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## Surgery for ulcerative colitis in children

Published online: 6 August 2004  
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The treatment of children affected by inflammatory bowel disease—ulcerative colitis (UC) or Crohn's disease (CD)—should seek to reduce or eliminate symptoms, optimize nutritional status, promote normal growth and development, prevent complications, and minimize the potential psychological effects of chronic illness. Because choice of treatment (nutritional, medical, or surgical) and treatment delivery (systemic or local) may depend on disease type and location, it is very important to assess the type, site, and extent of disease at diagnosis. Children with UC are reported to have more extensive disease than adults (pancolitis in 29% vs. 16%) [1]. In pediatric patients, who may face lifelong chronic disease, long-term effects of treatments are of particular concern, and noncompliance is an important problem, especially in adolescents. Children and adolescents affected by UC frequently require colectomy because of refractory or chronic symptoms; in contrast to CD, colectomy should be a curative procedure for such patients [2]. Surgical options for UC include either total proctocolectomy with rectal mucosectomy and straight ileo-anal anastomosis (ERPT) with or without ileal pouch and temporary ileostomy, or colectomy with subtotal mucosectomy and ileo-rectal anastomosis with mechanical stapler, according to the Knight–Griffen technique [3]. The ERPT with some variant of pouch reservoir is considered to be the procedure of choice for UC requiring surgery because it preserves continence without the need for a permanent ileostomy. The ERPT was proposed by Ravitch and Sabiston [4], popularized by Soave [5] for treatment of Hirschsprung's disease, and modified by Coran and Weintraub [6]. The first

report on ERPT as surgical treatment for UC was presented by Martin et al. [7]. A number of different reservoir options are available in case of an ileal pouch construction that includes a “J”-, “S”-, or “W”-shaped reservoir from the terminal ileum. Advantages of ERPT are a limited extrarectal dissection and a reduced risk of injury to the sphincter muscle and surrounding deep pelvic nerves. Moreover, the ERPT presents the fundamental requirements for anal continence by preserving the anorectal angle, levator muscle complex and puborectalis sling, anal sphincters, rectal ampulla, and anorectal sensation, and by maintaining reservoir capacity. The main advantages of an ileal reservoir are to increase rectal capacity and reduce bowel movements. As reported in most of the series with pouches, the median stool frequency is about four bowel movements/day (not including nighttime movements), in contrast to the ERPT, which has a stool frequency of about seven bowel movements/24 h [8–12]. However, it has been documented that these differences tend to disappear 1–2 years after the procedure [11]. Pouchitis remains a common problem. This clinical entity is characterized by variable symptoms, including increased stool frequency and fluidity, rectal bleeding, abdominal cramping, urgency and tenesmus, incontinence, fever, and extra-intestinal manifestations. Although the exact etiology of pouchitis remains unclear, possible causes that have been advanced include fecal stasis, production of abnormal fatty acids, ischemia, oxygen free radical injury, deprivation of short chain fatty acids, and abnormal bile acid metabolism. The reported incidence of pouchitis is variable because of the difference in the nature and duration of follow-up and particularly because a myriad of diagnostic criteria have been used to define this syndrome. Furthermore, the risk of dysplasia of the mucosal pouch is also unknown. Morphologic changes associated with the development of dysplasia in the pouch mucosa occurred in children as well as in adults during a 5-year follow-up [13]. Nevertheless, an initial screening should be performed 5 years after the creation of a pelvic pouch in children or when the total

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disease duration exceeds 7 years. Concern about the risk of neoplasia in the pouch was raised 10 years ago after a combination of colonic metaplasia and chronic inflammation in pouches was observed [14]. Seven cases are reported in which an adenocarcinoma has arisen in ileal pouch mucosa in adult patients with UC [15]. To our knowledge, no cases have been reported to date of adenocarcinoma in ileal pouches in pediatric patients with UC. Management of UC, like other chronic illnesses, should include consideration of the patient's social, cultural, and psychological circumstances. Assessment of health-related quality of life (HRQL) is important for measuring the impact of chronic disease. The chronic and often unpredictable gastrointestinal symptoms and required treatments impose psychological and social stresses on young patients, which may be different from those experienced by adults. Furthermore, measurements of HRQL in children and adolescents are more difficult than in adults because physical, intellectual, and emotional functioning change constantly with normal development. HRQL is determined not only by physical well-being but also by psychological state, degree of social support, effects of treatment, and complications [16]. The aim of a recent prospective study of adults was to measure the effect of surgical resection on quality of life in patients with inflammatory bowel disease (IBD) [17]. The results of this study confirm that HRQL scores are low in many patients with IBD referred for operation but that they improve postoperatively to levels comparable with those of the general population, with long-lasting results (follow-up up to 6 years). The authors conclude that these data justify aggressive surgical intervention in many patients with IBD, and they support the prospective study of HRQL by surgeons treating patients with chronic diseases. A study conducted through the IBD Program at the Hospital for Sick Children in Toronto showed that patients with UC were more affected by bowel symptoms (diarrhea, gas, urgency, bleeding) and expressed a broader range of emotions (anger, frustration, embarrassment about their bowel conditions) more intensely [18]. However, no evaluation of surgical intervention on HRQL has been done in the pediatric population; the children studied were only medically treated. It would be interesting to investigate the pediatric age group and see whether the results are long-lasting. Another important issue is represented by the possible financial implications of bowel resection in patients with IBD. Measures of functioning and well-being also predict health care expenditures, especially in patients with chronic conditions such as IBD. Early surgical treatment may prevent families and insurance companies from supporting health care expenditures in a long-term follow-up. Studies of quality of life in patients affected by UC who underwent surgical treatment in childhood and in adolescents compared with adults need to be carried out. In a recent review [19] about the 10 most common errors in IBD management, the author, a gastroenterologist, concluded that "*somehow the internist tends to view*

*surgery as a 'last resort' or as an indication of 'failure' of medical therapy. The object of treatment should not be simply 'the avoidance or surgery,' but rather to make our patients well and good. To be sure, if we can accomplish this purpose with our panoply of pills, powders, and potions, well and good. But if we can restore patients to good health and well being more swiftly, safely, and surely with surgery, then we should not hesitate to do so. Making people better is, after all, the name of the game."*

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