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Transanal rectosigmoid resection for severe intractable idiopathic constipation

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Abstract

Introduction: Idiopathic constipation is a source of significant morbidity in children. A subset of patients is refractory to medical therapy and requires surgical intervention. We present a novel surgical technique for the management of these patients.

Methods: We reviewed the records of 288 patients with severe idiopathic constipation and soiling. Patients who were refractory to medical management and had a megarectosigmoid underwent a transanal full-thickness rectosigmoid resection with a primary colo-anal anastomosis.

Results: Fifteen patients underwent a transanal rectosigmoid resection. The preoperative contrast enema demonstrated an enormously dilated rectosigmoid in 14. An average of 43 cm (range, 8-98 cm) of rectosigmoid was resected. Of 14 patients with more than 3 months of follow-up, the preoperative laxative dose was 68 mg of senna/d (range, 52-95 mg), which decreased to 8.6 mg postoperatively ($P < .001$). Nine patients are clean without soiling, 1 is more prone to diarrhea, but is clean. Two patients soil occasionally, but are noncompliant, and 2 were lost to follow-up.

Conclusion: Transanal rectosigmoid resection for medically intractable idiopathic constipation resulted in a dramatic reduction or elimination in laxatives use while preserving continence. It is a useful alternative to surgical options such as other colonic resections, antegrade enemas, and stomas.

Constipation is a common problem in the pediatric population, which can usually be treated with dietary modifications and medical therapy. A subset of patients have intractable severe constipation with soiling (encopresis) that is unresponsive to standard medical therapy. These children suffer from abdominal pain, bloating, and accidents that often result in a poor quality of life and delayed social development [1-3]. Disimpaction followed by aggressive laxative therapy works well for the vast majority of patients [4]. However, some children have refractory symptoms, and when subjected to high-dose laxative therapy, develop abdominal distension, vomiting, cramping, and bloating. The colon becomes dilated with liquid stool and yet they have no bowel movements. Some successfully empty their colon but require enormous laxative dosing. We have found that for this small subset, operative intervention is the only option and report our experience here with a new technique.

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Fig. 1 Contrast enema in a patient with severe idiopathic constipation showing the typical finding of a megarectosigmoid with normal-caliber upper sigmoid and descending colon.

There have been many reported operative strategies for the management of severe idiopathic constipation including fecal diversion [5] and transabdominal resection of the rectum and sigmoid [6-9]. Other less invasive techniques have been described, such as antegrade continence enemas [10,11], botulinum toxin injections [12], and internal sphincter myectomy [13]. Unfortunately, these procedures have inconsistent or inadequate results. Our previous experience with sigmoid resection (preserving the rectum) in this patient population led to a significant decrease in the laxative requirements by 80% in one third of patients and by 40% in the rest [8]. Even when this experience represented an advance in the management of this difficult patient population, we thought that there must be a more effective treatment, which led us to this new technique.

We, as well as others, use the transanal surgical approach for management of Hirschsprung's disease [14,15], reoperations for Hirschsprung's disease [16], and for rectal prolapse [17,18]. We chose to apply our experience with the transanal approach to the management of patients with intractable idiopathic constipation. In the current study, we present our experience with a transanal full-thickness rectosigmoid resection and primary colo-anal anastomosis for this patient group. We believe this technique offers a less invasive and more effective alternative to managing this challenging patient population, although it is applicable only for a very specific group of patients.

1. Materials and methods

We reviewed the records of all patients who were referred to us with severe idiopathic constipation and soiling over a 20-year period. All patients were previously seen by a pediatrician or a pediatric gastroenterologist and were considered unmanageable. The vast majority were referred for surgical consultation to evaluate for Hirschsprung's disease, and no patient turned out to have Hirschsprung's. Patients first received a thorough history and physical examination and then were subjected to our medical management strategy for severe idiopathic constipation [4]. In brief, a contrast enema was done to assess the degree and extent of colonic dilatation (Fig. 1). This also helped clean the colon. If needed, the patients were disimpacted. Fecal disimpaction was accomplished by administering large enemas 3 times a day for 3 days. If unsuccessful, a balanced electrolyte solution was given via a nasogastric tube while the enema regimen was continued. If still unsuccessful, patients underwent manual disimpaction under anesthesia. Complete disimpaction was confirmed by abdominal x-ray. Once the x-ray showed a clean colon, patients were started on an amount of a senna-based laxative that we estimated by the size of the colon on contrast enema. This dose was given, and an x-ray was obtained at 24 hours. In each 24-hour period over the course of 3 to 5 days, an abdominal x-ray was checked to ensure that the bowel movements completely emptied the colon. If not, the laxative dose was increased until the colon was completely emptied. If patients' stools were loose and the x-ray remained clean the laxative dose was decreased. The purpose of this management plan was to determine the "laxative requirement" of each patient. This was defined as the amount of laxative capable of completely cleaning the colon (radiologically demonstrated).

In most of our patients, we reached the laxative requirements, which were much higher than what the patients received in the past (Table 1). Once that point was reached, we explained to the family that they must continue the administration of that medication for life if they wanted to keep the patient free of symptoms. If the family was reluctant to administer such a large dose of laxative, the

Table 1 Summary of outcomes

Patients	Treatment	Outcome
256	Laxative only	Improvement of symptoms, resolution of soiling
17	Sigmoid resection	Reduction of laxative requirement [4,8]
15	Transanal rectosigmoid resection	More dramatic reduction of laxative requirement with a decrease from 68 mg senna/d to 8.6 mg senna/d, 6 patients no longer needed any laxatives