

Severe Chronic Constipation due to Dolichosigmoid Resolved by Laparoscopy: A Case Series Report

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Abstract

Chronic constipation is a common problem with multiple etiologies that has a substantial negative impact on the patient's quality of life. Mechanical reasons for this, such as dolichocolon or dolichosigmoid, often makes conventional treatment with medication and laxatives unsuccessful, turning the situation frustrating for patients and doctors. Surgical resolution in well evaluated patients with dolichocolon and slow transit time, has proven to be a good option if medical treatment has failed. The objective of this paper is to report the results of a series of five patients with severe chronic constipation secondary to dolichosigmoid resolved by laparoscopic sigmoidectomy.

Keywords: Chronic Constipation; Dolichocolon; Dolichosigmoid; Laparoscopy; Laparoscopic Colectomy

Introduction

Chronic constipation is a common health problem characterized by difficult and infrequent passage of stool, accompanied by pain and stiffness that has multifactorial pathogenesis. It is associated with poor quality of life and great healthcare resource consumption. Dolichocolon and especially dolichosigmoid as a cause of severe chronic constipation should be considered when other causes are excluded.

Although the vast majority of patients with severe difficult defecation do not require surgery, when there is evidence of a redundant and tortuous sigmoid colon with slow transit time, particularly in this segment, and conservative management has been ineffective, laparoscopic resection of this colon segment is a valuable resource. The objective of this paper is to report the results of a series of five patients with severe chronic constipation secondary to dolichosigmoid resolved by laparoscopic surgery.

Clinical Cases

Case 1

A 21-year-old female patient with a history of chronic constipation since birth. Various imaging tests and endoscopies with biopsy were performed, ruling out Hirschsprung's disease. She was treated unsuccessfully with various types of laxatives in increasing doses, stool softeners, prokinetic drugs, analgesics, special diet, and biofeedback therapy for a year. Often, she had several crises of constipation lasting more than 10 days, conditioning fecal impaction that required enemas to resolve. In addition, she complained of abdominal pain,

frequent migraine episodes, fatigue and constant nausea. Intestinal transit studies confirmed that on the seventh day, almost all of the radiopaque markers were still located in the sigmoid colon (Figure 1). The barium enema showed dilatation of the proximal colon with an “omega” like dolichosigmoid as the main problematic segment (Figure 2). Due to the patient’s history, poor results of conventional treatment and the image findings, laparoscopic sigmoidectomy was proposed. Seventy centimeters of the sigmoid colon were resected, and end-to-end anastomosis constructed. She was discharged on the third postoperative day with no apparent complications. Surgery needed to be revised on the seventh day due to an anastomotic leak associated to a retentionist and atonic colon and required lavage and drainage. Recovery was subsequently uneventful and she was again discharged three days later. Currently the patient has regular daily stool passage without medications and has no longer presented migraine or abdominal pain symptoms due to this problem.

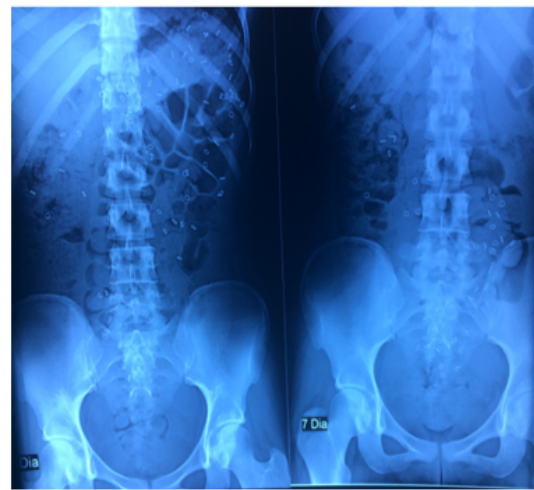


Figure 1: Intestinal transit showing the presence of markers on the seventh day of the study.



Figure 2: Omega dolichosigmoid.

Case 2

A 16-year-old female with a history of gastroesophageal reflux and congenital hiatal hernia treated earlier with fundoplication. Chronic constipation since childhood, requiring the continuous use of suppositories and laxatives and continuous headache complaints. Later, she began with episodes of intense abdominal pain with stiffening of the abdomen, distension and halitosis. She increased the use of laxatives and enemas with no satisfactory results. The barium enema showed dolichosigmoid with an “omega” arrangement (Figure 3) and the intestinal transit revealed retained markers in the sigmoid colon for up to seven days. The entire redundant sigmoid, (approximately 40 cm) was resected by laparoscopy, performing a primary anastomosis. As a finding during the procedure, a Meckel diverticulum was found and removed. Her postoperative period was uneventful, and was discharged at the fourth postoperative day. Currently, the patient passes stool daily without laxatives, and she has no longer presented migraine symptoms or abdominal pain due to this problem.



Figure 3: Barium enema showing dolichosigmoid with omega arrangement and fecal retention in the sigmoid colon.

Case 3

A 27-year-old female patient who referred chronic constipation since childhood, aggravated in the previous 3 years, presenting intense abdominal pain and distension episodes that required visits to the emergency room on several occasions. On one of these, she was diagnosed with sigmoid volvulus, which resolved conservatively. These episodes increased in frequency and severity, with periods of more than a week without evacuating. She had been treated with high doses of laxatives that caused crampy pain without successful results. The barium enema showed dolichosigmoid in a “W” shape (Figure 4). Laparoscopic resection of approximately 50 cm of dolichocolon was

performed with primary anastomosis. Surgical findings included a very loose mesocolon and cecum. She was discharged on the fourth day. Currently, her rectum is evacuated on a regular basis without medications or abdominal pain.

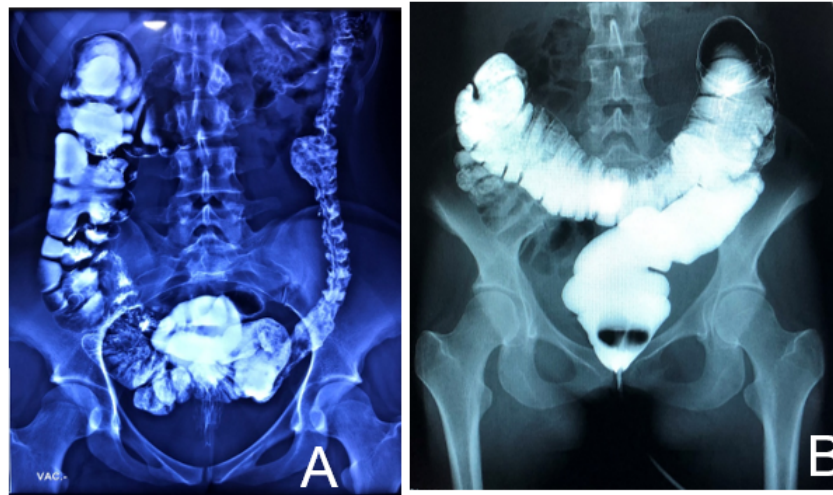


Figure 4: A) preoperative, B) postoperative barium enema after dolichocolon laparoscopic resection.

Case 4

A 46-year-old female with a significant history of chronic constipation which did not improve despite multiple treatments based on medication and laxatives. On several occasions she had to go to the emergency room due to intestinal pseudo-obstruction. On one of these occasions, she presented with acute sigmoid volvulus (Figure 5). Laparoscopy was then performed and a large sigmoid volvulus was reduced and fixed to the abdominal wall. She continued with chronic constipation, despite traditional treatment, and due to the previous episode and abdominal discomfort, she underwent laparoscopic sigmoid colon resection and primary anastomosis. Currently the patient has a normal defecation habit without distention and pain.



Figure 5: Simple X ray showing sigmoid volvulus.

Case 5

A 19-year-old female patient who referred constipation problems since birth, worsening since she was two years old, having 4-day lapses of constipation. She was diagnosed with irritable bowel syndrome, and was treated with enemas and medications. Symptoms worsened, adding nausea, vomiting, headache and significant crises of abdominal pain. She was treated again with pain medications and laxatives. She underwent colonoscopy reiterating the diagnosis of IBD, but the endoscopist reported an unusually enlarged colon. A barium enema showed a redundant colon with dolichosigmoid and an intestinal transit time with radiopaque markers showed permanence of the markers until the eighth day of the study (Figure 6). Laparoscopic dolichosigmoid resection was performed without complications. Currently the patient can pass stool daily without the use of medications or abdominal pain.

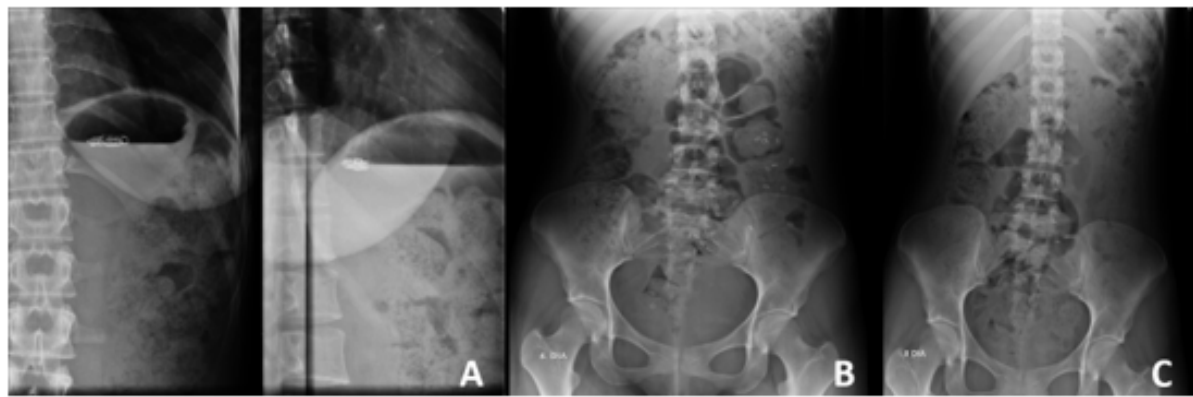


Figure 6: Intestinal transit. Radiopaque markers in the first, fourth and eighth days of the study.

Discussion

Chronic constipation is a heterogeneous condition which has many different definitions among studies. It may be simply defined as an inadequate defecation, either due to decreased frequency, increased stool consistency and/or abnormal increased defecation effort, accompanied by pain and stiffness. When it is severe, it has a substantial negative impact on the patient’s quality of life.

The prevalence varies greatly among reports, from 1% to 80%, with an average rate of 16% on a global scale. It is a huge health care burden, and causes many expenses for the community [1,2]. Although it is far more common among older people, children and younger individuals are also affected with a significant impairment of both mental and physical wellness [3].

There are many factors associated with pathologic constipation, and usually there is no unique mechanism responsible for this condition. Frequent causes mentioned are: psychological, endocrine, metabolic, enteric neuropathies or connective tissue, neurological, myopathic and anorectal disorders. Most of the time the origin is uncertain despite having carried out an extensive scrutiny and this condition is known as idiopathic, chronic or functional constipation [4].

Knowledge about colonic motility and defecation mechanisms have permitted a better understanding of this problem, its consequences and possible etiologies. The main objective is to better adjust the treatment to each particular case. Management remains a challenge

for both clinicians and patients. Better alimentary habits, stool softeners, different types of laxatives (bulk-fiber, osmotic or stimulants) alone or in combination, prokinetic agents, lifestyle changes and biofeed-back therapy are commonly used to treat severe constipation [5,6]. There are also mechanical causes of constipation; anomalies of the colon such as strictures, megacolon rectocele, intestinal pseudo-obstruction, diverticular disease or tumors which need surgical correction [4].

Dolichocolon (from the Greek “δολιχος” dolichos meaning “long”) has been defined as an anatomical variation or defect of the large intestine, consisting of an abnormally greater length than usual, sometimes with a tortuous arrangement [7]. The unusually lengthened large bowel is folded up upon itself, forming extra loops, tortuosities and kinks. The redundancy may involve the entire colon or it may be limited to certain areas. The distal colon, especially the region of the sigmoid is the most commonly affected [8].

Redundancies of the colon with loop formation have been observed by radiologists for a long time. In 1914 Lardennois and Auborg [8] named this anatomic variant as “dolichocolon”, if the colon had sigmoid loop rising over the line between the iliac crests, and a transverse colon below the same line, and extra loops at the flexures. But this condition had also been described from autopsies almost a hundred years earlier by Monterossi [9]. With the advent of barium enema, recognition of these anomalies was made easier.

The symptoms recognized for this condition are pronounced constipation, meteorism and discomfort or abdominal pain, associated with vague abdominal symptoms such as indigestion, loss of weight, and insomnia [10]. All of the cases of this report presented not only chronic constipation, but also complained of other related symptoms.

Chiray [11] in 1931, recognized dolichocolon as a finding in patients with severe constipation. He described the association with difficult defecation, abdominal distention and pain. The condition may be congenital since its incidence has been documented between 1.9% to 28.5% in children. As other authors have found, we concur that it is much more frequent in women than in man (all the patients in this report were females).

Some authors, such as Treves [12] and Bryant [13] assumed that excessive colon growth was associated with dietary factors. Investigational studies have shown that the large intestine in mice, as it fills with fecal matter, shows substantial changes in length, and that stretching of the longitudinal muscles results in slow colonic transit [8].

Dolichocolon occurs mainly in the left colon and less frequently in the transverse, being the sigmoid the most frequent type reported in 15% of healthy children, without any pathological implication [8]. But the clinical significance is related to the symptoms, and not only to the length or the redundant colon loops. This anatomical arrangement favors the chronification of constipation, which can last between 2 to 7 or more days. Usually, the symptoms begin in childhood, with a history of many days without passing stool, abnormal discomfort, sometimes also accompanied by dizziness, headaches, loss of appetite or weight loss, which may be alarming, as the symptoms of patients reported here. Also, a history of excessive studies to investigate the etiology of the problem, and long-term failed treatments were a common factor.

Facts about dolichocolon function are scarce in the literature. Atony and poor muscle tone in the redundant area, and alterations of elastic properties of smooth muscle may be due to a deficiency of the innervation in the intestinal segment that promotes constipation and encopresis. Kantor [14] believes that dysfunction is directly proportional to the length of the intestine, while Metcalf, *et al.* [15] states that the transit time is directly proportional to the length and volume of the colon. When considering postoperative care for these patients, atony must be taken into account. The colon will probably need at least two days to clear its content before the surgery to be safely done. On the other hand resection does not restore motility immediately. In case one of this series, fecal retention was a crucial factor in provoking a small anastomotic leak. Thus, we suggest careful dietary progression and bulk or osmotic laxatives in the early postoperative period.

The most effective way to evaluate severe constipation seems to be a combination of image and physiology studies. The barium enema and intestinal transit time with markers are simple and useful exams, specially if dolichocolon or dolichosigmoid are suspected. The finding of redundancy and slow transit in this segment, gives good expectations for successful results after colon resection.

Dolichosigmoid may also cause volvulus due to the redundancy and mobility of the intestine and the laxity of its fixations, as one of the cases presented in this series. In some patients there is a history of recurring crisis of severe pain associated with constipation and abdominal distension, which takes the patient to the emergency room. Some of these may be incomplete volvulus, suggested by simple radiology studies. Frequently these episodes have spontaneous resolution like the episode of one of the patients reported here. This clinical condition has been addressed by some as “chronic volvulus” [7].

Surgical intervention may be an option if medical treatment has failed in severe constipated patients and has been reported in literature previously. In 1908, Lane [16] reported a series of 39 cases in which colectomies achieved excellent results in patients with severe constipation. Later, Roland [17] in Africa described 42 cases, of chronic constipation, 56% with intestinal sub-occlusion episodes, in which segmentary colectomies achieved good results.

In another study, 53 patients with dolichocolon and chronic cologenic constipation had colonic resections, 88.7% of them demonstrated good and satisfactory results. These authors suggest active surgical tactics for these patients [18].

Hughes [19] over a period of 30 years, reported 27 patients who underwent partial or complete colectomy and anastomosis for constipation, and divided cases into four groups: (a) functional constipation, (b) adult megacolon, (c) megasigmoid and (d) persistent Hirschsprung’s disease. In patients who had megasigmoid, resection of the segment gave good results. Davis, *et al.* and Hollender [20,21] have also reported good results after resection of the dolichocolon even in children. The colon segment considered for resection should be individualized. Patients with colonic inertia have been reported to be candidates for total colectomy, but as we have seen in our cases of dolichosigmoid, segmental resection of the sigmoid could be enough to achieve good results not only for chronic constipation but also for the resolution of associated symptoms. Laparoscopic surgery for the treatment of this problem is scarcely described in literature, but it is gaining ground. It has the advantage of less morbidity, fast recovery, less pain and good cosmetic results.

It is our belief that laparoscopic resection of sigmoid for patients with dolichosigmoid, severe chronic constipation and slow colonic transit time, is a safe procedure with excellent functional results. It has the advantage of a faster postoperative recovery with a short hospital stay.

Conclusion

Many patients complain of constipation, but few require surgery. Dolichocolon is an entity that must be taken into account in patients with chronic constipation who are refractory to conventional medical treatment. Surgical resection of the sigmoid as an alternative for the resolution of this problem, especially in patients with dolichosigmoid, is an excellent option for these cases even more when laparoscopy is used.

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