately 80% of fistulas are secondary to cryptoglandular infection, but other diagnoses such as Crohn's, trauma, radiation, malignancy, or infection must be considered in fistulas with an unusual appearance or location.

Because no single technique is appropriate for the treatment of all fistulas-in-ano, treatment must be directed by the etiology and anatomy of the fistula, degree of symptoms, patient comorbidities, and the surgeon's experience. One should keep in mind the progressive tradeoff between the extent of operative sphincter division, postoperative healing rates, and functional compromise.

Treatment of a Simple Fistula-in-Ano

1. Simple anal fistulas may be treated by fistulotomy. The addition of marsupialization may improve the rate of wound healing. Grade of Recommendation: Strong recommendation based on moderate-quality evidence 1B

There is no universal answer to the question of how much muscle can be safely divided. Nevertheless, with proper patient selection, fistulotomy has been associated with success rates of 92% to 97%.[53,54] Higher recurrence rates have been associated with complex fistulas, failure to identify the internal opening, and Crohn's disease.[53,55,56]

Postoperative alterations in continence are reported in 0% to 73% of patients. This wide range is due to differences in the definition of incontinence, variable follow-up, and the degree of disturbance. Risk factors include preoperative incontinence, recurrent disease, female sex, complex fistulas, and prior fistula surgery.[53,56–58] The addition of marsupialization has also been associated with less postoperative bleeding and accelerated wound healing by approximately 4 weeks.[59,60] Limited data have shown that fistu-

lectomy, in which the tract is resected, is associated with longer healing times, larger defects, and a higher risk of incontinence, although recurrence rates are similar when compared with fistulotomy.[61,62]

2. Concomitant fistulotomy with incision and drainage may be considered in select patients with anorectal abscess and fistula. Grade of Recommendation: Weak recommendation based on moderate-quality evidence 2B

One of the more controversial topics in dealing with anorectal abscess is the role of primary fistulotomy at the time of initial incision and drainage. Proponents of this practice cite the infected crypt as the origin of the problem and believe that failure to address this leads to higher recurrence rates.[35] Opponents counter with the higher rate of continence disturbances in patients undergoing concomitant fistulotomy and the potential for unnecessary fistulotomy.[3,63] Quah and colleagues performed a meta-analysis including 5 trials of 405 patients and demonstrated that sphincter division (via fistulotomy or fistulectomy) at the time of incision and drainage was associated with a significant decrease in recurrence (relative risk (RR) = 0.17, 95% CI 0.09–0.32, $P < .001$), but higher levels of continence disorders (RR = 2.46, 95% CI 0.75–8.06, $P = .140$).[64]

Thus, the utility of fistulotomy in conjunction with incision and drainage of an anorectal abscess remains controversial. The surgeon should weigh the possible decreased recurrence rate in light of the potential increased risk of continence disturbances.

3. Simple anal fistulas may be treated with debridement and fibrin glue injection. Grade of Recommendation: Weak recommendation based on low-quality evidence 2C

Fibrin glue has a number of advantages, including its ease of use, repeatability, and avoidance of sphincter division, especially in patients with a high risk of incontinence following fistulotomy. However, this must be weighed against the high failure rate. Retrospective and prospective cohort data for fibrin glue use in simple fistulas has demonstrated healing rates of 40% to 78%.[65–68] Simple low fistulas have a decreased rate of healing with fibrin glue compared with fistulotomy (50% (3/6) vs 100% (7/7), $P = .06$) with low rates of incontinence in both groups.

Treatment of Complex Fistula-in-Ano

In select patients, radiographic evaluation may be beneficial to identify an occult internal opening and secondary tracts or abscesses, or to help delineate the fistula's relationship to the sphincter complex.

1. Complex anal fistulas may be treated with debridement and fibrin glue injection. Grade of Recommendation: Weak recommendation based on low-quality evidence 2C

In the randomized controlled trial by Lindsey et al,[69] the authors compared fibrin glue with loose setons

followed by flap repair for complex fistulas (n = 29). Fibrin glue was associated with higher healing rates (69% (9/13) vs 13% (2/16), *P* = .003), whereas incontinence rates were similar between the 2 groups (0/13 vs 2/16). Overall healing rates in nonrandomized series using fibrin glue for complex disease has ranged from 10% to 67%.[66–71]

Although fibrin glue therapy has a relatively low success rate in complex disease, for those that eventually heal, it does appear to be a durable repair. Furthermore, given the low morbidity associated with the procedure, it may be considered for initial therapy.

2. Anal fistula plug may be used for treatment of complex anal fistula disease. Grade of Recommendation: Weak recommendation based on moderate-quality evidence 2C

The bioprosthetic anal fistula plug is used to close the primary internal anal opening and serves as a matrix for the obliteration of the fistula tract. Although limited data have demonstrated success with the plug in up to 70% to 100% of low-lying fistulas, outcomes in complex disease have been less promising.[72–75] In patients with Crohn's disease, initial reports demonstrated closure rates of 80%,[76] with the same group demonstrating persistent closure in 83% of all types of complex fistulas at a median of 12 months.[77]

Unfortunately, most other studies have not been able to replicate those results, with the majority of studies reporting <50%.[72,73,78–80] Lower success rates are associated with longer follow-up periods. The low morbidity, repeatability, and lack of other options warrant consideration of this therapy in patients with complex fistulas.

3. Endoanal advancement flaps may be used for treatment of complex anal fistula disease. Grade of Recommendation: Strong recommendation based on moderate-quality evidence 1C

Endoanal advancement flap is another sphincter-sparing technique that consists of curettage of the tract, and mobilizing a segment of proximal healthy anorectal mucosa, submucosa, and muscle to cover the site of the sutured internal opening. In general, recurrence rates range from 13% to 56%.[81–83] The addition of fibrin glue to obliterate the tract has failed to improve success rates.[81,84] Factors associated with failed repair include radiation, underlying Crohn's disease, active proctitis, rectovaginal fistula, malignancy, and number of prior attempted repairs.[53,82,85–88] Although the sphincter is not divided with endoanal advancement flaps, mild or moderate incontinence is still reported in up to 7%–38% of patients, with associated decreases reported in both resting and squeeze pressures on postoperative manometry.[85,89–91]

4. Complex anal fistulas may be treated by the use of a seton and/or staged fistulotomy. Grade of Recommendation: Strong recommendation based on moderate-quality evidence 1B

The seton (ie, suture, rubber band, Silastic vessel loop) is passed through the fistula tract to convert an inflammatory process to a foreign body reaction causing perisphincteric fibrosis. Setons may be of the cutting type, for which progressive tightening will produce a gradual fistulotomy with scarring of the tract, over the course of weeks. Alternatively, a loose seton may be placed to promote drainage and avoidance of recurrent perineal sepsis, and may be left in place long-term or removed with ultimate cure. There remains a lack of high-quality data with regard to setons, with only 4 randomized controlled trials to date, all with varying results.[69,92–94]

In the setting of complex anal fistulas, setons are commonly used in a staged fashion, with initial seton placement to control sepsis followed by a secondary procedure (ie, endoanal advancement flap, fibrin glue, anal plug) weeks later to avoid division of the sphincter muscle.[95] Success rates in this setting have ranged from 62% to 100%, depending on the type of secondary procedure.[95–99] Changes in continence range from 0% to 54% with patients undergoing 2-staged procedures or cutting setons. Incontinence to flatus is seen more often than liquid or solid stool incontinence.[96–101] Finally, in sepsis secondary to fistula disease that is recalcitrant to other methods, diversion and appropriate drainage may be required.

5. Complex fistulas may be treated with ligation of the intersphincteric fistula tract (LIFT). Grade of Recommendation: No recommendation

A relatively new technique called the LIFT procedure involves ligation and division of the fistula tract in the intersphincteric space.[102–104] The procedure typically involves placement of a seton for 8 or more weeks to allow fibrosis of the tract. Using an intersphincteric approach, the tract can be identified, ligated, and divided, with possible closure of the internal opening and widening of the external opening for drainage. Using this approach, there is no sphincter muscle divided and, theoretically, continence is preserved.

Although there are only a few small series to date in the literature, successful closure has been reported in 57% to 94% at a mean follow-up of 3 to 8 months, with a recurrence rate of 6% to 18%.[102–104] In the 3 major series to date, there have been no major changes in continence or morbidity. Unfortunately, data are too preliminary to make a formal recommendation as to their ultimate expected outcomes and place in the treatment algorithm. This parameter will be updated as more evidence becomes available.

Treatment of Perianal Fistula Associated With Crohn's Disease

Perianal pathology occurs in 40% to 80% of patients with Crohn's disease with perianal fistula presenting a particular challenge.[105] The primary treatment for perianal Crohn's fistulas is medical; surgery is reserved for the control of

sepsis and occasionally as an adjunct for cure. Antibiotics are effective, especially in fistulizing disease, with metronidazole and fluoroquinolones demonstrating improved perianal symptoms (at least temporarily) in over 90% of patients.[106] Limited data for azathioprine, 6-mercaptourine, cyclosporine, and tacrolimus have also reported some success for fistulizing Crohn's disease.[107–109] Finally, infliximab, a monoclonal antibody against tumor necrosis factor, has been shown to increase the healing rate of perianal fistulas, with complete closure in up to 46% of patients.[110] The decision to embark on surgical treatment for perianal Crohn's disease must be individualized and based on the extent of disease and the severity of symptoms. Unfortunately, despite all efforts, disease may result in proctectomy or permanent diversion in patients with severe perianal fistulizing disease.[111–114]

1. Asymptomatic fistulas in patients with Crohn's disease do not require surgical treatment. Grade of Recommendation: Strong recommendation based on low-quality evidence 1C

Anal fistulas in patients with perianal Crohn's disease may be secondary to either Crohn's disease or cryptoglandular origin. Irrespective of etiology, patients with asymptomatic fistulas and no signs of local sepsis require no surgical intervention.[115,116] These fistulas may remain dormant for an extended period of time; therefore, patients need not be subjected to the morbidity of operative intervention.

2. Symptomatic simple low Crohn's fistulas may be treated by fistulotomy. Grade of Recommendation: Strong recommendation based on low-quality evidence 1C

Fistulotomy is safe and effective in low-lying simple fistulas involving no or minimal external anal sphincter.[106,117] Given the chronicity of the disease and high frequency of disease relapse, maximum preservation of sphincter function is essential. Thus, before embarking on any fistulotomy, surgeons should consider all relevant patient factors, in particular, the extent of anorectal disease, sphincter status and continence, rectal compliance, presence of active proctitis, previous anorectal operations, and stool consistency. With proper patient selection, healing rates following fistulotomy are reported in 56% to 100% of patients, with mild incontinence rates of 6% to 12%.[54,96,117–119] This may be, in part, secondary to repeated fistulotomy in patients with recurrent low fistulas. Wound healing in this patient population may be delayed by 3 to 6 months.

3. Complex Crohn's fistulas may be well palliated with long-term draining setons. Grade of Recommendation: Strong recommendation based on low-quality evidence 1C

For complex fistulas associated with Crohn's disease, long-term (>6 wk) placement of loose setons, such as vessel loops or Silastic catheters, can successfully control drainage and allow inflammation to resolve by providing continuous drainage and preventing closure of the exter-

nal skin opening.[105,106,117] Despite this technique, recurrent sepsis occurs in 20% to 40%, with approximately 8% to 13% of patients experiencing some degree of fecal soilage.[8,99,120] Recent data on the use of concurrent seton drainage and infliximab therapy have reported fistula closure in 24% to 78% of patients following induction therapy, with 25% to 100% of these patients responding to subsequent courses of infliximab therapy.[121–123]

4. Complex Crohn's fistulas may be treated with advancement flap closure if the rectal mucosa is grossly normal. Grade of Recommendation: Weak recommendation based on low-quality evidence 2C

Endorectal and anodermal advancement flaps may also be used in complex Crohn's fistulas in select patients without active proctitis. Short-term success is reported to range between 64% and 75%.[82,88,124,125] Recurrence rates increase over time with extended follow-up.[113,126] Rectovaginal fistulas associated with Crohn's have a short-term success rates of 40% to 50% when treated with a flap.[124,127] Treatment with biologics to cause remission of active proctitis may permit the use of an anal flap at a later date.

5. Complex Crohn's fistulas may require permanent diversion or proctectomy for uncontrollable symptoms. Grade of Recommendation: Strong recommendation based on low-quality evidence 1C

A small percentage of patients with extensive and aggressive disease that is uncontrolled by medical management and long-term seton placement may require diversion or proctectomy to control perianal sepsis.[123] For patients with complex perianal Crohn's disease, diversion rates range from 31% to 49%. Concomitant colonic disease, persistent anal sepsis, prior temporary diversion, fecal incontinence, and anal canal stenosis are reported as predictive factors.[112,128] Despite optimal medical and minimally invasive therapy, 8% to 40% will require proctectomy to control recalcitrant symptoms.[106,113,123,129]

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