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Research Article

What Surgery for Complicated Intestinal Crohn's?

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Abstract

Complications are characteristic of Crohn's disease. Surgery is the standard treatment for complicated forms.

The aim of our study is to clarify the role of surgery in the management of complicated intestinal Crohn's disease and to assess morbidity and mortality. Retrospective study from January 2014 to October 2024, collecting all complicated forms of Crohn's disease operated on in the general surgery department; Sétif University Hospital. The main complications found in our operated patients are stenosing, fistulizing and abscess complications. We deplored one death in the immediate postoperative period. Eleven patients presented with postoperative complications (anastomotic fistulas and surgical site infection). Postoperative recurrence was observed in five cases. The management of complicated forms of Crohn's disease requires multidisciplinary consultation. Surgery improves patient comfort but morbidity remains significant.

Keywords: crohn's disease; complications; resistance to medical treatment; surgery; complex management

Introduction

Crohn's disease (CD) is a chronic intestinal inflammatory disease whose origin remains of unknown cause to this day. It can affect all segments of the digestive tract from the mouth to the anus with predilection for the terminal ileum, the colon and the anoperineal region. Currently, it is clearly increasing with preference in young adults. It is often a serious disease, requiring multidisciplinary management. Currently, there is no curative treatment. The contribution of new therapies is only symptomatic and aims to induce the longest possible remission.

The chronic and recurring nature of this disease means that one in two patients will be operated on during its progression. Surgery is necessary in more than 80% of patients with Crohn's disease (1). Regardless of the type of intervention performed, it will not cure the patient, who will be exposed in the long term to a recurrence in the remaining intestine, and this in the majority of cases (2).

This risk must give priority to the principle of intestinal sparing and only operate on complicated symptomatic and/or resistant forms or after failure of medical treatment.

The aim of the study is to clarify the good indications for surgery in the management of complicated intestinal Crohn's and to evaluate morbidity and mortality. Anoperineal lesions of Crohn's disease are not elucidated in this study.

Material and methods

This is a retrospective study from January 2014 to October 2024, collecting all complicated forms of intestinal Crohn's disease operated in the surgery department; Sétif University Hospital. The patients were referred by the internal medicine department, gastroenterology unit, through surgical emergencies and received at the outpatient consultation of digestive and general surgery. The data were collected on hospitalization records, outpatient follow-up in collaboration with the attending physician.

Results

One hundred and ninety **(**190) patients were collected in our study. - Sex: 107 (56%) men and 83 (44%) women with a sex ratio M / F of 1.28.

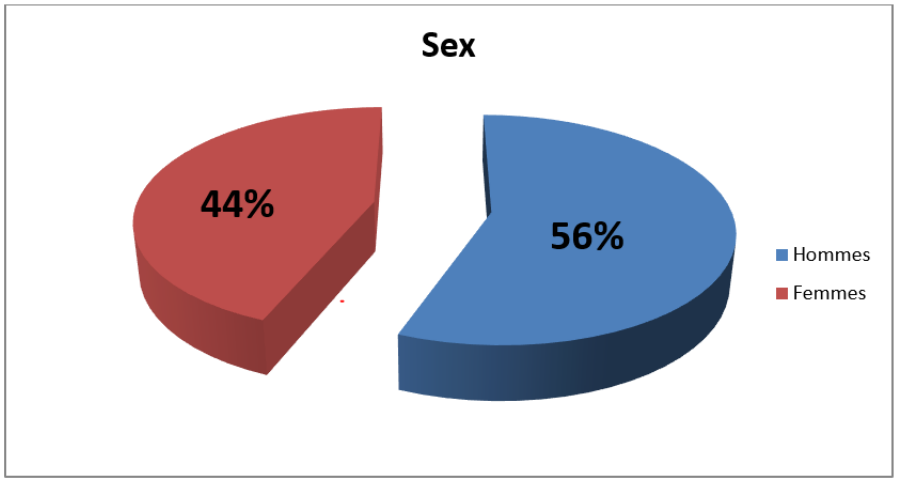

Figure 1: Gender distribution.

-Age: The mean age of the patients was 33 years (16 – 76 years).

- Mode of admission and history of Crohn's disease: Seventy-four percent (74%) of patients (n=140) were operated on as part of the surgical program where Crohn's disease was known or suspected and 26% of patients (n=50) were operated on urgently for acute intestinal obstruction or painful and febrile syndrome of the right iliac fossa or acute peritonitis.

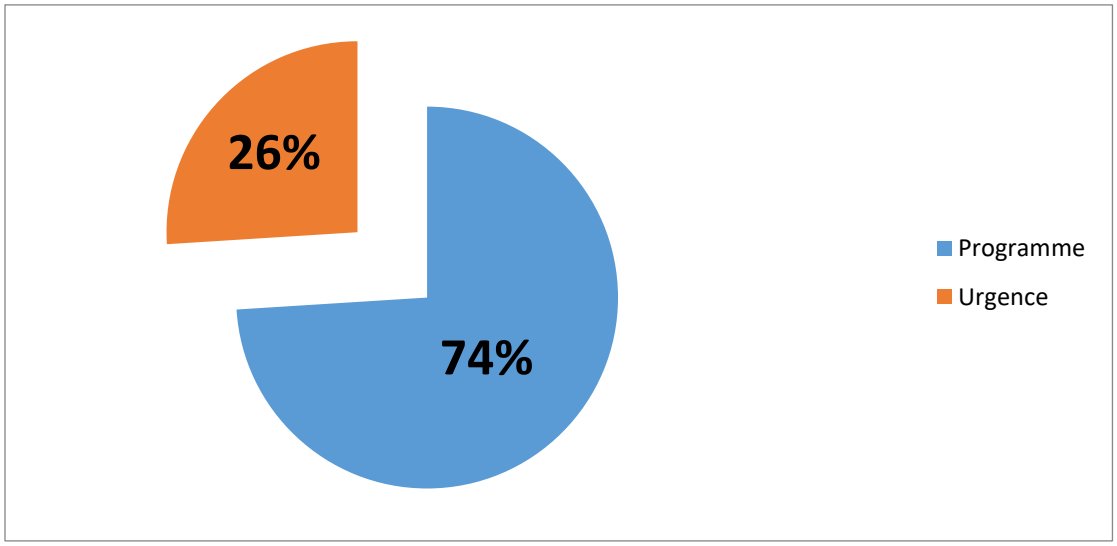

Figure 2: Distribution of patients according to admission method.

- Indications for surgery: -Good surgical indications were represented by the following complications: *Acute intestinal occlusion in 17% (n = 32), *Repeated subocclusive syndrome in 34% (n = 65), *Digestive fistulas in 39% of cases (n = 75) including 24% (n = 45) of enteroenteral fistulas, 5% (n = 10) of enteroenteral fistulas with intra-abdominal abscess, 1% (n = 2) of enterosigmoid fistulas, 3% (n = 5) of enterovesical fistulas, 1% (n = 3) of enterouterine fistulas and 5% (n = 10) of enterocutaneous fistulas. *Acute generalized peritonitis in 3% (n = 5); *Abscess at the level of the right iliac fossa in 3% (n = 6) (radio-guided drainage then surgical resection); *Terminal ileitis with acute appendicitis in 4% (n = 7) (primary emergency appendectomy before any surgical resection).

-Additional examinations: Additional examinations were performed in our patients. Abdominopelvic CT scan was performed in 20% (n = 38), entero-MRI in 74% (n = 140), abdominopelvic ultrasound in 7% (n = 13), unprepared abdomen in 4% (n = 7). Endoscopy was performed in 47% (n = 90).

intestinal lesions : The ileocecal location was predominant in 67% (n = 127) followed by the intestinal location in 20% (n = 39) then that of the colon in 13% (n = 24).

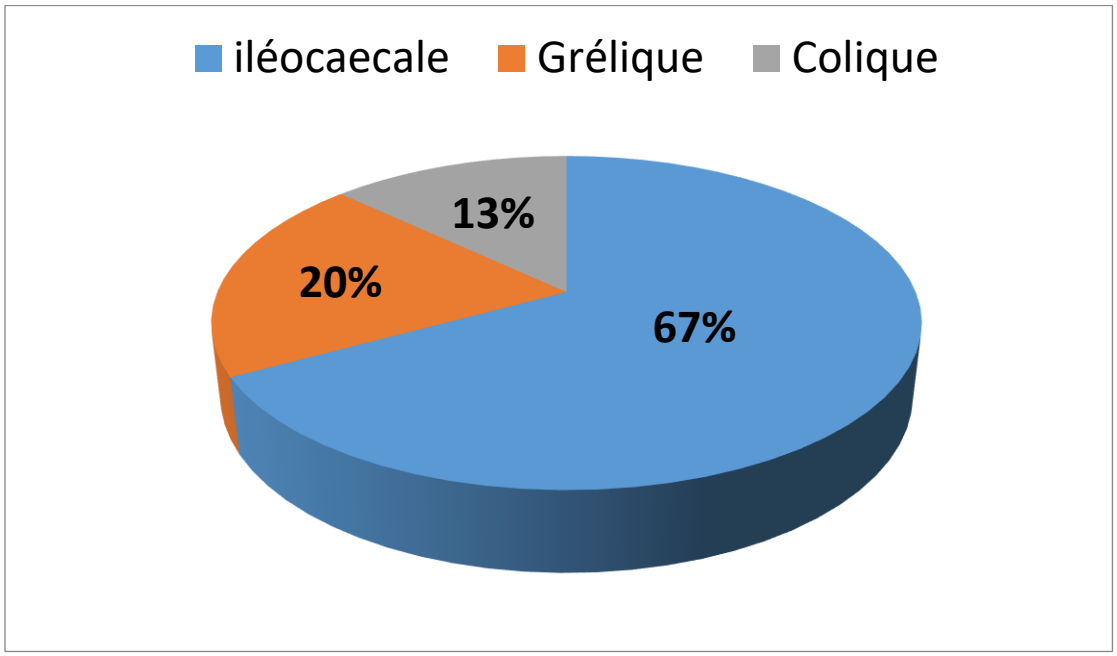

Figure 3: Topography of intestinal lesions in Crohn's disease.

-Type of complications: The complications generated in our series were represented by intestinal stenosis in 51%, by internal fistulas in 39%, terminal ileitis with acute appendicitis in 4%, abscess of the right iliac fossa in 3% and perforation in 3%.

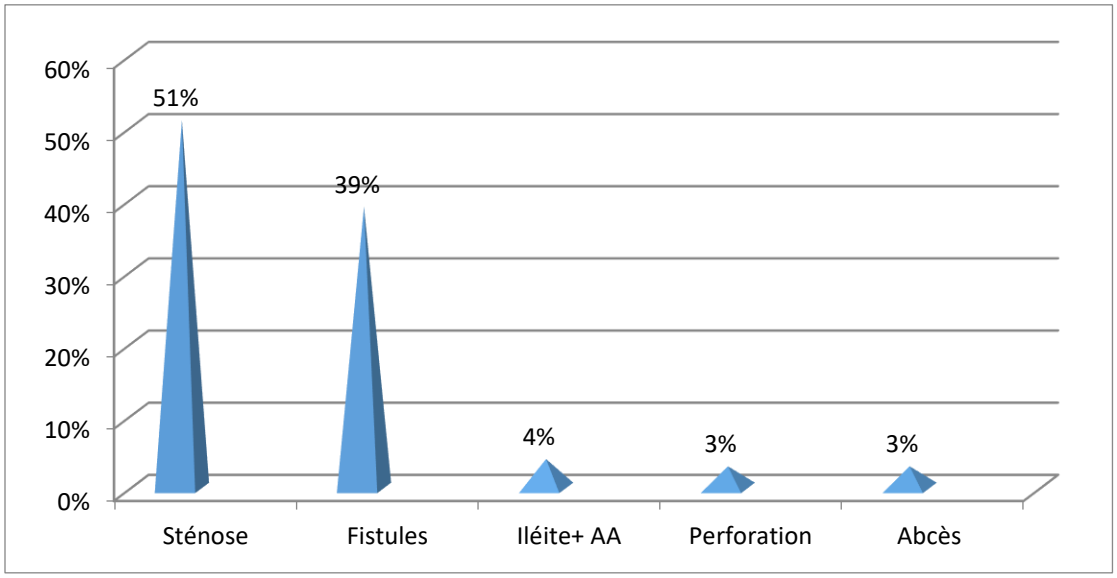

Figure 4: The different complications of Crohn's disease in our series.

- Treatment: *Medical treatment:

Sixteen percent (n = 30) of patients operated on cold in the surgical program received specific treatment for Crohn's disease such as salicylate derivatives, 42% (n = 80) received an immunosuppressant and 20% (n = 28) were on corticosteroid therapy and 1% (n = 2) were put on anti TNF alpha before surgery.

*Surgical treatment: All patients in our series were operated on by laparotomy. Ileocecal resection was performed in 92% (n = 175): Ileocecal resection removing the fibrous stenosis responsible for subocclusive syndromes in 34% (n = 65), ileocecal resection removing enteroenteral fistulas in 24% (n = 45), ileocecal resection with suture of the sigmoid colon (victim of the lesion) in 0.5% (n = 1), ileocecal resection with sigmoid resection (diseased sigmoid) in 0.5% (n = 1), ileocecal resection with suture of the bladder and bladder catheterization in 3% (n = 5), ileocecal resection with suture of the uterus in 1% (n = 3), ileocecal resection after radioguided drainage of the intra-abdominal abscess in 3% (n = 6), ileocecal resection at the same time as surgical drainage in 5% (n = 10), ileocecal resection after failure of medical treatment 13% (n = 25) and emergency ileocecal resection removing the stenosed colonic segment in 7% (n = 14). Flattening of the cutaneous fistula. Right hemi colectomy was performed in 5% (n = 10) and segmental ileal resection in 3% (n = 5).

- The immediate restoration of continuity was cold in 155 patients, i.e. a rate of 82% and a stoma was performed urgently in 18% (n = 35).

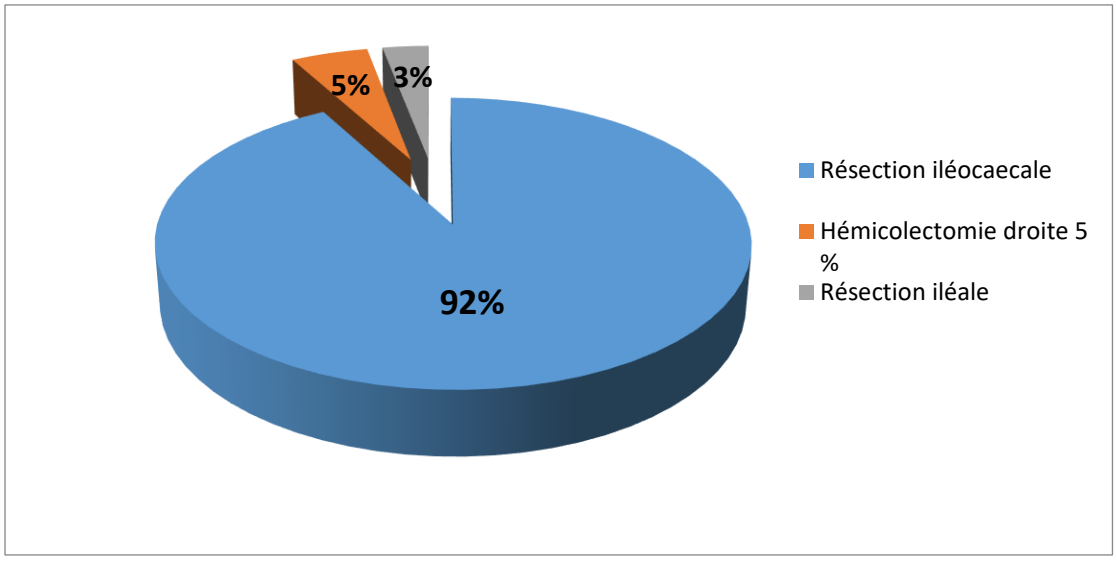

Figure 5: Surgical gestures performed.

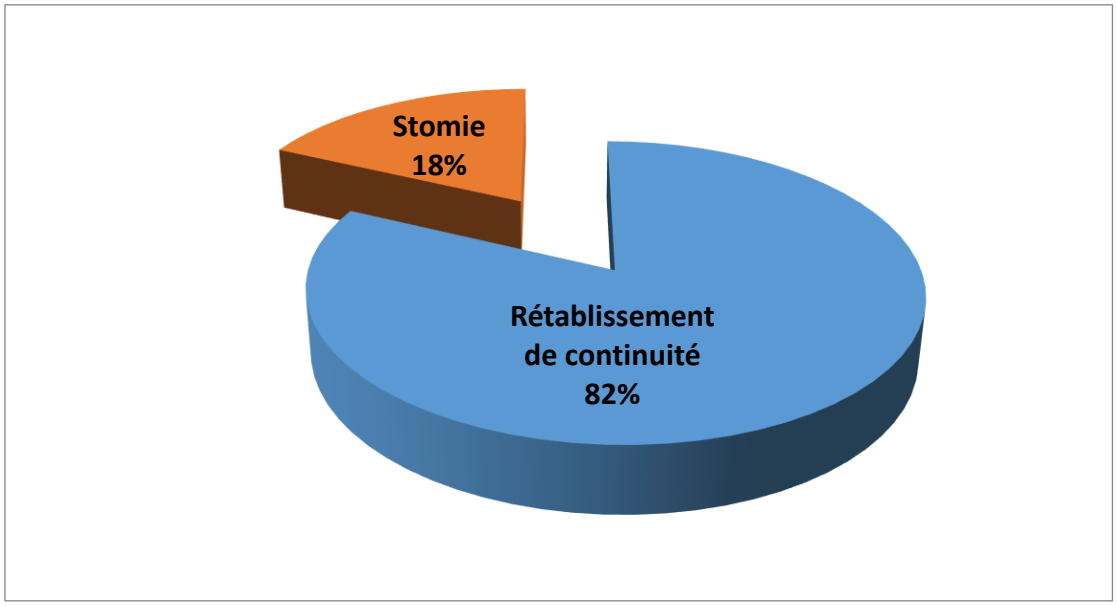

Figure 6: Restoring continuity.

- Postoperative course: *The immediate postoperative course was simple for all patients operated on cold except for 2 cases of surgical site infection. *For patients operated on urgently, anastomotic fistulas were observed in 4 patients and surgical site infection in 5 patients. The duration of hospitalization was 5 to 7 days postoperatively. *We deplored one case of death of a patient operated on for acute intestinal obstruction in emergency in a cachectic state. *Recurrence occurred in 5 patients (3%).

Post-operative care:	Number (Nb):	Percentage (%):
Anastomotic fistulas:	4	2
Surgical site infection:	7	4
Death	1	0.5
Recidivism	5	3
Total :	17	9

Table 1: Morbidity, mortality and recurrence of Crohn's disease in our series.

All operated patients received post-operative medical treatment, such as immunosuppressants or anti-TNF alpha or both combined, initiated by gastroenterologists.

Discussion

Surgical treatment is part of the therapeutic arsenal in the management of Crohn's disease. The indications for surgery are for progressive complications of the disease on the one hand and on the other hand for the failure of prior medical treatment. Seventy to eighty percent of CD carriers will have to undergo surgical treatment, in greater proportion on the small intestine than on the colon (3), at least once in the ten years following diagnosis (4). Surgery improves the quality of life but it will not cure the patient who will remain exposed to recurrence. The principle of surgery is to limit the indications to complicated forms and / or resistant to medical treatment, and to limit intestinal resection to lesions responsible for the observed symptoms only.

The male gender was predominant in our study 56 % male versus 44% female with a sex ratio of 1.28. This predominance has been reported by several studies (5-6-7-8). A female predominance has been noted in other series (9-10). Gender has no influence on the occurrence of complications (11). It is now well accepted that gender plays no role in the progression of CD. The mean age of our operated patients was 33 years. Crohn's disease is a disease of young people with a second peak in frequency between 60 and 70 years (12). Depending on the admission method, 74% of our patients were prepared and operated on electively and 26% were operated on urgently. These findings have been observed in other publications (13-14). The acute complication and the indication for emergency surgery may be the revelation of Crohn's disease. Intestinal obstruction, perforation (peritonitis) and terminal ileitis with acute appendicitis were the most frequent indications for emergency surgery for our patients. Terminal ileitis with a healthy appendix may be discovered intraoperatively. An appendectomy can then be performed except in special cases, to avoid a diagnostic error and which will allow for a histological examination.

Crohn's disease is discovered during emergency surgery in 20 to 30% of cases. It is therefore important, given the complete lack of knowledge of the history of this Crohn's disease, to avoid intestinal resections that are too extensive (15).

Abdominal CT scan was performed in 20% of patients operated on urgently. It allows the detection of intestinal mechanical complications (16) and the diagnosis of deep abdominal suppurations (17). Magnetic resonance enteroimaging (MRI entero) was the most commonly performed examination in our patients operated on electively. It better visualizes ulcerations, fistulous tracts and inflammatory magmas. Its sensitivity for visualizing intestines affected by Crohn's disease is close to 100% (18). It also allows the detection of postoperative recurrences (19). MRI entero and CT scan allow the evaluation of the extension and activity of the disease (20). A recent multicenter trial showed that MRI and ultrasound are relevant first-line examinations for the diagnosis of small bowel involvement during the initial assessment of CD due to their high sensitivity (21). Surgical indications are anatomical lesions caused by fibrous obstructive stenoses, painful and irreducible inflammatory masses, abscesses, fistulas and their recurrences. The chronic and recurrent nature of Crohn's disease means that surgical treatment must therefore comply with two essential criteria: Only operate on complicated forms that are resistant to medical treatment, and perform the most limited intestinal resection possible, removing only the lesions responsible for the symptoms observed. In practice, medical treatment is the first-line treatment apart from complications , but to date it has not proven itself despite multiple research studies. Corticosteroids are the first therapeutic option, immunosuppressants have never been well evaluated and anti-TNFs are still under evaluation. The choice between medication and surgery is not exclusive because patients who have failed anti-TNFs will eventually be operated on and anti-TNFs are the most effective treatments in preventing post-operative recurrence of the disease.

Complications have been observed in patients under treatment even under biotherapy. Resistance or relapses of well-conducted medical treatment are frequent, thus requiring surgery.

Fibrous strictures were the most operated complications in our study (51%), which reflects the age of the disease either through ignorance or failure of medical treatment. Crohn's disease progresses in a fibro-stenosing mode in 30% of cases after 1 year of progression (22), which explains the frequency of this type of complication where resection of these lesions is the rule. The degree of fibrosis is correlated with the importance of the inflammatory involvement. Inflammatory strictures are responsible for abdominal pain, sometimes with a sub-occlusive picture "Kœnig syndrome", so-called chronic forms, resistant to medical treatment, often progressing to fibrous where surgery would be mandatory. In addition to the occlusive symptoms, strictures, especially terminal ileal, can be complicated by fistulisations and abscesses which will modify the clinical picture. This can even evolve into a more serious picture of peritonitis acute by perforation of the small intestine, requiring emergency surgery (23-24). Small intestine perforation was diagnosed in 5 patients in our study.

In addition to the inflammatory nature of the stenosis, the length of the lesion is a central parameter for discussing possible surgical treatment. In case of short and single inflammatory stenosis, immediate surgical resection is an acceptable option since the intestinal length is largely preserved (25).

Intestinal fistulas are more often intestinal than colicky. There are two types: - Internal fistulas, which connect the segment of intestine affected by the disease with a neighboring organ. Thus, terminal ileitis can fistulate in other small intestine loops, the colon, particularly the sigmoid, or more rarely the bladder or uterus, which are considered "victim" organs in which the pathological loop has opened by contiguity. - External fistulas, enterocutaneous, are rare apart from anoperineal fistulas. Enteroenteral fistulas create inflammatory masses of the right iliac fossa, sometimes with abscesses. Abscesses result from a covered transmural perforation. Abscessed collections can be recognized before surgery by ultrasound and/or CT scan. They are then treated by radio-guided trans-parietal puncture and drainage, which will allow a resection-anastomosis to be performed fifteen days later in a non-septic environment. In the event of failure of radiological drainage of an abscess, surgical drainage must be used, which most often involves at the same time resection of the lesions in question, with or without restoration of continuity depending on local conditions, malnutrition and corticosteroid impregnation.

Conversely, when an abscess is only discovered during surgery, it may contraindicate the restoration of intestinal continuity during the same operation due to the increased risk of fistulization of the anastomoses in a septic environment (26-27). In our series, we collected 24% of enteroenteral fistulas, 1% of enterosigmoid fistulas, 3% of enterovesical

fistulas, 1% of enteroverine fistulas, 5% of enterocutaneous fistulas and 8% of intra-abdominal abscesses. The ileocecal location of the lesions was the most frequent in 67% followed by the ileal location in 20% and then the colonic location in 13%. These observations have been noted in other studies (28- 29- 30). The factors of choice of surgical techniques and their indications are dictated by the lesion topography and the intensity of the lesions (31-32). All our patients were operated by laparotomy. Laparoscopy is feasible. It gives better results than conventional surgery in terms of time postoperative recovery, duration of postoperative ileus and postoperative morbidity.

Ileocecal resection was performed in 92% of patients, hemi colectomy in 5% and ileal resection in 3%. Ileocecal resection was performed for ileocolonic and terminal ileal lesions for stenosing and fistulizing forms. Hemi colectomy was performed for ileocecal inflammatory lesions or those of the right colon. Ileal resection was performed for purely intestinal lesions. Intestinal resection effectively treats the symptoms and clears the intestines of the disease.

Surgical treatment of small bowel stenosis in Crohn's disease can be conservative by stricturoplasty or radical by resection. When the disease is unique and short, the recommendations consider resection or stricuroplasty as two equivalent and acceptable options. On the other hand, stricturoplasty should be preferred as much as technically possible in the face of multiple and extensive involvement in order to reduce the risk of short bowel (33).

Restoration of continuity was achieved in 82% and a stoma in 18% of cases for our operated patients.

Stoma was performed as an emergency for patients with intra-abdominal sepsis or significant inflammatory lesions with a colon full of fecal matter.

Currently, the operative mortality of Crohn's disease is almost zero but the morbidity can be significant, mainly concerns septic complications, essentially anastomotic ruptures, thus prolonging the duration of hospitalization. The urgent nature of the intervention, the importance of preoperative malnutrition (hypoalbuminemia < 30 g / l), the perforating form of the disease (abscesses and fistulas), the extent of the resection or the iterative nature of the surgery are the risk factors for leaks or anastomotic ruptures. In our study, we deplored one case of death, a cachectic patient, operated on urgently for an acute intestinal obstruction. Two percent of anastomotic fistulas were observed for patients operated on urgently. No intra-abdominal septic complications were noted for patients where the surgical intervention was scheduled after nutritional preparation.

Recurrence affected 3% of male patients who continued to smoke postoperatively. Active smoking increases the risk of clinical and endoscopic recurrence and re-surgical intervention, particularly in women; in addition, the lesions observed at the anastomosis are more severe. Smoking also increases the risk of fistula and abscess (34). Postoperative medical treatment with smoking cessation is therefore justified to avoid relapses and post-surgical recurrences.

Conclusion :

Crohn's disease is a lifelong inflammatory disease of the digestive tract. It is a disease of young people that is often serious. Its management is complex, requiring medical-surgical skills. Crohn's disease is an enigma where the pathophysiology and multifactorial etiology are still not understood and there is no curative treatment (35-36). Currently, there is no standardized management. Surgery is the reference treatment for symptomatic complications and relapses of medical treatment. Postoperative prophylactic medical treatment is mandatory to avoid recurrences (37).

Declaration of conflicts of interest: The authors declare no conflicts of interest.

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