



## Surgical Approaches in Fulminant Ulcerative Colitis

Corina Silvia Pop

University of Medicine and Pharmacy Carol Davila Bucharest, Emergency University Hospital Bucharest, Internal Medicine Department

\* Roxana Maria Nemes

Institute of Pulmonology „Marius Nasta”, Respiratory Function Test Department, Bucharest, Romania, \* Corresponding Author

George Pariza

University of Medicine and Pharmacy Carol Davila Bucharest, Emergency University Hospital Bucharest, 3th General Surgery Department

## ABSTRACT

*We report a case of a 43-year old women with a 6-year history of ulcerative colitis presents with a week high-grade fever, myalgia, joint pain, headache and cough. She has been in treatment with TNF-alfa antagonist for 1 year, for severe left-sided colitis. Was admitted in the hospital and physical examination reveals a febrile patient, 39° C, tachycardia 100 beats/min, tachypnea 28/min. Despite this vigorous treatment measures (nasogastric tube, parenteral nutrition, intravenous fluid and electrolyte replacement, intravenous steroid-methylprednisolone and a dose of infliximab), the outcome was not favorable, clinical condition has worsened and a plain abdominal radiography and abdominal CT shows important transverse and cecum distension with large amounts of fluid and air. Toxic megacolon represent a major potentially life-threatening complication of ulcerative (pan)colitis. An important and difficult aspect is to decide the optimal time for surgical intervention. Surgery was life-saving for this patient.*

KEYWORDS : ulcerative colitis, surgery, colectomy

## Introduction

Defined as a chronic inflammatory disease of the colic and rectal mucosa, ulcerative colitis has in Europe an incidence of about 5-25 cases/100 000 inhabitants per year. Although medical treatment has reached an important development in the last decades, has not substantially affected the rate of total colectomy, it still has a frequency between 20-30%, 10% of the patients with ulcerative colitis requiring surgery in the first year of disease (1).

Biological therapy has proven effective in inducing and maintaining remission period without affecting colectomy rate significantly, suggesting that the treatment is delaying the surgery without causing a significant decrease in the percentage of patients who will require colectomy. Such surgical indications are: the failure of medical therapy, severe complications secondary to chronic therapy, acute complications of ulcerative colitis (perforation, toxic megacolon, severe bleeding, fulminant colitis) or malignant degeneration (1,2).

Thus, surgery in ulcerative colitis should be considered as a therapeutic alternative or complementary therapy medical treatment.

The aim of the study is to point out a case of ulcerative colitis, in the fulminant form, in which case surgery was a therapeutic alternative.

## Case report

A 43-year old women with a 6-year history of ulcerative colitis presents with a week high-grade fever, myalgia, joint pain, headache and cough. She has been in treatment with TNF-alfa antagonist for 1 year, for severe left-sided colitis, with favorable evolution and clinical remission for 6 months. Her last medical examination showed no biological sign of inflammation, and an improved image of mucosal healing in colonoscopy.

Physical examination reveals a febrile patient, 39° C, tachycardia 100 beats/min, tachypnea 28/min, and crackles without wheezing in the basis of right hemithorax. There was no abdominal pain or mass and the rest of clinical examination was unremarkable.

Laboratory findings WBC 4000/mm<sup>3</sup>, mild normochrome normocytic anemia Hct 33%, RCP 54 mg/dl; ESR 34 mm/h, D-dimer level normal; stool test for Clostridium difficile negative; normal level of faecal calprotectin; Chest and plain abdominal radiographs as well as abdominal ultrasound are normal; Considering the suspicion of infection in a immune suppressed patient, we perform a rapid diagnostic

test for influenza A/B which was positive.

The treatment began with an oral antiviral drug-oseltamivir- and clinical follow-up. A week after admission, within a slight initial improvement, the patient shows significant abdominal pain, fever followed by the appearance of bloody diarrhea-signs that suggest an acute attack of ulcerative colitis. The abdomen was mild distended and on palpation there general tenderness. Bowel sounds were noted to be hypoactive.

In that moment laboratory findings reveal leukocytosis 13000/mm<sup>3</sup> with neutrophilia 10500/mm<sup>3</sup>, high level of CRP 96mg/dl and ESR 87mm/h, moderate normochrome normocytic anemia Hct 29% and mild hypoalbuminemia 2,9 g/dl. Culture stool test were negative for common bacteria and negative again for C.difficile. A new plain abdominal radiograph showed slight dilatation of the transverse colon.

Therapy was initiated for severe ulcerative colitis with potential to precipitate of toxic megacolon: nasogastric tube, parenteral nutrition, intravenous fluid and electrolyte replacement, intravenous steroid-methylprednisolone and a dose of infliximab; broad-spectrum antibiotics ciprofloxacin and metronidazole; venous thrombembolism prophylaxis with low molecular weight heparin.

Despite this vigorous treatment measures, the outcome was not favorable, clinical condition has worsened and a plain abdominal radiography and abdominal CT shows important transverse and cecum distension with large amounts of fluid and air and diffuse and simetric wall thickening, the haustra appear edematous and distorted; marked rectal wall thickening and luminal narrowing; no sign of perforation was seen.

The surgery service was consulted for toxic megacolon and severe ulcerative colitis and was established indication for colectomy.

Under general anesthesia a laparotomy was performed, intraoperative noticing massive distension of the entire colon with area of congestion on the serosa and ascites, with no sign of perforation (fig.1). A total colectomy with ileostomy was performed, preserving the rectum for reversion.



**Fig1. Masive distension of ascending and transverse colon. (Intraoperative aspects**

Macroscopic examination of the colon reveal mucosal hemorrhagic lesions with deep and large ulceration and a lumpy-bumpy appearance, multiple pseudopolyps; these lesions involving the whole colon, without evidence of perforation (fig. 2,3).



**Fig 2. Macroscopic examination of the colon with mucosal hemorrhagic lesions, deep and large ulceration and multiple pseudopolyps; lesions involving the whole colon**

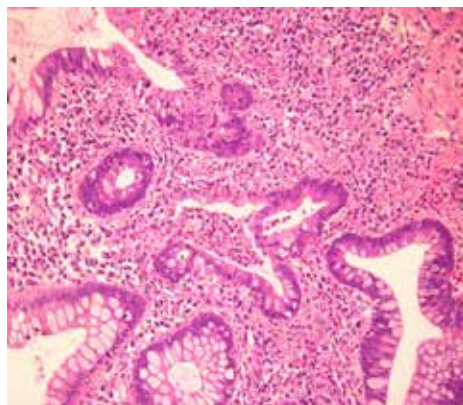


**Fig 3. Macroscopic examination of the colon with mucosal hemorrhagic lesions, deep and large ulceration and multiple pseudopolyps; lesions involving the whole colon**

These procedure allowed improving the patient clinical condition while she was being tapered off of any immunosuppressive medication.

The postoperative evolution was satisfactory with the rapid recovery after the colectomy; there were no major complications although restant rectal mucosa had slightly bleeding. At the discharge the patient received rectal foam with budesonide.

Histopathological examination confirm that the entire colon, from rectum to the cecum, was affected by typical histological lesion of ulcerative colitis with the crypt abscess, in which the epithelium of the crypt breaks down and the lumen fills with polymorphonuclear cells. The lamina propria is infiltrated with leukocytes (fig. 4)



**Fig. 4. Histological aspects of ulcerative colitis: mucosal fragment with abundant inflammatory infiltrate HE 400X- transverse colon**

Medical examination 6 month after colectomy show a normoponderal patient with no sign of anemia or hypoalbuminemia.

**Discussion**

Toxic megacolon represent a major potentially life-threatening complication of ulcerative (pan)colitis which may appear anytime in the evolution of disease with an incidence of 1-5% during their life-time(1).

Is defined by non-obstructive acute colonic dilatation of at least 6 cm (radiologic) alongside of systemic toxicity. Loss of contractility is due to extension of inflammation beyond the mucosa to muscularis propria layer.

Clinical picture includes fever, hemodynamic deterioration, diffuse abdominal distension and tenderness (3,4).

Perforation is 30 times more frequent in patient with toxic megacolon than in those without and the mortality rate following this complication can be 40-50% (3,4).

The medical management of toxic megacolon assume intensive monitoring with gastroenterological and surgical consultation; support with fluid and electrolytes, blood transfusions and human albumin; anticoagulation and systemic antibiotic empirically administered and last but not the least treating the underlying inflammation and restore colonic motility to prevent colonic perforation.

However in these conditions only half of acute dilatation resolves with medical therapy. An important and difficult aspect is to decide the optimal time for surgical intervention; thereby 40% undergoing colectomy after perforation (1,4,5). No more of 72 hours you can expect an improvement before deciding colectomy knowing that delaying surgery increase the mortality from less than 5% to nearly 30% (4,5).

When you achieve remission on medical therapy, you have to decide subsequent management which is controversial. More than 50% of these patients requires colectomy for intractable colitis.(6)

Pushing conservative treatment until surgery represent an emergency may be unsafe as it have been shown that the mortality three years after elective surgery for ulcerative colitis (3.7%) is meaningful lower than mortality when emergency operation is performed (13.6%). Furthermore, recent studies report a significantly increased risk of major complication at a 5 year follow up for patient with long term of medical therapy (4,5,6).

Increasing rate of complication in patients with aggressive medical treatment, lead to several different surgical approaches. In 1978, Parks and Nichols describes the restorative proctocolectomy with ileal pouch-anal anastomosis, procedure that is considered the gold standard in surgical treatment for ulcerative colitis for the last three decades.(7). The introduction of this technique, most often fashioned as a J pouch created with the terminal ileum and anastomosed to the anal canal-was a real advancement, offering a curative treatment to these patients without the need for a permanent stoma, thus preserving their body image and a quality of life similar to that of the general population (8). However, the procedure is technically demanding and is associated with a significant morbidity rate (30%), and an incidence of postoperative pelvic sepsis between 5%-24% (4,5,9). Since it has been shown that the occurrence of a pelvic infection can dramatically affect the functional outcome of the pouch, and considering that long-term steroid use and malnutrition are important risk factors for pelvic sepsis, surgical strategies have been promote in order to minimize the occurrence of infectious complication (10,11). A total abdominal colectomy with end ileostomy is the operation of choice as first step of a restorative procedure, as it can be performed safely and quickly, allowing the patient to overcome the colitis, wean off the medications, and return to an optimal health and nutritional status (12)

### Conclusion

Surgery, in right situation, can improve the quality of life or it can be life-saving. Biological agents introduced in ulcerative colitis therapy, appears to reduce the urgent surgical procedure, the overall incidence of colectomy being almost the same. Given the concern of increasing emergent complication in aggressive therapy, surgery should be seen as an therapeutic alternative.

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