Medical and surgical treatment of haemorrhoids and anal fissure in Crohn’s disease: a critical appraisal.

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Abstract

**Background:** Currently, despite advances in medical and surgical treatments, the principle to avoid surgery for haemorrhoids and/or anal fissure in Crohn’s disease (CD) patients is still valid. In this study we report our prospectively recorded data on medical and surgical treatment of haemorrhoids and anal fissures in CD patients over a period of 8 years.

**Methods:** Clinical data of patients affected by perianal disease were routinely and prospectively inserted in a database between October 2003 and October 2011 at the Department of Surgery, Tor Vergata University Hospital, Rome. We reviewed records on CD patients treated either medically or surgically and divided in two groups according to the diagnosis of haemorrhoids or anal fissures. Moreover, in each group, outcomes between patients in whom CD was discovered before or after perianal main treatment were compared.

**Results:** Eighty-six CD patients were included in the study; 45 were treated for haemorrhoids and 41 presented with anal fissure. Conservative approach was initially adopted in all the patients; in case of failure of medical treatment, they were evaluated for surgery in presence of stable intestinal disease. Fifteen patients underwent haemorrhoidectomy (open 11; closed 3; stapled 1), and two rubber band ligation. Surgery for anal fissure was required in 14 patients (Botox ± fissurectomy 8; LIS 6). In both groups we observed high complication rate, 41.2% and 57.1% for haemorrhoids and anal fissure respectively. Patients submitted to haemorrhoidectomy without certain diagnosis of CD had significantly higher risk of complication.

**Conclusions:** Conservative treatment of proctological disease in CD patients has been advocated given the high risk of complications and the evidence that spontaneous healing may also occur. Considering our results, surgery for haemorrhoids and anal fissure should be avoided and when necessary reserved to patients with quiescent disease. In selected patients, it is associated to good outcome and acceptable postoperative complications. Options like rubber band ligations and Botulinum toxin injection are helpful.

**Key words:** haemorrhoids, anal fissure, Crohn’s disease, Botox, surgery.
Background

The original description of Crohn’s disease (CD) in 1932 included only the “regional ileitis” and not perianal lesions. However from 1938, with the first report of Penner and Crohn of a perianal fistula in an affected patient, became clear that the perianal pathology represented a common medical problem in CD patients [1,2].

The real incidence is not known, being reported in literature as low as 3.8 per cent and as high as 61–80 per cent [3-6]. In 64–68 per cent of patients perianal disease occurs either concurrently or after the diagnosis of intestinal disease [7,8]. However in 20–36 per cent perianal disease precedes intestinal disease [3,7].

The majority of Authors focused the attention on natural history, treatment and complications of anal sepsis and fistulae, because of their higher incidence and surgical implications. On the contrary, extensive analysis about the management of haemorrhoids and anal fissure has been overlooked, although they can represent an important problem in CD treatment [4,5,8].

Traditionally, conservative treatment of these proctological diseases in CD patients has been advocated since late 70s due to the high risk of complications and the evidence that spontaneous healing may be possible [8-10]. In 1977 Jeffrey and coworkers concluded that no surgical treatment should be given in CD patients suffering of haemorrhoids because of the risk of proctectomy for “complications apparently relating to their treatment” [9]. Similarly, for anal fissures non-operative approach is advised, with several reports showing high risk of incontinence or subsequent anal sepsis after surgery [11,12].

However these ideas are supported only by few series and moreover other investigators reported that surgery is possible, with low postoperative risk, on a selective basis [13,14].

At present, there is still no consensus in the scientific community on the exact indications of surgery in CD patients presenting with anal fistula or haemorrhoids, mainly due to scant literature data.

In this report we made a retrospective analysis of our longitudinal prospective data on symptoms, medical therapy results, surgical treatment and complications from a specialist colorectal unit in a university hospital, with the aim to give an overview on the integrated treatment of these perianal pathologies associated to Crohn’s disease.
Methods

Clinical records of patients affected by perianal disease were routinely and prospectively entered in a database between October 2003 and October 2011 at the Department of Surgery, Tor Vergata University Hospital, Rome. We retrospectively review data on CD patients treated either medically or surgically for anal fissures or haemorrhoids, who were included in the study.

Exclusion criteria were the presence of concomitant suppurative disease, perianal fistula or cancer. During the first visit everyone underwent a baseline evaluation, which included anamnesis, Wexner continence score, clinical examination of the perineum and rectum by means of digital exploration and anoscopy. Patients with evidence or risk of incontinence were submitted to anal manometry if surgery was scheduled.

Medical and/or surgical treatments were undertaken in agreement with gastroenterologists who followed patients for the specific pathology, mainly to evaluate the better time for surgery.

Institutional IRB approval, in compliance with the Helsinki Declaration, has been obtained from the “Comitato Etico Indipendente Fondazione Policlinico Tor Vergata” (the Ethic Committee of our Institution).

The prospectively recorded data included demographics, clinical presentation of perianal pathology, type and results of medical and/or surgical treatment, postoperative course, complications, recurrence and symptoms at follow-up.

Analysis of the results was made dividing the patients in two groups, accordingly with the diagnosis of haemorrhoids or anal fissure. Moreover, in each group, outcomes between patient in whom CD was discovered before or after perianal main treatment were compared.

The diagnosis of CD was established in agreement with the European Crohn’s and Colitis Organisation (ECCO). Patients underwent a full evaluation by means of clinics, laboratory, endoscopic, radiological and histological investigations. The grading of the pathology was established mainly using the Crohn’s Disease Activity Index (CDAI), but also evaluating other parameters like the level of the C-reactive protein (CRP) and the extent of the bowel involvement.

Statistical analysis was performed with the software Statgraphics Plus (Manugistics, Rockville, Maryland); Student’s t test was used for continuous variables and Fisher exact test for categorical variables.

Results are expressed as median values and range if not stated otherwise. All tests were double-sided and the level of statistical significance was set at a p value of less than 0.05.
Results

Between October 2003 and October 2011, we identified eighty-six patients with diagnosis of CD suffering for anal fissure or haemorrhoids who were treated either medically and/or surgically at our Department of Surgery, and who fulfilled the study criteria. Median follow up was 37 months (range 3-99).

Overall, 45 CD patients were evaluated and followed up with diagnosis of haemorrhoids; the remaining 41 CD patients for anal fissure.

Table 1 presents patients resume’ of medical and surgical treatments, showing the categories of subject who had or not definitive diagnosis of CD at time of the main treatment.

**Haemorrhoids**

In this group of 45 CD patients with diagnosis of haemorrhoids, the median age was 39 years (range 21-60); the male to female ratio was 1.8:1. Among them, in 21 (46.7%) subjects the definitive diagnosis of inflammatory bowel disease was made only after the treatment of the perianal pathology. In the subgroup of 24 patients with CD at the time of surgery, twenty-one had ileal involvement, two colonic disease and one both of them.

Presenting symptoms were: bleeding (91%), haemorrhoidal prolapse (62%), anal discomfort (54%) and previous or concurrent thrombosis (19%).

Conservative approach was initially adopted in all the patients; in absence of diarrhoea, it included high fibre diet, fibre supplements and oral fluids intake in order to produce soft, well formed and regular bowel movements. Warm Sitz baths were also suggested. Oral diosmin was added to this first line therapy if symptoms persisted after 12 weeks or in case of thrombosis at the first outpatient visit. Moreover it constituted the main treatment in CD patients with frequent diarrhoea (n=5).

This conservative approach failed in 17 (37.8%) out 45 patients. In eight of them, haemorrhoids were treated as idiopathic, because the diagnosis of CD was made during the follow-up, after surgery.

Indication to surgical treatment, in the nine patients with known CD at the time of evaluation, was given only in case of stable intestinal disease, without need of steroid medications and with CDAI < 150.

Table 2 resumes the type of surgical approach and the overall complications in this group of patients.

There was no statistical difference neither in the surgical indication rate nor in the type of procedure in patients with or without CD diagnosis at the time of the surgery. However in subjects with definitive diagnosis of inflammatory bowel disease (IBD), stapled haemorrhoidopexy (SH) was avoided, and rubber band ligation was taken into account.

Mean time to complete healing after surgery was 38 ± 8 days.
Overall complication rate was 41.2% (n=7); if we excluded the rubber band ligation, not exactly a surgical procedure, and not associated with complications in our series, the rate raised to 46.7%. The risk of complications after surgery was higher with difference statistically significant in those patients with undiagnosed CD (p=0.015).

The commonest complication was postoperative bleeding, observed in 3 (17.6%) out 17 patients, during the first four days postoperatively. One bleeding was self-limiting, while the two others required Emergency Room Department visit, during which local compression with absorbable gauze (Tabotamp, Johnson & Johnson) was effective.

During the follow up we observed two (11.8%) postoperative anal fissures, effectively treated with topic glycerin trinitrate (GTN) 0.4% for eight weeks. Two (11.8%) perianal sepsis were detected one month and forty days after surgery, in the form of abscess and intersphинтерic fistula close to one site of haemorrhoid excision. These patients were than successfully treated by drainage and fistulotomy.

**Anal fissure**

Anal fissure was diagnosed in 41 CD patients included in the study. The median age was 41 years (range 18-64); the male to female ratio was 2.1:1. Out of 41 patients, 19 (46.3%) underwent treatment due to anal pathology before the CD diagnosis was established. Among the 22 patients who had known IBD, 18 presented an ileal pathology, 2 colonic involvement and 2 of them had small and large bowel interested from the CD.

Presenting symptoms were bleeding (88%), pain (81%), and anal discomfort (i.e. prolapsing pile, pruritus) (60%).

Based on anatomic position in the anal canal, fissures were posterior in 23 (56.1%) patients, anterior in 9 (22.0%), lateral in 6 (14.6%) and both (anterior and posterior) in 3 (7.3%). Sentinel pile was present in 24 (58.5%) patients.

In every patient with new diagnosis of anal fissure, the first line therapy was medical, with topic application of calcium channels blockers or GTN 0.4% ointment twice a day for 8 weeks. The choice of one of these two options was made mainly according to coexisting medical conditions requiring assumption of drugs containing the same active principles or evaluating the potential side effects (i.e. heart disease, hypertension, headache).

Conservative treatment was effective in 27 patients (65.8%), who experienced disappearance of symptoms and signs during the follow up. Among the 14 subjects in whom topic therapy failed, then submitted to surgery, only six (42.9%) had reliable diagnosis of IBD. Indication to the operative procedure was given only if the disease was in a remission state (CDAI < 150), without any kind of steroid therapy.

Table 3 summarizes the surgical approaches and complications in these patients.

The need of surgery was similar between the two subgroups of patients, regarding the previous CD diagnosis (6 vs 8 pts; p>0.05). On the contrary, there was a statistically significant difference of the operative procedure if at the time of surgery the presence of an IBD was known. All the six patients of this subgroup underwent to botulinum toxin injection
in the internal anal sphincter (IAS), plus fissurectomy in two cases; instead in the other subgroup, lateral internal sphincterotomy (LIS) was the commonest surgery (75%), plus Botox and fissurectomy in two cases (p=0.03).

**Mean time to complete healing was 18 ± 5 days after Botox + Fissurectomy and 25 ± 7 days after LIS.**

Overall complication rate was 57.1% (n=8), with similar incidence between the two subgroups (p>0.05).
The commonest one, observed during the follow up, was the occurrence of a non-healing wound (n=4; 28.6%), two after LIS and two after Botox + Fissurectomy. These patients were then treated with conservative therapy, by means of local medications and ointment; they eventually reached the closure of the wounds after several weeks from surgery.

Moreover we observed three recurrences, one in the group treated as idiopathic fissure and two in the other one, treated by GTN 0.4% ointment. One patient suffered for a trans-sphincteric anal fistula after LIS, healed without incontinence after placement of a cutting seton.

**Discussion**

The incidence of perianal involvement in patients with CD varies greatly, being found from 3.8 to 80%; approximately 33% of them will experience this problem during their life [3-6].

The prevalence increases as the disease progresses distally, particularly if the rectum is affected; moreover, in absence of rectal inflammation, anal manifestations have a better outcome [3,15].

The presence of perianal CD is associated to a natural history more disabling, with increased extraintestinal manifestations and greater steroid resistance [16,17]. Moreover a risk of proctectomy in these subjects was recognized, reported to be as high as 5% at first presentation of perianal disease, increasing to 8% after 10 years and doubling after 20 years from diagnosis [13,18,19].

Abscess and fistula-in-ano are the most frequent clinical manifestations of anal CD; however also the occurrence of haemorrhoids and anal fissure is noteworthy, because they can affect seriously patients’ life. Nevertheless literature data on their clinical impact and management has been overlooked for decades.

In patients without inflammatory disease, after failure of medical approaches, aggressive treatments of these pathologies are usually uneventful. On the other hand, the management of haemorrhoids and anal fissure in patients with CD is thought to be hazardous, despite data literature is surprisingly scant. This is due to report of significant complications, including sepsis, stenosis, fistulas, faecal incontinence and non-healing wounds even after simple procedures such as haemorrhoidectomy or fissurectomy.
We report the results of a retrospective analysis of longitudinal prospective data of patients with CD treated with conservative and surgical approaches for haemorrhoids and anal fissure. We compare the outcomes between those whose CD was discovered before or after perianal main treatment, with the primary aim to give an overview on the integrated treatment of these perianal pathologies associated to Crohn’s disease.

**Haemorrhoids**

Haemorrhoids are relatively uncommon in CD patients, who usually report few symptoms. The estimated incidence is about 7%, and this data seems to be sensibly lower than the general unaffected population (24%) [20]. However this anal problem could be underestimated, because of a bias due to the higher attention paid to the other clinical features of CD.

Historically surgery was firmly obstructed; in one of the first article on this subject, Jeffrey et al. concluded that absolutely no surgical treatment should be given to CD patients, reporting severe complications in more than half of them [9].

On the contrary, Wolkomir and Luchtefeld successively published their series in whom 88% of CD patients, submitted to surgery for symptomatic haemorrhoids, healed without any complication. In this way they showed that, when the intestinal disease is quiescent and after failure of conservative treatments, surgical option may be offered in selected cases [13].

In our experience, conservative treatment was effective in more than 60% of patients. Operative approach was required because of persisting symptoms, mainly bleeding (91%) and prolapse (62%). Indication for surgery was not influenced by the diagnosis of IBD, but only by the clinical situation; in fact, the two subgroups underwent surgical treatment homogeneously.

Usually we preferred the “open haemorrhoidectomy”, in both subgroups; however in patients with IBD diagnosis, we made also the rubber band ligation, associated to few operative risks, but effective in both of our cases. If surgeon knew that IBD was present, never indicate the haemorrhoidopexy; this because literature data has shown a possible increased risk after SH compared to conventional haemorrhoidectomy, with some life-threatening complications mainly related to sepsis or bleeding [21]. Nevertheless, the only patients of the non-IBD subgroup at the time of surgery did not incur in any postoperative problem.

After surgery seven patients (41.2%) experienced some complication; this incidence is significantly higher compared to excisional haemorrhoidectomy or stapled haemorrhoidopexy in the unaffected population, reported to be in the literature between 15% and 25% [22,23]. Also from the experience of our group, published in the last years, the incidence of complications after surgery was about 20%, in agreement with the literature data [24].
Moreover in the subgroup with no IBD diagnosis at that time, complications were significantly more frequent than the other one. This result probably is due to the fact that we performed a more conservative and careful procedure if CD was known, and confirms the knowledge of the high risk of surgery in this category.

In our series the commonest complication was postoperative bleeding; particularly, patients have to be informed about the possibility of a haemorrhage. This usually manifests during the first hours or few days after surgery, and may need a hospital treatment.

To date, proctectomy was not required in any patients and we believe that it is not an inevitable outcome after haemorrhoid surgery in these patients.

Based on these results, our opinion is that after failure of medical therapy, surgery may be indicated; standard excisional haemorrhoidectomy should be planned, but also rubber band ligation can be effective. When operative treatment is decided, it is necessary to have a stable disease, not requiring steroid drugs, to reduce at minimum postoperative complications.

*Anal fissure*

Anal fissures are more common than haemorrhoids in CD patients and often associated to other perianal pathologies. Wolff et al., over a follow-up period of 26 years, reported a 35% incidence of anal fissures [18]; Lockhart-Mummery at the St. Mark’s hospital reported a value of 59% [25].

Although their prevalence in the general population is not reliable, anal fissures seem to be more frequent than in unaffected subjects (as many as one out of five people develops an acute or chronic fissure during lifetime) [11,12]. Unlike typical fissures, those seem to be secondary to the direct ulceration caused by the disease process rather than the increased internal sphincter pressure; they can be locally aggressive, progressing to form deep ulcers with granulating bases and overhanging skin edges.

Differently from the general population, aberrant positions are common; multiple and lateral fissures were reported in 32-33% and 9-20% of patients respectively [10,14]. This is confirmed from our data, in which although more than half of patient had a posterior fissure, 43.9% of them presented with unusual location.

Whereas in non-IBD people anal fissures are usually symptomatic, in CD patients pain, bleeding and anal discomfort have been reported in only 44-70% of cases, and they may be hence completely quiescent. In our series the majority of subjects reported one of the typical symptoms, but asymptomatic patients with diagnosis of anal fissure were encountered.

Although conservative medical therapy or simple observation is also indicated for the management of anal fissures, it should be considered that unhealed fissure may progress to fistula or abscess in up to 20% of the cases.
Common local anorectal procedures such as sphincterotomy or anal dilation are infrequently performed in CD patients, due to the perception to put the patients at risk for incontinence, as they frequently have an underlying diarrhea state and are at significant risk for requiring additional anal surgery in the future. Despite good results after anal dilatation and stretch have been reported in erratic series, we agree with Fleshner et al. that dilatation of the sphincter should be avoided in CD, not only because of suboptimal healing of the fissure but also to avoid uncontrolled trauma to diseased anal mucosa with the potential for development of secondary infection or fistula [10,14,26].

Regarding the use of lateral internal sphincterotomy, it has been advocated to treat selected CD patients, but literature data is limited and based on small series. Wolff et al. suggested that painful fissures should be converted to a painless state by sphincterotomy [18]. Accordingly, Cohen et al. stated that a limited sphincterotomy may be performed after failure of all medical approaches [27].

Wolkomir and Luchtefeld reported anal fissure healing in about 90% of CD patients after surgery [13]. These results were also confirmed by Fleshner et al. with longer-term healing after surgical treatment in CD patients, who highlighted also the 25% risk to develop an abscess or a fistula from the base of the fissure, if they did not undergo LIS after failure of conservative treatment [14].

In our series, conservative medical therapy failed in about 34% of patients, without statistic difference between the two subgroups with or without diagnosis of IBD at that time. As for haemorrhoids, the presence of CD modified the surgical approach. We preferred to submit these patients to the botulinum toxin injection in the internal anal sphincter, to avoid at maximum the risk of incontinence following LIS. At the mean follow-up we had not cases of incontinence, probably because always during this surgery we keep the sphincter division to the minimum, but enough to relax the apparatus. However more than half of the patients developed some complication after surgery, mainly difficulties in wound healing, confirming the major risk compared to the general population. Indeed in the literature complication rates range from 7% to 42%, and in our experience in unaffected subjects is about 10% [28,29].

According to these results and literature data, we believed that surgery should be chosen judiciously in non-responding patients to conservative therapy. The surgical procedure should create small wounds and minimize the damage to the diseased mucosa and external sphincter, and a closed subcutaneous lateral internal sphincterotomy is ideally suited for this purpose. Fissurectomy may be considered only when the edges of the fissure are densely fibrotic and are unlikely to heal after sphincterotomy alone. Botulinum toxin injection is a safe alternative to LIS, avoiding damages to the sphincter apparatus and with fewer risks on continence and wound healing.
Conclusions

The main treatment of haemorrhoids and anal fissure in CD patients should be a medical therapy. However in case of failure, surgical approach is possible; keeping always in mind the higher risk of complication, judiciously indications are needed. In selected patients, surgery is associated to good outcome and acceptable postoperative problems. Options like rubber band ligations and Botulinum toxin injection are helpful. Future prospective randomized trials are required to confirm the results of this study.

List of abbreviations

CD: Crohn’s disease
IBD: inflammatory bowel disease
SH: stapled haemorrhoidopexy
GTN: glycerin trinitrate
IAS: internal anal sphincter
LIS: lateral internal sphincterotomy

Competing interests

The authors declare that they have no competing interests.

Authors’ contributions

SD, PS, FC: study design, analysis and interpretation of data, manuscript drafting.
LF, GDV, EC: collection of data, literature review, analysis of data.
GM, NDL, ALG: important intellectual content, critical review and final approval.
All authors read and approved the final manuscript.

Acknowledgements

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References


Table 1: Medical and surgical treatments resumè.

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<td>Anal Fissure</td>
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Table 2: Treatments and postoperative complications after failure of conservative treatment of haemorrhoids.

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<td>Rubber Band Ligation</td>
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<td>Fissure (2)</td>
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<td>Sepsis (2)</td>
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Table 3: Treatments and postoperative complications after failure of conservative treatment of anal fissure.

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<td>Recurrence (2)</td>
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