

# Rectal prolapse and mental health disorders in pediatric patients

## Abstract

**Background:** Pediatric rectal prolapse (RP) is a rare but burdensome disease. We sought to describe our RP patient population's mental behavioral health disorder (MBHD) history and compare their outcomes.

**Methods:** In a single center retrospective cohort study, all patients who underwent surgical evaluation of RP from 2016-2021 were identified and reviewed.

**Results:** Of 56 patients identified, 30 met inclusion criteria, 16 (53.3%) had a documented MBHD. Those with MBHD were significantly older (14.4 vs 9.4 years,  $p=0.027$ ), and had higher rates of constipation (15, 94% vs 19, 17%,  $p=0.05$ ). They had significantly longer duration of medical management before intervention than those without MBHD (216 vs 57 days,  $p=0.046$ ). Ultimately, more patients with MBHD underwent operative intervention for rectal prolapse (8, 50% vs 2, 14.2%,  $p=0.019$ ).

**Conclusions:** Pediatric patients with rectal prolapse have a high rate of MBHD and despite longer intervals of medical management, often require operative intervention.

**Keywords:** rectal prolapse, neurologic disorders, cystic fibrosis, mental and behavioral health disorders

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**Abbreviations:** MBHD, mental and behavioral health disorders; DSM-5, diagnostic and statistical manual of mental disorders; SSRIs, selective serotonin reuptake inhibitors; RP, rectal prolapse.

## Introduction

Rectal prolapse, or protrusion of part or all of the rectum outside the anus, typically occurs in children less than four years old, but is also seen in older children and adolescents.<sup>1,2</sup> Incidence varies worldwide and the etiology of rectal prolapse in children can be multifactorial, and sometimes idiopathic. Environmental risk factors for rectal prolapse include parasitic disease, malnutrition, and diarrheal illness. Prolapse can also occur in the setting of other conditions such as idiopathic chronic constipation, cystic fibrosis, neurologic disorders (e.g. myelomeningocele, tethered cord, spinal trauma), Hirschsprung's disease, Ehlers-Danlos syndrome, pertussis, rectal polyps, bladder exstrophy, and after surgical repair of anorectal anomaly.<sup>3-5,9</sup> Although the majority of children resolve their prolapse spontaneously or with medical management of constipation, the burden of disease is high for those with refractory disease.<sup>5,8</sup>

Most patients undergo a trial of medical management of constipation, though there is no consensus regarding the types or duration of medical interventions. Surgical intervention is considered in patients with longstanding symptoms, increases in frequency of symptoms, rectal pain, bleeding, ulceration, and prolapse that requires frequent manual reductions or is difficult to reduce.<sup>3</sup> Children, who experience more episodes of rectal prolapse, especially if manual reduction is required, is less likely to respond to non-operative management.<sup>9</sup> Rates of prolapse are especially high in children and adults with intellectual disabilities.<sup>6,7</sup> and behavioral problems are reported more frequently in children who fail medical management.<sup>10,11</sup> However, there is a paucity of data regarding mental and behavioral health disorders (MBHD) in children with rectal prolapse with respect to the types of disorders, associated medications, and recurrence rates after surgical intervention. In this study we sought to describe our

rectal prolapse patient population's mental health history and their associated outcomes in order to better optimize their treatment.

## Methods

We performed a single-center, retrospective review of electronic medical records for all patients who underwent evaluation of rectal prolapse in our surgical clinic from 2016-2021.

Children under three years old were excluded due to limitations in formal mental and behavioral health diagnoses in this age group. All patients with anorectal malformations, spinal cord anomalies, or sacral-coccygeal teratoma were excluded given the alternative pathophysiology of rectal prolapse.

Patient charts were reviewed for past medical and MBHD history, timing and duration of rectal prolapse treatment, need for surgical intervention, and subsequent recurrence. Patients were not considered to have a MBHD if there was no documentation of a formal mental or behavioral health diagnosis meeting Diagnostic and Statistical Manual of Mental Disorders (DSM-5) diagnostic criteria and assessed by a medical provider, even if symptoms provided by the patients or parents suggested a MBHD. Learning disabilities and developmental delay are not classified as MBHD. Mental health medication use at time of rectal prolapse evaluation was also recorded. Due to limitation in standardized documentation, enrollment in behavioral therapy or counseling was not included in this analysis. Data was analyzed with Student t-tests for continuous variables, Chi square analysis and Fishers Exact test were used for categorical variables. Significance was set at  $p$ -value  $<0.05$ .

## Results

**Prevalence of mental/behavioral health disorders and treatment:** Of the 56 patients identified 30 met inclusion criteria. Patients ranged in age from 3.1 to years old at time of presentation, with a median age of 12.5 years old. 16 patients (53.3%) had a documented MBHD (Figure 1A). 13 of the 16 patients (81.2%) with MBHD had multiple

MBHD diagnoses. Of the patients with MBHD, anxiety was the most common, seen in 11 patients (67%). This was followed by attention deficit hyperactivity disorder (7, 44%), autism (5, 31%), obsessive compulsive disorder (4, 25%), depression (2, 12.5%), and anorexia/avoidant restrictive food disorder (2, 12.5%). Notably, five patients had developmental delay and two had speech delay, though these are not classified as MBHD. Of patients MBHD, 8 (50%) were taking associated medications (Figure 1B). SSRIs/SNRIs (7, 43.8%), followed by stimulants (3, 18.8%) and clonidine (3, 18.8%), were the most common treatments.

Prevalence of MBHD Diagnoses (N=16)

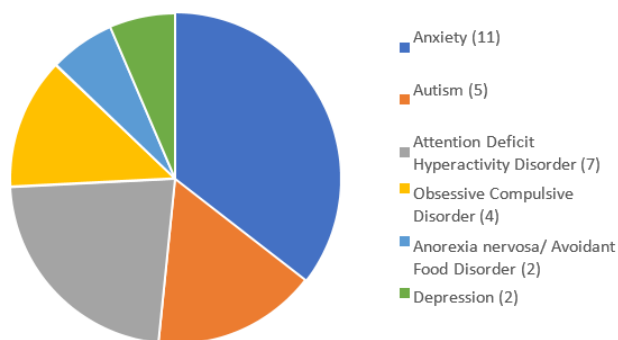


Figure 1A Prevalence of mental health disorders.

Mental Health Medication Use (N=8)

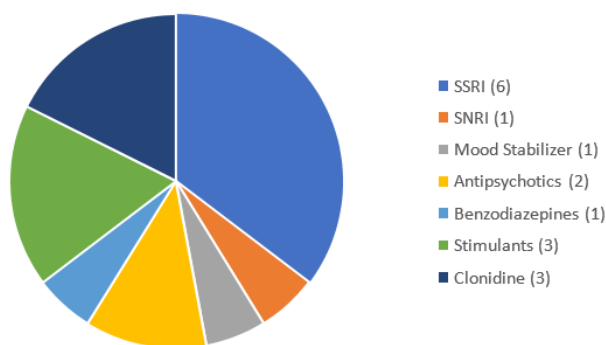


Figure 1B Mental Health Medication use.

**Patient Characteristics and Symptoms at Presentation:** There was no difference in gender between the MBHD and non-MBHD groups ( $\chi^2(1, N = 30) = 0.201, p = 0.654$ ). Those with MBHD were significantly older at presentation than those without (14.4 vs 9.377 years,  $p = 0.027$ ) (Table 1). No patients had a history of predisposing conditions such as cystic fibrosis or inflammatory bowel disease. Duration of symptoms was similar between the two groups (18.69 months v 21.87 months,  $p = 0.355$ ).

Patients with MBHD had a higher rate of constipation (15, 94%) compared to those without MBHD (19, 17%)  $\chi^2(1, N = 30) = 2.7, p = 0.05$  (Table 2). Reports of diarrhea and pain were similar between groups. Patients with MBHD had significantly higher rates of incontinence (6, 37.5%) than those without (1, 7.1%);  $\chi^2(1, N = 30) = 3.85, p = 0.025$ . Patients with MBHD had significantly more emergency room visits for evaluation of rectal prolapse than patients without MBHD (5.75 vs 1.25;  $p = 0.028$ ).

**Management of Rectal Prolapse:** Median duration of follow up from initial surgical evaluation was 2.78 years. Though both groups had similar rates of medical management (14, 100% vs 15, 94%;  $p = 1.0$ ), patients with MBHD had a longer duration of medical management

before surgical intervention (216 days vs 57 days,  $p = 0.046$ ) (Table 3). Patients with MBHD were also more likely to undergo pelvic floor physiotherapy (7, 44% vs 2, 14%;  $\chi^2(1, N = 30) = 3.087, p = 0.039$ ).

Table 1 Patient Characteristics

	Patients with out MBHD	Patients with MBHD	Total Cohort	P value
Average age at Presentation (years)	9.38	14.24	11.81	0.027
History of Prematurity (<36 weeks gestation)	2	4	6	0.464
Cystic Fibrosis	0	0	0	1.0
Chronic Diarrhea	2	0	2	0.209
Epilepsy	0	2	2	0.209
Inflammatory Bowel Disease	0	0	0	1.0
Milk Protein Allergy	1	1	2	0.923
Average number of ER visits for RP	1.20	5.75	3.48	0.028

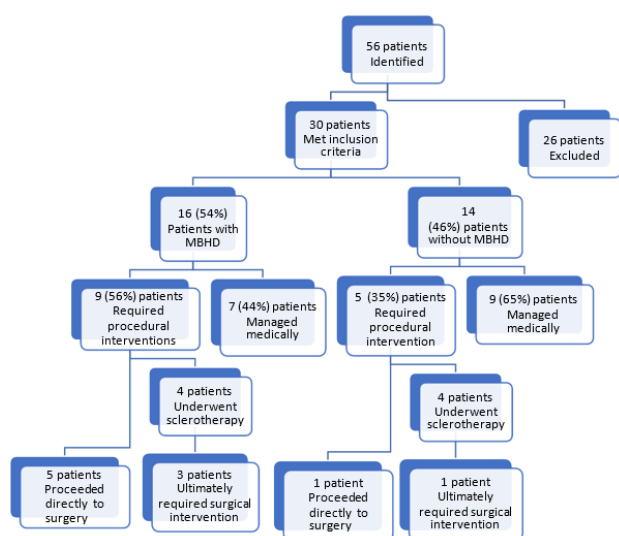
Table 2 Symptoms at presentation

	Patients with out MBHD	Patients with MBHD	Total Cohort	P value
Average duration of Prolapse Symptoms at time of surgical eval (months)	18.69	21.87	20.28	0.355
Average number of bowel movements per day	1.5	2	1.75	0.1835
Constipation	10	15	25	0.050
Diarrhea	2	5	7	0.137
Incontinence	1	6	7	0.0249
Pain	4	9	13	0.733
Irreducible Prolapse	0	0	0	1.0
Fecal Impaction	0	0	0	1.0

Table 3 Management of Rectal Prolapse

	Patients with out MBHD	Patients with MBHD	Total Cohort	P value
Medical constipation management	14	15	29	1.0
Pelvic floor / biofeedback therapy	2	7	9	0.039
Any surgical intervention	5	9	14	0.096
Average time to surgical intervention (days)	57	216.13	136.5625	0.046
Sclerotherapy	4	4	8	1.0
Repeat Sclerotherapy	2	2	4	1.0
Operative Intervention (rectopexy or resection)	2	8	10	0.019
Recurrence	0	3	3	0.301

Four patients in each group underwent sclerotherapy, of which two from each group required repeat sclerotherapy (Figure 2). Though sclerotherapy rates were similar between the groups, 3 (75%) patients in the MBHD group who underwent sclerotherapy ultimately required surgery, compared to 1 (25%) in the group without MBHD ( $\chi^2(1, N = 8) = 2.0, p = 0.157$ ).



**Figure 2** Flow diagrams of included patients with subsequent treatment by group.

Ultimately, more patients with MBHD underwent operative intervention for rectal prolapse (8, 50%) than those without MBHD (2, 14.2%),  $X^2(1, N = 30) = 4.28, p = 0.019$ . Both patients without MBHD who had surgery underwent perineal rectosigmoidectomy (Altemeier procedure). In the patients with MBHD, 5 transanal mucosal resections, and 3 rectopexies were performed. Median duration of follow up for those who underwent surgery was 2.66 years. Three (37.5%) patients with MBHD who underwent operative intervention had recurrent rectal prolapse, compared to zero recurrences in the group without MBHD (0, 3 (37.5%)  $X^2(1, N = 10) = 1.07, p = 0.30$ ). Of these recurrences, 2 had transanal mucosal resections and 1 had a rectopexy.

## Discussion

In this retrospective cohort study, we found that children with MBHD were significantly older, had a longer duration of medical management prior to procedural intervention, and ultimately had higher operative intervention rates despite similar initial rates of sclerotherapy. A strong correlation between MBHD and rectal prolapse has been previously described<sup>10,11</sup> and is confirmed in our study, with 53.3% of patients having a documented MBHD. Nevertheless, there remains a scarcity of data on MBHD with respect to rectal prolapse. Notably, studies in the past have incorrectly classified symptoms of MBHD as diagnoses in and of themselves (i.e. rage attacks, suicide attempts). Our study utilized standardized DSM diagnoses when categorizing patients with MBHD and described the associated psychiatric medical treatments in this population.<sup>12</sup>

Many medications used to treat MBHD are well known to be constipating and may affect the medical management of rectal prolapse in this population.<sup>13</sup> Selective serotonin reuptake inhibitors (SSRIs), most commonly prescribed in our population, can for example cause colonic dysmotility and constipation.<sup>14</sup> Obtaining a thorough history regarding gastrointestinal side effects of these necessary psychiatric medications is essential in designing a comprehensive management plan for children with rectal prolapse.

Beyond the possible association of MBHD treatment and constipation in relation to rectal prolapse, there may be also being difference in toileting behaviors that could contribute to this disease. Patients with MBHD may be more likely to experience a range of

difficulties in toileting due to possible inattention, anxiety or sensory abnormalities. These may lead to, or exacerbate constipation and contribute to the pathophysiology of rectal prolapse in these patients. Detailed discussion regarding past and current toileting behaviors, with subsequent counseling to optimize the process, is necessary when assessing and treating a patient with rectal prolapse.

Our study demonstrates that patients with MBHD are older at presentation, have an increased time to intervention, and undergo operative interventions at a higher rate for rectal prolapse than those without MBHD. Interestingly, patients with MBHD were also more likely to have pelvic floor physiotherapy in our study. It is not clear whether this disparity reflects differences in the patients' disease or unconscious bias that may influence the decision making of involved clinicians, as providers are known to have implicit bias towards patients with MBHD.<sup>15</sup> Future studies should examine the effect of algorithms that standardize duration of medical treatment of constipation, criteria for referral for pelvic floor physiotherapy, and have clear indications for surgical intervention to combat the influence of bias. It is also possible that patients with rectal prolapse and concurrent MBHD diagnoses may be more hesitant to undergo surgical intervention, possibly due to heightened anxiety regarding the procedure or increased difficulties with recovery and disruption of routines in the setting of depression or behavioral abnormalities. More research is needed regarding the compounding factors of MBHD in this setting, but these patients may need additional support to assist in coping with the stress of procedural interventions.

Previous studies have shown that a multidisciplinary approach and behavioral treatments is a highly effective intervention for chronic idiopathic constipation and encopresis, yet similar studies have not been conducted in patients with rectal prolapse. These studies have also noted that family dynamics may affect the efficacy of treatment.<sup>16</sup> With a high prevalence of MBHD in patients with rectal prolapse, comprehensive treatment is essential for long term success, requiring a multidisciplinary approach that optimizes medical, surgical and behavioral treatment. This team should include specialists in gastroenterology, surgery, psychology, psychiatry, pelvic floor physical therapy, and nutrition. Additionally, the treatment of rectal prolapse in children with MBHD must expand beyond the patient alone and include their family and support system to maximize success of non-surgical interventions.

Our study is limited by the small number of patients included and its cross-sectional nature. It is also limited by the difficulties in diagnosing and documenting MBHD in children, meaning some patients with MBHD may not have been included. Our data suggest a higher recurrence rate after surgical intervention in children with MBHD, but only 2 patients without MBHD had a surgical procedure. There was also a notable difference in the type of surgical procedures the two groups underwent which limits ability to compare the recurrence rates between these small groups. Given the rarity of persistent rectal prolapse in the pediatric population and the lack of available data, recurrence rates and low frequency complications should be studied prospectively in a multi-institutional fashion.

## Conclusion

Pediatric patients with rectal prolapse have a high rate of MBHD and associated medication use. Despite longer intervals of medical management, they are more likely to have refractory disease and require operative intervention. Prospective study of comprehensive treatment protocols that include medical, surgical, psychological, and physiotherapeutic approaches should be performed to help guide optimal therapy for children with rectal prolapse.

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## Conflicts of interest

Author declares no conflict of interest regarding the publication of this article.

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