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A new type of defecation disorder due to insufficient fixation of the rectum to the sacrum is improved by rectopexy: A report of three cases

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ABSTRACT

Chronic constipation is the most common clinical disorder in children. However, some cases of constipation do not meet the criteria defined by Rome III. We encountered such defecation disorders in three patients who presented with constipation as a chief complaint along with excessive strain and bleeding hemorrhoids during defecation despite normal stools. Contrast enema revealed that the rectum was separated from the sacrum in each patient, which may have been caused by insufficient fixation of the rectum. Conservative treatment with laxatives and suppositories failed to achieve improvement. Therefore, all underwent a laparoscopic rectopexy. After surgery, each patient was able to evacuate without strain and the hemorrhoids disappeared. Insufficient fixation of the rectum should be considered as a potential cause of defecation disorders. Rectopexy is effective for this type of defecation disorder.

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Chronic constipation is the most common clinical disorder in children. The estimated prevalence rate is approximately 10%, of which 3%–5% are in pediatric outpatients [1]. In most children with constipation, the cause is unknown, leading to a diagnosis of functional or idiopathic constipation [2]. Specific pathologic causes, such as Hirschsprung's disease or anorectal malformation, are rarely identified.

The definition of chronic constipation according to the Rome III criteria is accepted worldwide. In brief, chronic constipation is diagnosed when the patient presents with two or more of the following six symptoms: (1) two or fewer defecations per week, (2) at least one episode of fecal incontinence per week, (3) history of excessive stool retention, (4) history of painful or hard bowel movements, (5) presence of a large fecal mass in the rectum, and (6) history of large diameter stools that may obstruct the toilet [3,4].

However, "constipation" as the chief complaint in some patients does not meet these criteria. Among such cases, we identified a new type of defecation disorder, which presents specific symptoms and radiological findings and can be corrected by surgery. Here we report our experience with three such cases.

1. Case reports

1.1. Case 1

A 3-year-old boy visited our outpatient clinic to treat constipation, which began at the age of 2 years. However, after listening of his medical history in detail, we recognized that he did not have a usual type of chronic constipation, as defined by the Rome III criteria.

He defecated almost every day and his stools were not hard (No. 4 according to the Bristol stool scale). However, he experienced difficulty during defecation for approximately 1 year, which was characterized by excessive straining during defecation with painful, bleeding, grade 2 internal hemorrhoids. There were no signs of an anorectal anomaly or a sacral dimple and did not experience difficulty in urination. An anorectal manometry was examined, and no abnormal result was observed with him. A fluoroscopic contrast enema revealed no caliber change; however, the rectum was separated from the sacrum in the lateral view (Fig. 1a). This finding is not observed in the usual types of constipation (Fig. 1b). We interpreted this finding as insufficient fixation of the rectum. We recognized that this finding was not normal but failed to distinguish that the finding was pathologic at that time.

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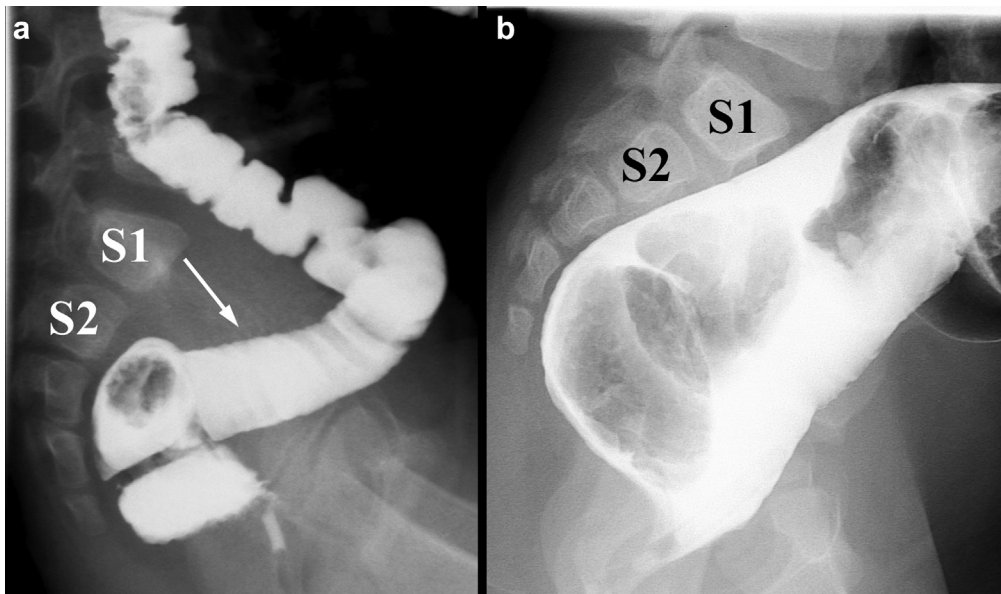


Fig. 1. Contrast enema of case 1 (a) and a patient with usual type of constipation (b) S1 and S2 indicate the first and the second sacrum, respectively. a) The white arrow indicates that the rectum is separated from the sacrum, reflecting insufficient fixation of the rectum. b) The rectum is located along the curve of the sacrum.

After consultation, we decided on administering magnesia as a stool softener and using suppositories to aid during defecation. He was instructed not to strain during defecation. We continued conservative treatment for 3 years. Although his stool became softer (No. 5 or 6 according to the Bristol stool scale), his symptoms did not improve.

Therefore, laparoscopy was performed when he was 6 years old. As preoperative management, he was ordered to abstain from food for 24 h before operation and receive a mechanical preparation with magnesium citrate. The laparoscopy revealed redundancy of the rectum, which was folded in the pelvic cavity (Fig. 2a). The rectum had excessive mesorectum and was not fixed to the sacrum. Insufficient fixation was confirmed by fluoroscopic contrast enema. Therefore, we decided to perform rectopexy. A peritoneal window was created on the mesorectum from the sacral promontory to the peritoneal reflection without division of the mesenteric blood vessels. The rectum was pulled tautly upward with a mild degree of tension and was sutured to the periosteum of the sacral promontory at two points with non-absorbable sutures (Fig. 2b).

After surgery, he was able to defecate without strain and his hemorrhoids disappeared though he continued having magnesia. The fixation was found to be secure by fluoroscopic contrast enema examination 6 months after surgery (Fig. 3). A certain amount of stool was located in the rectum. This finding seemed to be better for defecation than before surgery because the stool in the rectum would be evacuated when straining.

1.2. Cases 2 and 3

Two boys aged 4 and 5 years, respectively, also presented with a chief complaint of excessive straining during defecation with painful, bleeding, grade 2 internal hemorrhoids. The rectums of both boys were also separated from the sacrum in the lateral view. After 10 and 19 months of conservative treatment, respectively, both underwent laparoscopic rectopexy.

The surgical treatment was effective and both were able to defecate without strain and their hemorrhoids disappeared. The

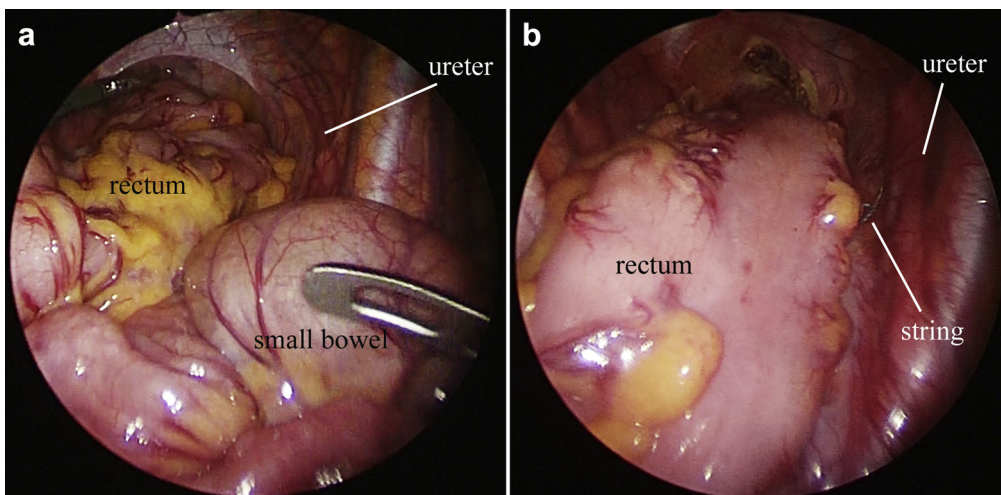


Fig. 2. Intraoperative photographs taken before (a) and after (b) rectopexy. a) The redundant rectum was folded in the pelvic cavity. b) The rectum was pulled tautly upward and straightened.



Fig. 3. Postoperative contrast enema of case 1. The rectum is located along the curve of the sacrum.

fixation was found to be secure by fluoroscopic contrast enema examination 6 months after surgery.

2. Discussion

We described a new type of defecation disorder, which had unique symptoms of excessive strain with bleeding hemorrhoids during defecation despite normal stools. However, in these cases, the patients were able to defecate normal stools, although defecation was difficult. They consulted our outpatient clinic with “constipation” as chief complaint. However, their “constipation” should be considered not constipation but defecation disorder because the symptoms did not meet the criteria of constipation.

Fluoroscopic examination by contrast enema showed that the rectum of each patient had separated from the sacrum in the lateral view. Laparoscopy revealed that the separated rectum reflected insufficient fixation of the rectum. We hypothesized this insufficient fixation was the cause of the defecation disorders.

Laparoscopic rectopexy improved defecation, which confirmed our hypothesis. This report is the first to describe the pathogenesis of this defecation disorder.

The symptoms of each of the three cases were similar to those of solitary rectal ulcer syndrome (SRUS), which is an uncommon, chronic, and benign rectal disorder. Patients with SRUS often complain of prolonged excessive straining or abnormal defecation and sometimes present with rectal bleeding [5]. Rectal prolapse (RP) is a potential cause of SRUS [5]. Furthermore, symptoms of SRUS are closely related to those of RP [6].

Patients with PR or SRUS should be managed conservatively at first because most cases respond within 1 year. However, if the symptom persists indefinitely, surgical intervention may be required [5,7]. Rectopexy is widely accepted as an effective therapeutic choice for RP [8,9] and SRUS [5]. Therefore, we treated our cases according to the accepted treatment modalities for these diseases. We decided on surgical intervention because the symptoms of these patients did not improve after conservative treatment.

3. Conclusion

Insufficient fixation of the rectum should be considered as a potential cause of defecation disorders. Rectopexy is an effective surgery for defecation disorders due to insufficient fixation.

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