



## Treatment of rectal prolapse



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### ABSTRACT

Numerous approaches have been described for the treatment of rectal prolapse. The two basic categories of operation are transabdominal and perineal. The former type tend to be more durable with lower recurrence rates but at the expense of higher morbidity. The latter group tends to be safer but associated with higher recurrence rates and less functional recovery. More recently, the abdominal approaches have been modified to be laparoscopically accomplished in most cases. Different methods and indications for rectal prolapse management will be described and discussed based in literature evidences.

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### Introduction

Rectal prolapse is defined as a protrusion of the rectal wall through the anal canal. Complete or full-thickness rectal prolapse is also known as procidentia.<sup>1</sup> Three types of rectal prolapse are recognized

- (1) complete (or full thickness) rectal prolapse—protrusion of all the layers of rectal wall through the anal verge,
- (2) mucosal (or partial-thickness) rectal prolapse—protrusion of only the mucosal layer of the rectum through the anal verge, and
- (3) internal rectal prolapse—intussusception of the rectum into the anal canal without protrusion beyond the anal verge.<sup>2,3</sup>

In this chapter, the term rectal prolapse should be understood as referring to complete rectal prolapse (protrusion of all the layers of rectal wall through the anal verge).

Historically, complete rectal prolapse has been reported since the ancient civilizations.<sup>4</sup> Ebers Papyrus first described rectal prolapse in 1500 B.C.<sup>5</sup> Zur<sup>6</sup> popularized the perineal amputation in 1888, and Lockhart-Mummery<sup>7</sup> performed perineal procedure for the treatment of rectal prolapse. Moschowitz<sup>8</sup> suggested the abdominal repair of the prolapse. The estimated incidence of rectal prolapse is 4 per 1000 individuals. It is more commonly seen in elderly females after the fifth decade. The female to male ratio ranges from 6 to 10:1.<sup>9,10</sup>

### Etiology

The anatomical basis for rectal prolapse is a deficient pelvic floor regarding muscles, ligaments, fascia, and nerves, throughout the rectum projects.<sup>3,11–13</sup> The underlying pathophysiology is complex, and the etiology is multifactorial. Chronic constipation, female gender, multiple pregnancies, previous pelvic surgery, pelvic floor disorders, and neurologic disorders are predisposing factors for rectal prolapse.

The exact way why the prolapse takes place is not completely understood, thus, it is based on theories. Parks support the theory of repeated stretching of the pelvic floor muscles. The consequent injury caused to the pudendal nerves and can be a part of the cause of rectal prolapse. Some surgeons detected a frequent association between neurogenic fecal incontinence and rectal prolapse, supporting this theory.<sup>12,13</sup> However, the improvement to fecal incontinence after surgery and the normal innervation found at electromyography in patients with rectal prolapse challenge this theory.

Lax lateral ligaments combined with an atonic condition of the muscles of the pelvic floor and the anal canal could be the main cause of rectal prolapse.<sup>11,12</sup> In addition, the lack of normal fixation of the rectum, with a mobile mesorectum and a laxity of the lateral ligaments corroborate to rectal prolapse.<sup>12,14,15</sup>

Independently of which is the correct theory associated anatomic findings include a deep cul-de-sac (rectouterine or rectovesical) pouch, weak lateral rectal attachments, laxity of the levator ani, and weakness of the internal and external anal sphincter, which may be associated with pudendal nerve dysfunction. All of the procedures described to date try to correct some or all these abnormalities.

Reducible protrusion associated with mucous discharge sign of initial prolapse. Prolapse usually develops after to bowel

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movements, straining, and increased intra-abdominal pressure. In those cases associated with permanent exposed and injured prolapse bleeding may be present.

## Assessment

### *Clinical assessment and evaluation of associated symptoms*

The pelvic floor is a unique complex anatomic structure composed by muscles, ligaments, fascia, and nerves interconnected to each other and the organs are distributed in compartments according to the positions and functions. So, factors that cause damage in the pelvic support may result in multivisceral pelvic organ prolapse. The weakness in the anterior compartment can present cystocele formation, and middle (apical) compartment can present as vaginal prolapse or enterocele, and a weakness in the posterior compartment can present as full-thickness rectal prolapse, rectal intussusception or rectocele.

The assessment of patients with rectal prolapse is based on a complete history and the investigation the involvement of the all pelvic floor compartment including assessment of the severity and frequency of fecal incontinence and constipation/obstructed defecation symptoms as well as urge urinary incontinence and pelvic organ prolapse symptoms using scores systems and quality of life to quantify the dysfunctions before and after treatment. Additionally, the clinical pelvic examination by a colon and rectal surgeon that assess the anorectal and perineal body examination, and urogynecologist using the pelvic organ prolapse quantification (POP-Q).<sup>16</sup> It is also a search for particular risk factors should be considered as well as previous pelvic surgeries.

Patients complain of the discomfort of prolapsing tissue both internally and externally, associated drainage of mucus or blood once the rectum remains exposed and therefore becomes traumatized. Prolapse may theoretically start due to bowel movements, straining, and increased intra-abdominal pressure. Patients may experience loss of stool control because of sphincter muscles and pudendal nerves stretching or constipation/obstructed defecation symptoms. Other pelvic floor disorders may be present in 8–27% of patients with rectal prolapse.<sup>17</sup> Studies have been demonstrated associated urinary incontinence in 20–58%<sup>17,18</sup> and significant vaginal vault prolapse in 15–48%.<sup>18,19</sup> Up to 75% patients with rectal prolapse experience fecal incontinence and 25–50% have significant constipation.<sup>20–23</sup> Obstructed defecation symptoms associated with prolapse may result from intussuscepting bowel in the rectum creating a blockage that is exacerbated with straining, pelvic floor dyssynergia, and colonic dysmotility.<sup>24</sup>

The prolapse may be easily visible on anorectal examination, especially after straining maneuver at the examine table or on the toilet. It is necessary differentiate full-thickness rectal prolapse that is recognized by the folds are always concentric whereas rectal mucosa develops radial invaginations. Digital examination may reveal decreased anal sphincter tone or a patulous anus and it is necessary for excluded rectal/pelvic tumor.

### *Additional tests*

Evaluation of the colon with colonoscopy is recommended to exclude coexisting conditions, such as polyps, cancer, and diverticular disease as well as colonoscopy should be performed based on existing guidelines of appropriate screening for colorectal cancer.

Dynamic evaluation including defecography, dynamic ultrasound with different modalities (transperineal, transrectal, and ecodefecography), and magnetic resonance image (MRI) are useful in those cases in which the prolapse cannot be reproduced during the physical examination. Also in the cases of complete rectal

prolapse to reveal associated functional abnormalities such as entero-sigmoidocele, paradoxical contraction of puborectal muscles (anismus), cystocele, and vaginal vault prolapse, such tests are useful. The advantage of dynamic images makes it possible to visualize the anatomical structures of the anal canal and pelvic floor. The anorectal and transvaginal ultrasound are important methods in patients with previous history of vaginal delivery and anorectal and/or low colorectal surgery to identify the anal sphincter or/and levator ani muscles defects. Previous studies have been demonstrated levator ani damage in 15–55% after vaginal delivery with MRI and ultrasound as well as pelvic organ prolapse and ballooning hiatal dimensions.<sup>25–27</sup>

Colonic transit study should be considered in patients with associated constipation to rule out colonic inertia. Studies have suggested that slow colonic transit time is the primary factor associated with constipation in patients with rectal prolapse. It has also been postulated that an increased sigmoid transit is a significant factor associated with fecal incontinence in patients with rectal prolapse.<sup>19</sup> Symptoms of obstructive defecation usually require the use of cindefecography for investigation, despite its limited impact in decision making for the management of rectal prolapse.

Anorectal manometry and pudendal nerve tests are useful to measure and quantify the anorectal function and correlate with anorectal and transvaginal ultrasound findings, clinical examination, and the intensity of multiples symptoms.

## Management of rectal prolapse

Medical management has a limited role in the treatment of rectal prolapse in patients with poor medical conditions. Surgical repair is normally the basis of therapy for complete rectal prolapse. Surgical options are broadly divided into abdominal and perineal approaches. Techniques options are also classified as anal encircling, fixation, resection, or combined (resection and fixation).

Abdominal approaches have been associated with lower recurrence rates despite higher postoperative complication. This approach has been recommended for younger and healthier patients. The following popular abdominal procedures are usually considered:

- (1) rectopexy (posterior rectopexy): the rectum is mobilized and fixated to the sacrum (posterior) or to Cooper ligaments (anterior), either by suturing or by tacking; in addition, a piece of mesh (fixated by various means) is often used to help create fibrosis so as to prevent recurrence;
- (2) resection rectopexy: involves resection of the sigmoid colon and creation of a descending colorectal anastomosis, as well as rectal mobilization and suture rectopexy, also having the possibility of a mesh insertion; and
- (3) anterior rectopexy: recently described and involves anterior rectal dissection with the purpose of nerve preservation associated with sacral fixation with or without mesh.

Perineal procedures have traditionally been reserved for older patients with multiple comorbid conditions due less associated morbidity, despite a higher described recurrence. The most common perineal procedures are as follows:

- (1) perineal rectosigmoidectomy (Altemeier procedure): transanal resection of the rectum performed by incising the prolapsed rectum circumferentially,
- (2) Delorme procedure: excision of rectal prolapsed mucosa associated to muscular rectopexy for rectal suspension, and
- (3) Thiersch procedure: anal encirclement with a mesh or metal material to suspend the prolapsed rectum.

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