

## REVIEW

# Inflammatory Bowel Diseases: the Surgical Perspective

Bogdan SOCEA<sup>1</sup>, Dan DUMITRESCU<sup>2</sup>, Ovidiu Gabriel BRATU<sup>3</sup>, Alexandru Constantin CARAP<sup>1</sup>, Dumitru Cristinel BADIU<sup>4</sup>, Alexandra BOLOCAN<sup>5</sup>, Dan Nicolae PADURARU<sup>5</sup>, Dan MISCHIANU<sup>3</sup>, Vlad Denis CONSTANTIN<sup>1</sup>

## Abstract

Inflammatory bowel diseases (IBD), namely Crohn's disease and ulcerative colitis, are relatively rare diseases in our country, known as a low prevalence geographic region. IBD are a multidisciplinary problem, that implies gastroenterologists, as well as surgeons. Surgical management in inflammatory bowel disease is often impaired by a high complication rate and a significant recurrence rate, specific mostly for Crohn's disease. Indications for surgery include failure of medical therapy (including delayed puberty for young patients and drug intolerance), toxic megacolon, bowel perforation, obstruction, enteric fistula and abdominal or perianal abscess. Advances in medical treatment options for IBD are continuously accumulating. However, a large number of patients still require surgical procedures during lifetime.

**Keywords:** inflammatory bowel disease, Crohn's disease, ulcerative colitis, surgery.

## Rezumat

Bolile inflamatorii intestinale, cuprinzând boala Crohn și colita ulcerativă, sunt boli relativ rare în țara noastră, cunoscută ca o regiune geografică cu prevalență scăzută. Bolile inflamatorii intestinale reprezintă o problemă multidisciplinară, care implică atât gastroenterologi, cât și chirurghi. Abordarea chirurgicală în bolile inflamatorii intestinale este adesea afectată de o rată ridicată a complicațiilor și de o rată semnificativă de recurență, specifică mai ales pentru boala Crohn. Indicațiile intervențiilor chirurgicale includ eșecul terapiei medicamentoase (inclusiv pubertatea întârziată pentru pacienții tineri și intoleranța la medicamente), megacolonul toxic, perforațiile intestinale, ocluzia, fistula enterică și abcesul abdominal sau perianal. Opțiunile de tratament medicamentos în bolile inflamatorii intestinale se perfecționează continuu. Cu toate acestea, un număr mare de pacienți încă necesită proceduri chirurgicale de-a lungul vieții.

**Cuvinte cheie:** boli inflamatorii intestinale, boala Crohn, colita ulcerativă, chirurgie.

<sup>1</sup> Department of Surgery, „Sf. Pantelimon” Emergency Clinical Hospital, „Carol Davila” University of Medicine and Pharmacy, Bucharest, Romania

<sup>2</sup> Department of Surgery, University Clinical Hospital, „Carol Davila” University of Medicine and Pharmacy, Bucharest, Romania

<sup>3</sup> Department of Urology, Central Military Clinical Hospital, „Carol Davila” University of Medicine and Pharmacy, Bucharest, Romania

<sup>4</sup> Department of Surgery, „Carol Davila” University of Medicine and Pharmacy, „Bagdasar-Arseni” Emergency Clinical Hospital, Bucharest, Romania

<sup>5</sup> Department of Surgery, „Carol Davila” University of Medicine and Pharmacy, Emergency University Hospital, Bucharest, Romania

## Corresponding author:

**Bogdan Socea**, Department of Surgery, „Sf. Pantelimon” Emergency Clinical Hospital, Bucharest, Romania.  
E-mail: bogdansocea@gmail.com

**Note:** All the authors equally contributed to this manuscript

## INTRODUCTION

Ulcerative colitis (UC) and Crohn's disease (CD) are inflammatory intestinal diseases, grouped together in the entity of inflammatory bowel diseases (IBD). These conditions have both overlapping and distinct clinical and pathological features, and pathogenesis is yet incompletely understood. Genetic and environmental factors are suspected to alter intestinal immunity, being promoters of gastrointestinal injury<sup>1-6</sup>.

Surgical morbidity and better functional outcome and quality of life (QOL) are all important objectives of the management of these diseases.

The incidence and prevalence of inflammatory bowel diseases (IBD) are continuously increasing all over the world, indicating a tendency of becoming world spread diseases<sup>7</sup>. Romania is enrolling in the global trend of increasing incidence, although geographically it does not represent an area with high prevalence. The incidence of UC has been increasing in previously low-incidence areas i.e. Eastern Europe, Asia, and developing countries<sup>1</sup>. IBD have low incidence in Asia and in Southern Europe<sup>8</sup>. A high incidence of IBD is encountered in the northern areas, such as northern Europe and North America<sup>9</sup>. IBD occur more frequent in Caucasian people<sup>10</sup>. UC is more frequent in men, while CD is more common in women<sup>11</sup>.

Despite the fact that medical treatment has continuously improved during the last decade, 80% of patients with Crohn's disease (CD)<sup>12</sup> and approximately 25–35% of patients with ulcerative colitis (UC) require surgery during their lifetime<sup>13,14</sup>. IBD represent a model of multidisciplinary management. Timing of surgery represents the key issue for proper management of IBD patients.

### Surgical indications and options

For acute and some specific cases of severe IBD, surgery can be a vital procedure.

Many studies suggest that patients with IBD have an increased risk for developing myocardial infarction and stroke<sup>15,16</sup>. In addition, these patients are at high risk of developing cardiovascular events in the perioperative period, and they are in need for a specific anesthesia and intensive care management, especially related to surgery<sup>17-19</sup>.

### Crohn's disease

Crohn's disease primarily involves the small bowel, inflammation including the entire intestinal wall. The

intentions of surgical treatment in Crohn's disease cannot be curative, as it is a pan-enteric disease. Surgical indications are mainly related to complications (fibrosclerotic or perforated disease) and limited exertion surgery is recommended. Serial interventions can cause short bowel syndrome, with the severe consequence of malnutrition<sup>20,21</sup>. Thus, small bowel resection segments should be limited as much as possible or even avoided. A bowel-sparing surgery as part of philosophy of conservatism becomes the rule, and, in consequence, different techniques of strictureplasties are searched for small bowel fibrous strictures.

Strictureplasty techniques in CD are chosen in order to preserve bowel function, whenever these procedure is feasible and the disease is limited. Nowadays, there are several described techniques for strictureplasty. The most common are Heineke–Mikulicz for short strictures, Finney for longer strictures, and Michelassi side-to-side isoperistaltic for multiple sequential strictures<sup>22</sup>. Several authors reported new types of strictureplasties: Fazio and Tjandra<sup>23</sup> and Poggioli<sup>24</sup>.

According to *European Crohn's and Colitis Organization* (ECCO) guidelines „Strictureplasty is a safe alternative to resection in jejunoileal Crohn's disease, including ileocolonic recurrence, with similar short-term and long-term results"<sup>25</sup>.

However, resection of a small bowel segment remains the most commonly performed procedure in CD<sup>26</sup>. Recurrence rates tend to increase with the passage of time and CD patients may eventually require multiple resections, each increasing the risk of short-bowel syndrome. No correlation seems to be between the extension of resection and relapse of the disease. Thus, extensive “radical” resections, with healthy tissue margins are not necessary<sup>27,28</sup>.

### Ulcerative colitis

Ulcerative colitis affects the large bowel in most cases, with inflammation being restricted to the mucosa. The surgical treatment aims to obtain healing, with the possibility of resection of the entire affected segment (total colectomy). This intervention prevents development of colorectal cancer over time, lowering the risk of malignancy.

Strictureplasties are not recommended for large bowel stenosis.

The main emergency indications for surgical intervention in UC include massive hemorrhage, toxic colitis, toxic megacolon, and intestinal perforation. Elective indications include medically refractory UC, intolerant-

ce or non-adherence to medical therapy, severe malnutrition, the presence of dysplasia, and cancer<sup>27,29,30</sup>.

Total abdominal colectomy and end ileostomy is the procedure of choice in emergency settings<sup>31</sup>. The most frequent elective procedure performed for UC is restorative proctocolectomy with (RPC) with ileal pouch-anal anastomosis (IPAA), which is considered the gold standard<sup>30</sup>. Total proctocolectomy removes all disease and eliminates the risk of colorectal cancer<sup>32</sup>. Unfortunately, total proctocolectomy with end ileostomy is associated with significant morbidity (complications related to ileostoma, sexual dysfunction, altered bladder function)<sup>33</sup>.

IPAA was first described by Sir Allen Parks at St. Marks Hospital London in the early 1980's. Construction of ileal pouch offers long-term restoration of intestinal continuity without permanent ileostomy. The pouch remains functional for 20 years in 90% of patients<sup>34</sup>. In IPAA, the rectal stump mechanically stapled to ileal pouch remains of minimal lengths (2 cm), so that the risk of subsequent rectal cancer is minimum.

ECCO guidelines state that „If surgery is necessary for localized colonic disease (less than a third of the colon involved), then resection only of the affected part is preferable”<sup>25</sup>. They also state that „Two segmental resections can be considered for a patient with an established indication for surgery when macroscopic disease affects both ends of the colon”<sup>25</sup>.

Minimal invasive surgery (MIS) proved to have at least same positive results compared to classic surgery in cases of inflammatory bowel diseases. There are no in-

creased risk of complications for MIS, and the advantages of laparoscopy are obvious<sup>35-37</sup>.

Recent studies also revealed the role of probiotics in selected patients. The outcome of UC patients with restorative proctocolectomy and ileal pouch was by probiotics.

## CONCLUSIONS

Surgical management in IBD is mandatory for the further outcome and treatment, as well as for patient's quality of life. It often proves to be complex, because clinical outcomes are different and decision making are challenging and difficult. Intraoperative decision of surgical tactics and techniques requires experience. A good multidisciplinary collaboration is necessary for best results, and to decide the best surgical timing.

Recently, laparoscopic surgery proved an increasing role in IBD, especially for elective cases. It is necessary that experienced and dedicated IBD surgeons to perform it, in a multidisciplinary approach.

IBD are proinflammatory and hypercoagulable conditions, with high perioperative risks.

### Compliance with ethics requirements:

The authors declare no conflict of interest regarding this article.

The authors declare that all the procedures and experiments of this study respect the ethical standards in the Helsinki Declaration of 1975, as revised in 2008(5), as well as the national law. Informed consent was obtained from all the patients included in the study.

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