SAS Journal of Medicine
Abbreviated Key Title: SAS J Med
ISSN 2454-5112
Journal homepage: https://saspublishers.com

OPEN ACCESS

Hepato-Gastro-Enterology

Management of Strictures in Crohn's Disease: Surgery Versus Medical Treatment

F. Mghyly[1*], H. El Bacha[1], S. Mechhor[1], M. Cherkaoui[1], N. Benzzoubeir[1], I. Errabih[1]

[1]Hepato-Gastro-Enterology and Proctology Department "B " Ibn-Sina Hospital, Mohammed V, University Rabat, Morocco

DOI: 10.36347/sasjm.2024.v10i07.016 | **Received:** 24.05.2024 | **Accepted:** 03.07.2024 | **Published:** 10.07.2024

***Corresponding author:** F. Mghyly
Hepato-Gastro-Enterology and Proctology Department "B " Ibn-Sina Hospital, Mohammed V, University Rabat, Morocco

Abstract **Original Research Article**

***Introduction*:** Crohn's disease (CD) is a chronic inflammatory affection of the digestive tract that progresses towards intestinal destruction leading to a stenosing form, and the management of these stenoses is often multidisciplinary, medico-surgical. In the light of the data in the literature, we will study the efficacy of medical treatment and the place of surgery in the management of strictures in crohn's disease. ***Materials and Methods*:** This is a retrospective descriptive study over a 5-year period, including all patients with stenotic phenotype Crohn's Disease who are followed in our departement. ***Results*:** We included 109 patients with stenotic phenotype crohn's disease. The mean age of our patients was 43 years, there were 70 women and 39 men, with a sex ratio of 1.8. In terms of therapeutic management, 71 patients (65% of the total) received medical treatment as first-line therapy, including 22 patients (20.2%) who received corticosteroids first. Disease-modifying therapy was based on immunosuppressants in 45 patients (41.3%), and 26 patients (23.8%) received anti-TNF in mono or combination therapy. Progression was marked by a good therapeutic response without recourse to surgery in 35 patients (32% of all patients), while 36 patients (33%) did not respond and underwent surgery after failure of medical treatment. 38 patients (35%) underwent surgical treatment in the first instance, post-operative disease-modifying therapy consisted of Anti TNF, in mon or combination therapy, in 16 patients, immunosuppressive therapy in 20, while two patients remained clinically and endoscopically quiescent on no disease-modifying therapy. ***Discussion*:** In the absence of symptoms, simple monitoring is required, and consequently no treatment is recommended. But in the case of symptomatic stenosis, the management of small bowel stenosis depends on the intensity of occlusive symptoms, the association with immunosuppressive therapy and morphological criteria assessed by enteroimaging (absence of fistula, late enhancement after gadolinium injection and moderate dilatation of the small bowel upstream of the stenosis, and the extent of the stenosis). The management of colonic strictures in IBD is based on assessment of the risk of underlying colorectal cancer, as well as its location, length, symptomatic nature, degree of inflammation, the presence of associated penetrating complications, the presence of dysplasia.

Keywords: Crohn's disease, stricture, medical treatment, Surgery.

INTRODUCTION

Crohn's disease (CD) is a chronic inflammatory disease of the digestive tract characterized by a cyclical evolution, and the most frequent complication is the development of strictures [1]. These can occur in any segment of the digestive tract, with a preference for the terminal ileum, ileocolic anastomoses and rectum. Management is often multidisciplinary, medical and surgical.

The aim of our work is to study the efficacy of medical treatment and the role of surgery in the management of these stenoses in Crohn's disease.

MATERIALS AND METHODS

This is a retrospective descriptive study over a 5-year period, from July 2018 to July 2023, including all patients with stenotic phenotype Crohn's Disease who are followed in our departement.

Patients with anal stenosis and neoplastic stenosis were excluded from our study. All our patients underwent abdominal imaging, entero-scanner or entero /Colo-MRI.

RESULTS

We included 109 patients with stenotic phenotype crohn's disease, out of a total of 267 patients

followed for CD in our clinic, representing 40,8% of all patients.

The mean age of our patients was 43 years, ranging from 17 to 84 years. There were 70 women and 39 men, with a sex ratio of 1.8.

The mean duration of evolution was 122 months (approximately 10 years), with extremes ranging from 6 to 360 months. Clinical symptoms were dominated by abdominal pain in 63 patients (57,7 %), diarrhea in 56 (51,4%), koenig syndrome in 46 (42,2 %) and occlusive syndrome in 27 (25%).

All our patients underwent abdominal imaging to determine the location, extent and inflammatory or fibrotic nature of the stenosis. The stenosis was inflammatory in 82 patients (75.2% of all patients) and fibrotic in 27 patients (24.8% of all patients).

Crohn's disease was ileo-colic in 53 patients (48,6 % of all patients), ileo-caecal in 36 patients (33%), ileal in 13 patients (11,9 %) and colonic in 7 patients (6,4%).

Figure 1: CT image of a right colonic stricture

Figure 2: CT image of transverse colonic stricture

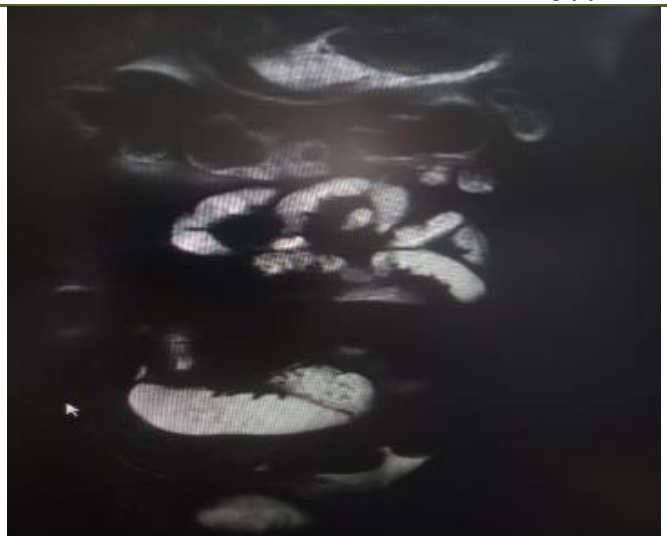

Figure 3: MRI image of last ileal loop stricture with upstream dilatation

In terms of therapeutic management, 71 patients (65,1 % of the total) received medical treatment as first-line therapy, including 22 patients (20.2%) who received corticosteroids first. Disease-modifying therapy was based on immunosuppressants in 45 patients (41.3%), and 26 patients (23.8%) received anti-TNF in mono or combination therapy. Progression was marked by a good therapeutic response without recourse to surgery in 35 patients (32,2 % of all patients), of whom 15 patients (13,8 %) were on Anti TNF in monotherapy or combination therapy, 20 patients (18,3 % of all patients) were on Immunosuppressants alone, while 36 patients (33 %) did not respond and underwent surgery after failure of medical treatment.

38 patients (34,8 %) underwent surgical treatment in the first instance, with 20 patients (18,3 %) undergoing emergency surgery and 18 (16,5%) undergoing cold surgery, with good immediate postoperative results.

Post-operative disease-modifying therapy consisted of Anti TNF, in monotherapy or combination therapy, in 16 patients (13 on infliximab and 3 on Adalimumab), immunosuppressive therapy in 20, while 2 patients remained clinically and endoscopically quiescent on no disease-modifying therapy. And 6 of these patients were reoperated on, and after the second operation were put on combo therapy with a good evolution, except for one patient who benefited from a definitive stoma in view of the parallel presence of fibrous anal stenosis.

DISCUSSION

European ECCO guidelines define luminal stricture in Crohn's disease (CD) as a persistent decrease in caliber of the intestinal lumen associated with upstream dilatation, with or without obstructive symptoms. This definition does not seem to apply to colonic strictures, which are often symptomless and rarely responsible for upstream dilatation. A recent expert opinion suggests that the definition [2, 3] should be based solely on the subjective criterion of narrowing of the colonic lumen.

The occurrence of intestinal stricture seems to be influenced by ethnicity according to some studies, but the initial site of CD appears to be a stronger predictor of the occurrence of stenosis than the course of disease activity, which appears to have little predictive value according to the study by Cosnes J [4].

Many strictures remain asymptomatic for a long time. A stenosis may be responsible for an obstructive or even occlusive clinical syndrome.

Occlusion is generally easy to diagnose, and is characterized by tension pain in the upstream digestive tract, possibly accompanied by vomiting, accumulation of gas and/or liquids upstream responsible for hydro-aeric levels, and absence of passage of gas and stool downstream. Partial obstruction is typically responsible for König's syndrome, which is very common in ileal CD.

Management of Ileal Strictures

Ileal stricture evolves from a predominantly inflammatory form to a predominantly fibrotic one. Treatment should be guided by the symptomatic nature of the stenosis.

In the absence of symptoms, simple monitoring and therefore no treatment is recommended by the French consensus [5].

The initial treatment of symptomatic stenosis - in the absence of ischemia secondary to dilatation of the upstream small intestine - is aimed at reducing inflammation, and therefore mainly involves

corticosteroids, which must be combined with background therapy [6].

While initial data on the efficacy of anti-TNF agents in stenosing CD were controversial, data from the CREOLE study have led to a better understanding of treatment, thanks in particular to a score that can be used to guide treatment [5, 7].

Indeed, some early studies had shown that anti-TNF agents could be responsible for occlusion, probably because treatment was introduced too late. However, data from the TREAT registry and the ACCENT I trial showed no increased risk of occlusion in patients with or without initial intestinal stenosis [8-10]. In addition, other studies have shown that anti-TNF agents can produce a clinical response and at least partial regression of stenosis [8, 9].

The CREOLE cohort study conducted by GETAID included 97 patients, all treated with adalimumab; 61% were therapeutically successful at 6 months, defined as no need for systemic treatment, endoscopic dilatation or surgical resection [7]. After a median follow-up of 3.8 years, 45.7 ± 6.6% of patients who were therapeutically successful at week 24 (i.e. 29% of the entire cohort) were still therapeutically successful at 4 years.In the cohort as a whole, 50.7% ± 5.3% of patients did not undergo resection 4 years after inclusion. This work made it possible to construct a simple score based on (Table 1):

1) The intensity of occlusive symptoms,
2) Association with immunosuppressive therapy,
3) Morphological criteria assessed by entero-MRI (absence of fistula, late enhancement after gadolinium injection and moderate dilatation of the small bowel upstream of the stenosis).

This score ranges from 0 to 7 points, with the probability of benefiting from adalimumab being very low if the score is < 3, good if the score is > 3, and moderate if the score is equal to 3. This score can be used to assess response to treatment, although it needs to be validated in prospective studies. In the light of the CREOLE data, the French consensus has recommended, for patients with a CREOLE score > 3, treatment with anti- TNF and endoscopic dilatation if the stenosis is < 5 cm [5]. In patients with a CREOLE score < 3, endoscopic dilatation has been recommended if the stenosis is < 5 cm, and surgical intervention if the stenosis is > 5 cm. However, surgery should only be performed in patients with less than 50 cm of small bowel involvement.

In the special case of very short stenoses < 5 cm (most often post-anastomotic), endoscopic dilatation is an option [5].

Table 1: CREOLE score

Factor	Points
Immunosuppressive treatment /yes	1
Crohn’s disease obstructive score / >4	1
Length of stricture < 12 cm	1
Duration obstructive symptoms (weeks)<5	1
Maximal small bowel diameter proximal to stricture (s) mm / (18-29)	1
Enhancement on delayed T1 – weighted sequence / marked	1
Fistula/ no	1

As with purely inflammatory forms, the impact of early treatment on the natural history of stenosis needs to be assessed. A Spanish retrospective multicenter study included patients with symptomatic stenosing Crohn's disease receiving their first anti-TNF treatment, and therefore never treated with biotherapy, endoscopy or surgery [11].

The efficacy of anti-TNF treatment was defined by a composite score combining the continuation of anti-TNF without corticoids, without the use of new biotherapies or immunomodulators, and without hospitalization, surgery or endoscopic treatment during follow-up.

A total of 262 patients were reached, with a median disease duration of 35 months. They received either infliximab (n = 141, 54%) or adalimumab (n = 121, 46%). Treatment was effective in 87% and 73% of patients respectively after 6 and 12 months, and remained effective in 26% of cases after a median follow-up of 40 months (IQR, 19-85).

Nevertheless, 15% and 21% of patients underwent surgery at 1 and 2 years, for an overall surgery rate of 32%. Initiation of anti-TNF therapy within the first 18 months of Crohn's disease diagnosis or stenosis identification was associated with greater efficacy (HR 1.62, 95% CI 1.18-2.22; and HR 1.55, 95% CI 1.1-2.23; respectively). This large cohort of patients shows that a high proportion of patients with symptomatic stenosing ileal CD can benefit from anti-TNF therapy, particularly if treatment is introduced early [12].

Acute intestinal obstruction caused by inflammatory or fibrotic stenosis should initially be treated with conservative measures. Emergency surgery is indicated in rare cases of complete intestinal

obstruction, or if intestinal ischemia is suspected [6]. In cases of partial intestinal obstruction unresponsive to medical treatment, surgery can generally be scheduled after optimization of the patient's nutritional status [6].

In a few studies, early resection, either at the time of diagnosis or shortly afterwards, was associated with longer clinical remission, reduced risk of repeat surgery and lower overall exposure to corticosteroids and biotherapies [8].

Management of colonic strictures:

The management of colonic stenosis in IBD is complex. It is based on assessment of the risk of underlying colorectal cancer, but also on the location, length, symptomatic nature, degree of inflammation, presence of associated penetrating complications, presence of dysplasia and the patient's general (and IBD-specific) condition.

American guidelines do not address colonic strictures. The recent ECCO ESGAR consensus recommends strict surveillance of colonic stenosis in IBD, and stresses that surgery should be considered if necessary [13]. The joint ECCO-ESCP consensus suggests endoscopic dilatation or segmental colectomy in cases of colonic stenosis complicating CD [14]. The management of colonic stenosis in IBD should be multidisciplinary, in cooperation with a surgeon and a radiologist. Therapeutic decisions should be taken in a dedicated IBD consultation meeting whenever possible.

Unlike ileal strictures, obstructive episodes are rare in colonic strictures. In the event of obstruction, parenteral corticosteroid therapy of short duration may be suggested, by analogy with the treatment of ileal strictures. It should be noted that although current drug treatment options can improve inflammatory lesions and symptoms, none of them has a direct anti-fibrosing effect. The efficacy of immunosuppressive or biological treatments on colonic strictures has never been studied.

In the case of dysplasia or cancer, the decision to colectomy is easy. On the other hand, in the case of stenosis without dysplasia or cancer on biopsy, the surgical decision is sometimes difficult. The rates of undetected dysplasia or cancer on biopsy (10%) and the risk of longer-term neoplastic complications (27%) probably justify proposing surgical management [15, 16]. Therefore, if colonic stenosis is detected in CD, a full colonoscopy should be performed, exploring the entire colonic framework, screening for dysplasia upstream and downstream of the stenosis as recommended, and biopsies of the stenosis should be taken. In CD, if the biopsies reveal dysplasia, segmental or total colectomy is indicated, depending on the context. If the stenosis cannot be crossed and measures less than 5 cm, endoscopic dilatation should be performed after cross-sectional imaging to cross the stenosis and explore the upstream colon, with screening for dysplasia.

If the stenosis becomes surmountable and there are signs of endoscopic activity, optimization of the background treatment should be systematically proposed. Screening endoscopic surveillance should then be systematically performed.

When dilatation fails, resection should be discussed as a matter of course. The ECCO suggests segmental resection in this situation [16]. However, recent studies suggest that the risk of cancer associated with colonic strictures is relatively low. Systematic colectomy, even segmental, is probably no longer justified, and a conservative approach may be discussed in well-selected patients. In this situation, it remains difficult to reach a consensus. The presence of long-standing disease, associated primary sclerosing cholangitis, a history of dysplasia or symptomatic stenosis should guide the decision in favor of surgery. A healthy rectum, or colonic disease that has failed drug treatment, will facilitate this decision. Conversely, conservative treatment can be discussed on a case-by-case, multidisciplinary basis in well-selected patients at low risk of neoplastic complications.

An asymptomatic stenosis in a patient with recent disease, active colonic disease or anastomotic stenosis may prompt discussion of initial medical management before early endoscopic re-evaluation. Fragile terrain may also suggest medical management. In all cases, active endoscopic surveillance should be proposed, and surgery reviewed at each stage of management.

CONCLUSION

The development of strictures is the most frequent complication of CD, and the advent of biotherapy offers hope of stabilizing the disease in a majority of patients, all the more so if these treatments are introduced early in the history of the disease. Surgery remains the treatment of choice for complicated forms or those refractory to medical treatment.

REFERENCES

1. Panis, Y. (2002, January). Traitement chirurgical de la maladie de Crohn. In *Annales de chirurgie* (Vol. 127, No. 1, pp. 9-18). Elsevier Masson.
2. Rieder, F., Latella, G., Magro, F., Yuksel, E. S., Higgins, P. D., Di Sabatino, A., ... & Dignass, A. U. (2016). European Crohn's and Colitis Organisation topical review on prediction, diagnosis and management of fibrostenosing Crohn's disease. *Journal of Crohn's and Colitis*, *10*(8), 873-885.
3. Bettenworth, D., Bokemeyer, A., Baker, M., Mao, R., Parker, C. E., Nguyen, T., ... & Rieder, F. (2019). Assessment of Crohn's disease-associated small bowel strictures and fibrosis on cross-sectional imaging: a systematic review. *Gut*, *68*(6), 1115-1126.

4. Cosnes, J., Cattan, S., Blain, A., Beaugerie, L., Carbonnel, F., Parc, R., & Gendre, J. P. (2002). Long-term evolution of disease behavior of Crohn's disease. *Inflammatory bowel diseases*, *8*(4), 244-250.
5. Amiot, A., Bouguen, G., Bonnaud, G., Bouhnik, Y., Hagege, H., Peyrin-Biroulet, L., ... & Viennot, S. (2021). Clinical guidelines for the management of inflammatory bowel disease: Update of a French national consensus. *Digestive and Liver Disease*, *53*(1), 35-43.
6. Bemelman, W. A., Warusavitarne, J., Sampietro, G. M., Serclova, Z., Zmora, O., Luglio, G., ... & European Crohn's and Colitis Organisation [ECCO] and the European Society of Colo-Proctology [ESCP]. (2018). ECCO-ESCP consensus on surgery for Crohn's disease. *Journal of Crohn's and Colitis*, *12*(1), 1-16. Available from: https://academic.oup.com/ecco-jcc/ article-
7. Bouhnik, Y., Carbonnel, F., Laharie, D., Stefanescu, C., Hébuterne, X., Abitbol, V., ... & Mary, J. Y. (2018). Efficacy of adalimumab in patients with Crohn's disease and symptomatic small bowel stricture: a multicentre, prospective, observational cohort (CREOLE) study. *Gut*, *67*(1), 53-60.
8. El Ouali, S., Click, B., Holubar, S. D., & Rieder, F. (2020). Natural history, diagnosis and treatment approach to fibrostenosing Crohn's disease. *United European Gastroenterology Journal*, *8*(3), 263-270.
9. Lu, C., Baraty, B., Lee Robertson, H., Filyk, A., Shen, H., Fung, T., ... & Stenosis Therapy and Research (STAR) Consortium. (2020). Systematic review: medical therapy for fibrostenosing Crohn's disease. *Alimentary pharmacology & therapeutics*, *51*(12), 1233-1246.
10. Burisch, J., Kiudelis, G., Kupcinskas, L., Kievit, H. A. L., Andersen, K. W., Andersen, V., ... & Munkholm, P. (2019). Natural disease course of Crohn's disease during the first 5 years after diagnosis in a European population-based inception cohort: an Epi-IBD study. *Gut*, *68*(3), 423-433.
11. Rodríguez-Lago, I., Hoyo, J. D., Perez-Girbes, A., Garrido-Marín, A., Casanova, M. J., Chaparro, M., ... & Young GETECCU Group. (2020). Early treatment with anti-tumor necrosis factor agents improves long-term effectiveness in symptomatic stricturing Crohn's disease. *United European gastroenterology journal*, *8*(9), 1056-1066.
12. Nahon, S., & Montfermeil, G. L. R. (2022). Prise en charge de la maladie de Crohn iléale localisée: chirurgie ou traitement médical?. Stéphane NAHON, POST'U.
13. Maaser, C., Sturm, A., Vavricka, S. R., Kucharzik, T., Fiorino, G., Annese, V., ... & European Crohn's and Colitis Organisation [ECCO] and the European Society of Gastrointestinal and Abdominal Radiology [ESGAR]. (2019). ECCO-ESGAR Guideline for Diagnostic Assessment in IBD Part 1: Initial diagnosis, monitoring of known IBD, detection of complications. *Journal of Crohn's and Colitis*, *13*(2), 144-164K.
14. Bemelman, W. A., Warusavitarne, J., Sampietro, G. M., Serclova, Z., Zmora, O., Luglio, G., ... & European Crohn's and Colitis Organisation [ECCO] and the European Society of Colo-Proctology [ESCP]. (2018). ECCO-ESCP consensus on surgery for Crohn's disease. *Journal of Crohn's and Colitis*, *12*(1), 1-16.
15. Rutter, M. D., Saunders, B. P., Wilkinson, K. H., Rumbles, S., Schofield, G., Kamm, M. A., ... & Forbes, A. (2004). Cancer surveillance in longstanding ulcerative colitis: endoscopic appearances help predict cancer risk. *Gut*, *53*(12), 1813-1816.
16. Fumery, M., De Chambrun, G. P., Stefanescu, C., Buisson, A., Bressenot, A., Beaugerie, L., ... & Peyrin-Biroulet, L. (2015). Detection of dysplasia or cancer in 3.5% of patients with inflammatory bowel disease and colonic strictures. *Clinical Gastroenterology and Hepatology*, *13*(10), 1770-1775.