

The Surgical Treatment for Crohn's Disease

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Rezumat

Tratamentul chirurgical al bolii Crohn

Introducere: Boala Crohn este o afecțiune medico-chirurgicală cronică, idiopatică, în care procesul inflamator transmural intestinal duce frecvent la complicații de tipul stricturilor sau fistulelor. Boala se consideră a fi rezultatul unui dezechilibru dintre mediatorii proinflamatori și cei antiinflamatori; se poate localiza pe oricare segment al tractului gastro-intestinal, dar afectează în special ileonul terminal.

Obiectivul studiului este evaluarea bolii Crohn din punct de vedere al complicațiilor ce necesită tratament chirurgical, al modului de rezolvare a acestora precum și evoluției post-operatorii.

Material și metodă: am urmarit retrospectiv pacienții internați și operați în secția noastră în perioada ianuarie 2001 decembrie 2011. S-au analizat foile de observație clinică, investigațiile paraclinice, protocoalele operatorii și buletinele histopatologice. *Rezultate:* la cei 11 pacienți s-au efectuat 13 intervenții. Vârsta a fost cuprinsă între 16 și 67 ani, cu o vârstă medie de 42,9 ani. Raportul bărbați/ femei a fost de 7/4 (1,75); s-au practicat enterectomii segmentare, ileohemicolectomii drepte, ileo-transversoanastomoze, o laparotomie exploratorie și o laparoscopie exploratorie.

Concluzii: scopul tratamentului bolii Crohn este de a obține cel

mai bun control posibil clinic al procesului inflamator cu cele mai mici efecte adverse ale medicației. Indicațiile chirurgicale în tratamentul bolii sunt dictate de complicații grave precum perforația, stenoza, fistulizarea și chiar malignizarea. Astfel, deși boala Crohn este o afecțiune cronică cu multiple recăderi, tratamentul corect medical și chirurgical ajută pacienții să aibă o calitate a vieții rezonabilă, cu un prognostic bun și o rată a mortalității foarte mică.

Cuvinte cheie: boala Crohn, sindrom ocluziv, fistulă intestinală, rezecție intestinală, ileită terminală

Abstract

Introduction: Crohn's disease is a chronic idiopathic medical and surgical disease, in which the transmural intestinal inflammatory process frequently leads to complications such as strictures or fistulae. The disease is considered to be the result of an imbalance between the proinflammatory mediators and the anti-inflammatory ones; it can be localized on any segment of the gastrointestinal tract, but it especially affects the terminal ileum.

The purpose of the study is to assess Crohn's disease from the point of view of the complications requiring surgical treatment, the manner in which they are solved, as well as the postoperative evolution.

Material and method: we followed retrospectively the patients hospitalized and operated in our department during the period January 2001 - December 2011. We examined the clinical observation charts, the paraclinical investigations, the surgical protocols and the histopathological results.

Results: the 11 patients included in the study underwent 13 surgical interventions. Their ages were comprised between

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16 and 67, the average age being 42.9. The men/women ratio was 7/4 (1.75); the interventions performed were segmental enterectomies, right ileo- hemicolecotomy, ileo-transverse anastomosis, an exploratory laparotomy and an exploratory laparoscopy.

Conclusions: the purpose of the treatment of Crohn's disease is to obtain the best possible clinical, laboratory and paraclinical control of the inflammatory process with the least adverse reactions to the medication. The surgical indications for the treatment of the disease are imposed by severe complications such as perforation, stenosis, fistulisation and even malignancy. Consequently, although Crohn's disease is a chronic disease with many relapses, the correct medical and surgical treatment helps patients to maintain a reasonable quality of life, with a good prognosis and a very low mortality rate.

Key words: Crohn's disease, occlusive syndrome, intestinal fistula, intestinal resection, terminal ileitis

Introduction

Crohn's disease is a chronic inflammatory disease localized at the level of the wall of the digestive tract, which can theoretically affect any segment from the esophagus to the anus, but especially the distal part of the small intestine (terminal ileitis) and the colon, characterized by transmural ulcerative inflammatory lesions. Complications such as strictures or fistulae can occur.

Crohn's disease is a disease of the young adult (aged 15 – 30 years), but it can also appear at older ages, with an equal incidence in women and in men.

The cause of Crohn's disease is unknown. Genetic, infectious, immunological causes have been suggested, but none have been proven with certainty.

There is no cure, but the current therapeutic approach aims to provide patients with an almost normal quality of life. Most patients undergo surgery during the course of the disease. The time interval comprised between the onset of the first symptoms and the surgical treatment is 2-5 years on average. In general, the indications for surgical treatment are the complications of Crohn's disease which cannot be controlled by drug therapy.

Material and Method

We performed a retrospective study over a period of 11 years. We examined all the medical information of the patients operated for Crohn's disease in the Department of General Surgery of the "Agrippa Ionescu" Clinical Emergency Military Hospital during the period 01/01/2001 – 31/12/2011.

The examined material consisted in clinical observation charts, paraclinical investigations (abdominal X-rays, ultrasound, thoracoabdominal CT-scans, superior and inferior

digestive endoscopies), surgical protocols and histopathological results.

Results

A preponderance of patients from the urban areas was noticed (this situation could also be due to the fact that they can consult a doctor more easily than those from the rural areas). As far as the distribution according to sex is concerned, the man/ women ratio was of 7/4 (1.75).

The ages were comprised between 16-67 years, with an average age of 42.9 years.

The most frequently encountered symptoms were those of the occlusive syndrome (7/11 cases), followed by digestive hemorrhages with melena and associated with secondary anemia (2 cases), pain in the iliac fossa, nausea, diarrheal stools, weight loss.

As associated diseases mention should be made of hypertension, silent ischemic cardiopathy, benign prostatic hypertrophy, hiatal hernia with reflux esophagitis, renal lithiasis.

In most of the cases the diagnosis was made based on the intraoperative aspect correlated with the result of the histopathological examination.

From the point of view of the localizations of the lesions of Crohn's disease, an agreement with the specialized literature can be noticed, the most frequent localization being in the terminal ileum (5 cases), followed by the ileocecum (2 cases), the jejunum (2 cases) and the rectum (2 cases).

The surgical interventions consisted in: segmental enterectomies (3 cases), ileo-transverse anastomosis (2 cases), right ileo-hemicolecotomy (2 cases), exploratory laparoscopy (1 case) illustrated in the next 2 photos, exploratory laparotomy (1 case) and 2 cases of biopsies associated with a colostomy upwards from the rectal lesion. (Fig. 1, 2)



Figure 1. Intraoperative aspect of small bowel affected by Crohn disease

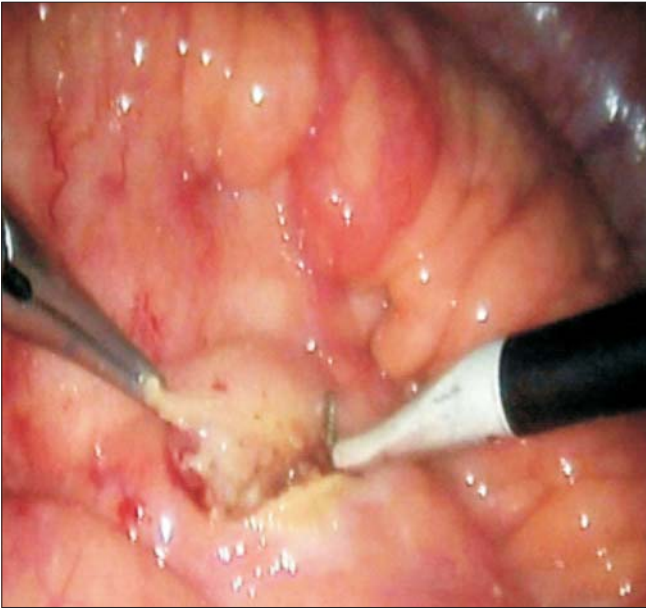


Figure 2. Intraoperative aspect. Lymph node biopsy

The most frequently used approach was open surgery.

The postoperative evolution was favorable in most of the cases.

Anatomopathological diagnosis is illustrated in 2 photos (Fig. 3, 4) which reveal all the layers of the intestine affected by Crohn's disease.

Mention should be made of the case of a young patient diagnosed with Crohn's disease in 1996 who came to our department with an occlusive syndrome in 2011. She underwent surgery and a tumor was found at the ileocecal junction, consequently a right ileo-hemicolectomy with an L-L ileo-transverse anastomosis was performed. After one week post-operatively she developed an anastomosis fistula and blocked evisceration; another surgical intervention was performed and a right ileostoma and coloraphy were formed. After a month and a half, she was again operated on and the ileostoma was reversed, the bowel movement being reintegrated by ileo-transverse anastomosis T-L and the insertion of a substitution net. So far her evolution has been favorable.

Discussion

In spite of the progress made in the medical treatment for Crohn's disease, almost 80 % of the patients require surgical treatment during their lives (1).

The surgical treatment solves the complications of Crohn's disease which have vital consequences for the patient: occlusions through stenoses (2), internal and enterocutaneous fistulae, with or without secondary peritonitis and the abscesses related to these forms.

However, we must remember that the surgical treatment is not curative, the postoperative evolution of Crohn's disease continues. This is why ever since its first description in 1932 Crohn's disease has been considered as an "untamed disease",

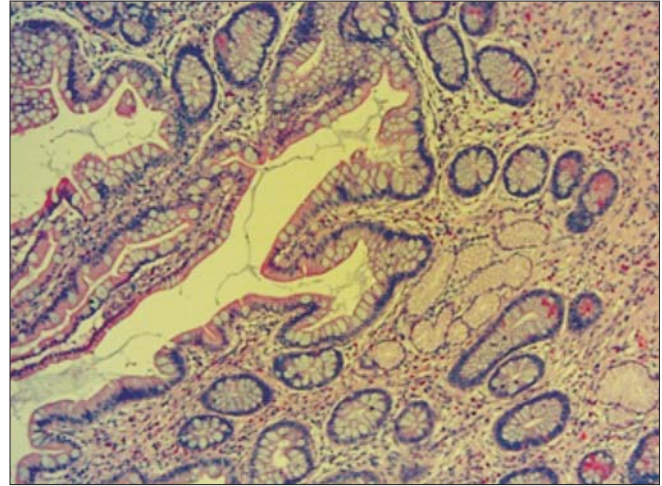


Figure 3. ColH&E, Ob X20 Small bowel mucosa with pyloric metaplasia, focal architectural distortion and mild inflammatory infiltration in the chorion, large in the muscular lining

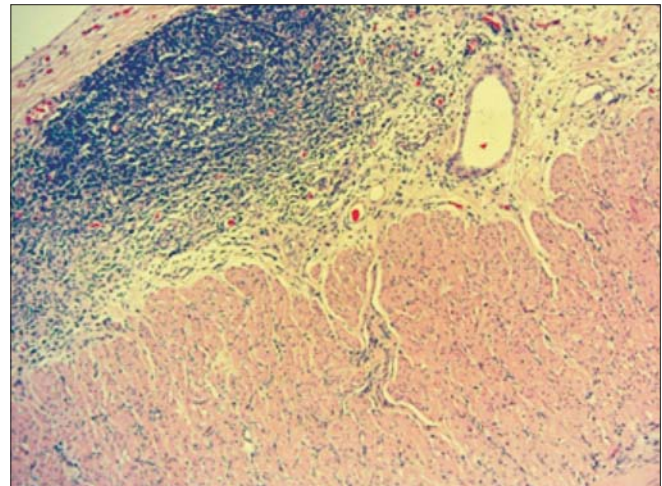


Figure 4. Col H&E, Ob X10 Lymphoid follicle in the subserous associated with chronic inflammatory infiltrate in the muscular layer

this assessment still being applicable nowadays (3).

The type of surgical intervention depends on the localization of the lesions, the most frequent localizations being terminal ileal and ileocecal. In the case of an ileal lesion, the surgical indication is given more frequently by the occurrence of an occlusive syndrome whose underlying cause is usually stenosis. The most frequently used classical surgical therapeutic solutions are: resections ending with an anastomosis or a stoma; stricturoplasties; "bypass"; upward derivations by ileocolostomy. The surgical treatment must be as economical as possible in order to preserve the maximum length of the intestine (5,11). The risk of relapse in Crohn's disease is virtually constant and it exposes the patients to repeated resections and to the risk of a short intestine. Furthermore, it has been demonstrated that the resection in a macroscopically normal intestinal region is efficient, without it requiring a significant margin of healthy

tissue – a 12 cm margin as against a 2 cm margin did not lead to the decrease of the frequency of the relapses. Perioperative evaluation by endoscopy and/or videocapsule specifies the extent of the mucous lesions and helps to set the limits of the resection. (4) The extent of the mucous lesions cannot always be superposed onto the macroscopically estimated lesions on the seromuscular side.

Surgical resections are the most frequent operations in Crohn's disease because they enable the removal of the "diseased area" and they lead to a lower percentage of relapse than the "bypass" which is useful in the case of extensive lesions whose resection would expose the patient to the risk of short intestine. Strictureplasties allow the preservation of the digestive tube, but have the inconvenience of leaving behind a "diseased" segment and, at the same time, of imposing the performance of a suture in an inflammatory environment. Nevertheless, the relapse rate is not higher than in the case of exeresis, most of the relapses having a different localization than that of the strictureplasty.

Temporary or definitive stomas are necessary in ~30% of the patients, the main indication being the presence of anoperineal or rectal lesions and very rarely the necessity to protect an anastomosis in the case of an intraperitoneal abscess, peritonitis or high doses of corticoids.

During the past years, celioscopic interventions have increased significantly as, this way, drainage operations and complex resections have been performed, having a duration of the operation, duration of the hospitalization and morbidity comparable with that of laparotomy. At the same time, they offer a good manner of diagnosing without requiring any surgery in patients without Crohn's disease or with uncomplicated Crohn's disease.

Results of the surgery: 15% global morbidity with a very low rate of fistulae, in some series even of 0.3%. This percentage increases in case of corticotherapy in high doses, perforated lesions, occlusive lesions and/or intra-abdominal abscesses. The operative mortality was comprised between 0-2%.

From the practical point of view, the postsurgical follow-up of a patient with Crohn's disease must have in view the following aspects: the definition of recurrence, the risk factors for postoperative recurrence, the postoperative follow-up and the prevention of postoperative recurrences.

The recurrence of Crohn's disease may be defined by: a) relevant paraclinical symptoms and parameters: bowel movement problems, fever, biological signs of inflammation: VSH, C-reactive protein, fibrinogen, etc. It should be underlined that many patients with recurrences do not present with symptoms; b) endoscopic, radiologic and histopathological data; mention should be made of the fact that during the past ten years imaging investigations have become much more varied: ultrasound, enterography, colonoscopy, CT-scan and MRI are more and more often used for the diagnosis of recurrences (1,12,13).

The risk factors for postoperative recurrences – Lautenbach identified the predictive risk factors for the postoperative recurrence of Crohn's disease (5). However,

two more factors must be added to the very high risk factors: a) the resection and the suture must be made on healthy tissue so that the resection margin be devoid of lesions; b) the absence of any active lesions at a distance from the resected segment. With these changes, the risk factors for postoperative recurrence would be the following: (6).

Very high risk factors: smoking, the penetrating form of the disease, a history of previous resection, the resection performed in a tissue with lesions, the existence of active lesions on distal segments (synchronous lesions). High risk factors: postsurgical evolution despite treatment with immunomodulators, short duration of the disease prior to surgery, concomitant colonic and enteral lesions, young age at the onset of the disease, perianal fistulae. Low risk or inconclusive factors: family history of inflammatory diseases, type of anastomosis, corticosteroids prior to the surgery, length of the affected intestinal segment.

The postoperative monitoring of patients with Crohn's disease must be undertaken very carefully, both clinically and biologically and endoscopically. Ileocolonoscopy is indicated with priority because the clinical symptoms are absent or have little relevance. Clinical recurrence appears 3 years after the surgery in 30% of the patients and 10 years after in 60% of the patients. However, endoscopic recurrence appears in 70-90% of the patients one year after the surgery, whereas the histopathological recurrence appears one week after the surgery (1,7). According to our experience, if the postoperative evolution is good, the first ileocolonoscopy and histopathological examination must be performed 4 weeks after the intervention.

The treatment for the prevention of postoperative recurrences – the assessment of the efficiency of the drug therapy for the prevention of the postsurgical recurrences of Crohn's disease has shown the inefficiency of the preparations of 5-aminosalicylic acid, as well as the impossibility of a long-term treatment with antibiotics such as metronidazole because of its unwanted effects. Azathioprine and 6-mercaptopurine have a relatively good efficiency. A recent meta-analysis has shown that the treatment with 6-mercaptopurine is 8% more efficient than control in the prevention of the recurrences (8). However, severe endoscopic recurrences are not prevented by azathioprine or 6-mercaptopurine. The most efficient treatment for the prevention of recurrences seems to be the one with anti TNF-alpha (Infliximab) biological preparations (9,10).

The follow-up and treatment algorithm for the diagnosis and prevention of recurrences must also take into account the factors which have led to the indication for the surgical treatment and the duration of the disease, the length of the resected segment and the medical treatment before the surgical intervention (15).

The relapses following the surgical treatment represent an essential problem for the treatment of Crohn's disease and have a major incidence, irrespective of the definition of a relapse: clinical, endoscopic or a state requiring a surgical intervention. In general, the risk of relapse is 15% per year, with the percentage of relapse higher than 50% after 10 years and 94% after 15 years, thus making a reintervention necessary in 90% of cases (16,17). A relapse occurs more

frequently at the level of the intestinal anastomosis or on the upper segment (18).

The evaluation of the quality of life of the operated patients is a recent concern. The studies which evaluate the results of the general questionnaires referring to the quality of life have demonstrated that the surgical treatment improves the quality of life. It has been demonstrated that 80% of the patients consider that their state has improved as against their preoperative state regarding their personal and professional relations, their body image and sexuality; 92% of them stated that they were satisfied in spite of the possibility of a relapse or a stoma.

Conclusions

Surgical treatment must be suggested only in the case of complications which cannot benefit from a medical treatment. It should observe the essential rule of being the least aggressive and the most conservative possible so as to preserve the maximum length of the digestive tube. The recourse to a wide variety of techniques and, particularly, to strictureplasties and percutaneous drainage of the abscesses, in well selected patients offers the possibility of using less invasive treatments.

Finally, an optimistic message must be sent because the multitude of medical and surgical means available should enable the young patients with Crohn's disease to lead a normal life despite the chronic, recurring and incurable character of this disease.

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