

## Perineal rectosigmoidectomy for gangrenous rectal prolapse

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### Abstract

Incarceration rarely complicates the chronically progressive form of the full thickness rectal prolapse. Even more rarely, it becomes strangulated, necessitating emergency surgery. We describe an extremely rare case of incarcerated acute rectal prolapse, without a relevant previous history or symptoms of predisposing pathology. The patient underwent emergency perineal proctosigmoidectomy, the Altemeier operation, combined with diverting loop sigmoid colostomy. The postoperative course was quite uneventful with an excellent final result after colostomy closure. The successful treatment of this patient illustrates the value of the Altemeier procedure in the difficult and unusual case scenario of bowel incarceration.

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**Key words:** Anorectal disease; Rectal prolapse; Incarceration; Perineal rectosigmoidectomy; Altemeier operation

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### INTRODUCTION

Rectal prolapse (RP) is a rare anorectal disease with underestimated incidence, affecting both children and adults. Although known and described as early as 1500 BC<sup>[1]</sup>, there is still uncertainty concerning its clinical definition, course and pathophysiology which justifies the numerous therapeutic modalities and operations proposed.

Three different clinical entities may coexist or be combined and inclusively called RP: the mucosal prolapse (partial or pseudoprolapse), the internal prolapse (rectal intussusception) and the full thickness RP (complete or true)<sup>[2]</sup>. The mucosal prolapse concerns the protrusion of the rectal mucosa usually as a result of a lesion such as hemorrhoids or polyps. Internal intussusception may be a full thickness or a partial wall disorder but the prolapsed tissue does not pass beyond the anal canal. Lastly, full thickness RP is a complete protrusion of the rectum (and/or the sigmoid) with its entire wall through the anus. Its course is usually progressive; initially it is reducible spontaneously, later manually and is finally irreducible. In any stage it may be complicated by incarceration and strangulation.

We describe a case of a young male patient presenting with acute, incarcerated large RP who was successfully managed by perineal proctosigmoidectomy (Altemeier procedure) combined with diverting sigmoid loop colostomy.

## CASE REPORT

A previously fit, healthy and normal weight (body mass index, 27.8) 37-year-old Albanian male presented to our emergency department with a large, incarcerated RP resulting from intense straining 10 h before admission (Figure 1). Another episode of RP with easy manual reduction at the age of 10 years was vaguely mentioned in the patient's history. Neither chronic constipation, nor a relevant family history was reported. On clinical examination, the patient had a normal temperature and was hemodynamically stable and normal. Abdominal examination revealed mild tenderness in the lower abdomen while the laboratory investigation showed mild leucocytosis with left shift. As the bowel was not obviously necrotic, conservative measures were applied in order to permit repositioning of the bowel. Unfortunately, sedation, placing of the patient in the Trendelenburg position and topical application of warm compresses and 20% mannitol, all were unsuccessful and the patient was taken to the operating room after 4 h of ineffective efforts.

Under general anesthesia, a dilute epinephrine solution was injected 2–3 cm proximal to the dentate line and the rectal wall was incised across its full thickness at this level. The vessels of the mesorectum and mesosigmoid were carefully ligated, the prolapsed rectosigmoid was resected and a hand-sewn interrupted coloanal anastomosis in 2 layers was created. In addition, a loop sigmoid colostomy for a protective and fixing purpose was constructed. The patient's postoperative course was quite uneventful and the patient was discharged on the 10th postoperative day. Histological stained sections revealed severe ischemic alterations. The vessels of the bowel wall were found either dilated or thrombosed while the mucosa had multiple regions of necrosis and ulceration.

Six months later, the patient was readmitted for colostomy closure after physiologic examination with anal manometry, which was normal. However, a preoperative colonoscopy showed intense inflammatory changes at the anastomotic suture line, due to incompletely absorbed suture material plus a remnant rectal colitis. Short term conservative treatment with enemas and suppositories of mesalamine was successfully applied for a 20-d period. Both revision colonoscopy and barium enema, performed 1 mo later, were normal and the colostomy was closed without further complications. Ever since, and for an 8 mo period, the patient has been well.

## DISCUSSION

There is still some debate about the exact pathophysiologic mechanism of RP. The prevailing theories are those of sliding herniation and progressive internal intussusception. Chronic or, less frequently, acute abdominal straining is present in most cases<sup>[3]</sup>. In addition, both pathologies coexist with different anatomical and physiological features (patulous anus, incontinence) and common predisposing factors (straining, constipation)<sup>[4]</sup>. The most usual form of RP is the chronic course of



**Figure 1** Patient with a large, incarcerated rectal prolapse in the operating room.

the disorder which permits selective use of investigative tools like sigmoidoscopy, videoproctography or, more rarely, physiologic studies such as anal manometry. It is evident that all diagnostic efforts are practically omitted in the rare scenario of incarcerated or strangulated RP, where urgent surgical treatment becomes a priority<sup>[5]</sup>.

A wide spectrum of operative procedures are available mainly for elective cases<sup>[6]</sup>. They are categorized as resective, fixative or a combination of both in order to achieve 2 goals: anatomical repositioning of the bowel and improvement of the function of the anorectal complex. The approach may be either abdominal or perineal. The selection of the appropriate procedure primarily depends on the patient's clinical data adjusted to the operator's experience and personal preference<sup>[7]</sup>.

Abdominal approaches are performed in patients fit enough to tolerate laparotomy as these seem to result in lower recurrence rates<sup>[8]</sup>, perhaps with the exception of young men who cannot afford the increased risk of impotence and infertility from an abdominal operation<sup>[9]</sup>. In elective cases, rectopexy, using fixing material (mesh, sutures, clips), is the most popular operation with good results concerning recurrence<sup>[10,11]</sup>. The fixation to the presacral fascia can be done either anteriorly (Ripstein) or posteriorly. However, when constipation dominates symptomatology, usually with coexistence of a redundant sigmoid, an anterior resection alone or in combination with rectopexy is usually preferred<sup>[12]</sup>. In the modern era of surgery, the above operations can be accomplished laparoscopically with minimal morbidity and mortality<sup>[13]</sup>.

When the prolapse cannot be manually reduced, a few techniques may help the bowel return to its anatomic position. Sedation, Trendelenburg position of the patient and topical application of salt and sucrose may decrease bowel edema and enable reduction<sup>[9,14]</sup>. Even the use of an elastic compression wrap has been practiced<sup>[15]</sup>. However, when the prolapsed bowel is incarcerated or strangulated and cannot return to its anatomic position by the measures described above, the situation becomes a surgical emergency, as was the case with our patient. Jeopardizing the bowel's viability should be avoided as gangrene significantly increases morbidity and mortality and thus, an urgent surgical intervention is

always indicated<sup>[16,17]</sup>. The operation of choice is perineal proctosigmoidectomy with or without colostomy<sup>[16]</sup>. Ramanujam *et al*<sup>[17]</sup> described 8 cases of acute incarcerated RP during a 9-year period, where perineal rectosigmoidectomy was performed. All were women over the age of 75 and 2 (25%) developed postoperative anastomotic leak with pelvic peritonitis requiring diverting colostomy.

Our male patient, with acute presentation of incarcerated RP, underwent emergency perineal resection as the only alternative to remove the ischemic bowel. Goligher states that irreducibility with gangrene remains one of the few indications for rectosigmoidectomy (perineal) at the present time<sup>[18]</sup>. Furthermore, in recent years, there has been a trend towards offering elective perineal rectosigmoidectomy in healthier younger patients especially in males<sup>[8]</sup>. The abdominal approaches carry an increased risk of impotence and infertility when comparing to the perineal ones<sup>[9]</sup>. Unfortunately, the recurrence rate after the Altemeier operation is not negligible. There have been historical reports of a recurrence rate of up to 58%<sup>[19]</sup>. More recent studies refer to much lower rates (3%-16%), which are still high when compared to the abdominal approaches<sup>[8,20]</sup>. In addition, restoration of continence following the operation is also unpredictable as it may result in increased soiling and frequency of defecation<sup>[8]</sup>. Therefore, the addition of levatorplasty to perineal rectosigmoidectomy has been suggested in order to achieve better results<sup>[8]</sup>.

A transabdominal construction of a sigmoid loop colostomy was added aiming to protect the "difficult" hand sewn anastomosis from the fecal stream. The excessive bowel edema due to incarceration made the operator consider the anastomosis unsafe. In addition, colostomy might also have a fixing function, but, on the other hand, carries various risks and complications<sup>[21]</sup>. The inflammatory changes and remnant colitis seen in this patient's colonoscopy were rather minor and they were successfully dealt with by pharmacologic means.

In conclusion, a rare case of incarcerated and strangulated RP in a young adult is described in our case report. The patient's successful treatment with perineal proctosigmoidectomy highlights the value of the Altemeier procedure in this emergency situation.

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