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Giant rectal villous adenoma: Surgical approach with rectal eversion and perianal coloanal anastomosis[☆]

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ABSTRACT

INTRODUCTION: Colorectal cancer is an important cause of death. Most cases of colon and rectal cancer arise from a preexisting adenomatous polyp. However, if colorectal polyps are very large or not accessible for endoscopic ablation, or if they cannot be removed without an increased risk of perforation, surgical procedures are required.

PRESENTATION OF CASE: The case of a patient with a giant villous adenoma of the rectum is described. The patient had diarrhea for 2 years associated with asthenia. Colonoscopy revealed a sessile lesion in the rectum measuring 14 cm in the largest diameter. Rectal eversion technique was used, resecting the lesion under direct visibility and an external coloanal anastomosis was performed. Surgery was satisfactory and the resection margins were free.

DISCUSSION: Removal of these polyps should be performed aiming to reduce the incidence of colorectal cancer, as well as to control local and systemic symptoms, such as diarrhea and fluid and electrolyte disorders, mainly in villous adenomas. Various surgical techniques are proposed, but in extensive circumferential lesions of the rectum they are difficult to apply. The rectal stump eversion technique was described by Maunsell (1892), for rectal cancer.

CONCLUSION: Eversion of the rectal stump and external coloanal anastomosis may be a good surgical alternative for resecting giant rectal adenomas.

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1. Introduction

Colorectal cancer (CRC) is one of the main causes of death by cancer in the world and approximately 90% of cases develop from preexisting adenomatous polyps.¹ The prevalence of adenomatous polyps of the colon and rectum was reported in approximately 25% of the population aged over 50 years.² Therefore, polypectomy of colorectal adenomas leads to a significant reduction in the incidence of CRC.³

The choice of an adequate approach to remove polyps is a challenge and should be individualized, considering safety, applicability, and efficacy of the modality applied. Endoscopic polypectomy is the gold standard for removing colon polyps. Nevertheless, 2–10% of the lesions are considered inaccessible for endoscopic removal due to technical limitations.⁴ Certain types of polyps, such as those that are large or sessile, can be associated with an increased risk of colon perforation or bleeding.⁵ The so-

called laterally spreading adenomas are benign tumors that can be quite large or even affect the whole circumference of the colonic segment.⁶ In such situation, it is mandatory to perform surgery.

When the size or location limits the endoscopic resection of colorectal polyps, different resection techniques can be used. Transanal surgical approach may be utilized to remove adenomatous polyps in the lower portion of the rectum, but adenomas in its mid or upper parts are difficult to resect using transanal excision instruments.⁷ Open or laparoscopically assisted colorectal resection is the procedure of choice for lesions not eligible for endoscopic resection. However, anterior resection of the rectum by abdominal approach may, on some occasions, raise doubts as to the resection margin and be difficult to be performed in obese patients with a narrow pelvis and in voluminous low rectal tumors.

With the purpose of optimizing partial or complete rectal resection, the surgical method of rectal stump eversion can be used,^{8–10} which affords the surgeon a direct view of the rectal mucosa and anal canal, allowing safe margins for resection of tumors along the pectinate line that would not be easily resected by abdominal approach. This technique also enables lowering the colon by means of perineal anastomosis without sectioning or manipulating the colon inside the abdomen.

We present the case of a patient with a giant villous circumferential adenoma of the rectum in whom resection of the rectum was performed by rectal eversion technique, due to the dimensions of the tumor and exiguous distal margins for anastomosis.

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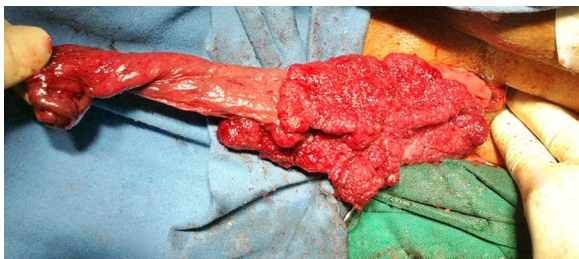


Fig. 1. Everted rectal stump showing a large villous tumor with distal margin along the pectineal line.

2. Case report

A white, 72-year-old man, former drinker and former smoker, presented with chronic obstructive pulmonary disease. The patient was referred to the digestive tract department with a complaint of bloody mucus diarrhea that initiated two years before and was associated with asthenia and weight loss of 7 kg in one year.

Upon digital rectal examination, he presented with a soft vegetating lesion, circumferentially covering the lower and middle parts of the rectum, starting at 4 cm from the anal verge, friable and with no signs of ulceration.

Initial laboratory tests revealed severe hypokalemia with no other abnormalities. Colonoscopy showed a voluminous sessile lesion circumferentially involving the rectum, distant 4 cm from the anal verge, and 15-cm long. Biopsies were performed and the pathologic diagnosis was villous adenoma with low grade intraepithelial neoplasm (mild dysplasia).

Abdominal computed tomography showed parietal thickening of the rectum with no other significant alterations.

The patient was submitted to median transverse infraumbilical laparotomy with ample anterior release of the rectum, until the plane of the levator ani muscles, and release of the descending colon until the splenic angle. Posteriorly, rectal eversion was performed, for distal section under direct visualization. An extensive circumferential lesion was noted, measuring approximately 14 cm in its longest diameter (Fig. 1). Then, the rectum was sectioned with a distal margin of 2.5 cm, along the pectinate line. The proximal colon was lowered through the anal canal. Next, the lowered colon was attached to the preserved rectal segment, and the external (perianal) coloanal anastomosis was made in two layers – one in the seromuscular plane (silk 3.0, separate stitches), and another in the full plane with polyglactin 3.0 in continuous suture (Fig. 2). Lastly, endoanal anastomosis reduction was done, along with the preparation of a protective loop transversostomy. The patient progressed satisfactorily in the first five days after the procedure, eliminating flatus and feces through colostomy. Upon digital rectal examination presented no changes in anastomosis with mucus eliminated and anal sphincter with preserved tonus. In the sixth postoperative day, presented respiratory distress and hypoxemia that required

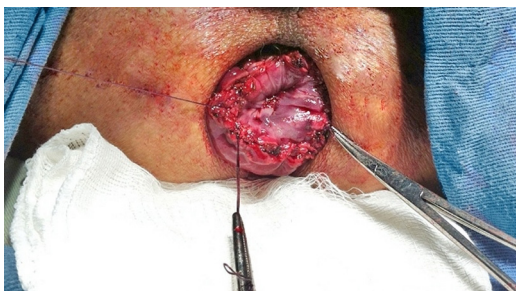


Fig. 2. External coloanal anastomosis with two planes of absorbable suture.

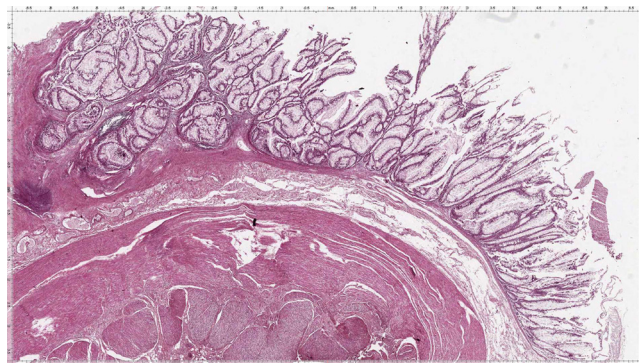


Fig. 3. Histopathological examination confirmed diagnosis of villous adenoma with low-grade atypia (mild dysplasia) - hematoxylin- and eosin-stained.

mechanical ventilation and progressed to death in the second post-operative week due to severe pneumonia. The histopathological diagnosis of the surgical specimen confirmed the diagnosis of villous adenoma with mild dysplasia and free surgical margins on microscopy (Fig. 3).

3. Discussion

The risk of developing invasive colorectal carcinoma from adenomas has been known for a long time and affords a rationale for excising such benign lesions.¹¹

The majority of colorectal polyps identified by colonoscopy is small and offers no difficulty for endoscopic resection.^{12,13} Nonetheless, in situations such as the one presented in this case, endoscopic resection becomes impossible. This form of presentation of rectal villous adenomas may require surgical treatment for removal.

An important fact is that the giant villous adenomas may excrete large quantities of mucus and potassium, which can produce mucus diarrhea and electrolytic alterations.¹⁴ This fact was made evident in the patient of this article, who presented with symptomatic hypokalemia with asthenia. Other symptoms of rectal adenomas are bleeding, prolapse, and sensation of rectal fullness.

Villous rectal tumors may reach a large size, and look like a “rug” involving the entire rectum, without degenerating into malignant disease.¹⁵

In fact of a rectal tumor with villous aspect, the examiner ought to perform a thorough examination that should also include medical history, detailed physical examination, and colonoscopy with biopsy of the lesion. The endorectal ultrasound (USG) may help determine the presence of rectal wall invasion (tumor with malignant degeneration) and the degree of wall involvement.

The greatest challenge in managing large villous rectal tumors is those of the circumferential type. These lesions may start close to the dentate line and extend to the mid or upper portions of the rectum as a rug involving the whole mucous surface of the rectum.

Endoscopic resection of large villous tumor planes is a challenge and poses an increased risk of perforation of the rectal wall. If the perforation occurs above the peritoneal reflection, there may be serious complications. Another unfavorable point of endoscopic resection in this type of lesion is the occurrence of stenosis, when the mucosa is circumferentially resected.¹⁶

For small lesions situated in the upper or mid portions of the rectum, endoscopic polypectomy with loop is effective. Transanal endoscopic microsurgery (TEM) is a minimally invasive technique and it allows the surgeon to operate on large lesions of the proximal rectum and remove the lesion *en bloc*, without having to make an abdominal incision. This technique is safe and with low complication rate, but it requires a long learning curve and it very

expensive.¹⁷ In non-circumferential distal lesions, transanal excision dissecting the submucous plane is a good therapeutic option.¹⁵

When these techniques cannot be applied because of lesion characteristics or due to technical limitations, surgical resection must be performed.

Some surgical techniques, such as Kraske and York-Mason, were used in the past to treat rectal diseases. Kraske procedure is a transsacral approach that provides wide exposure of larger proximal lesions in the posterior wall of the rectum, but it is more likely to have complications, such as wound infection and fecal fistula. The other rectal technique was developed by Aubrey York-Mason. In this procedure, the sphincters and the posterior wall of the rectum are divided. The risk of fecal incontinence is high due to sphincter dysfunction. Considering such complications, Kraske and York-Mason techniques are less frequently used than other methods for local treatment.¹⁸ Besides that, these procedures are performed to resect lesions located in the posterior rectal wall, and they are not suitable for large circumferential lesions, as described in our case report.

Laparoscopic rectal resection is safe and effective.¹⁹ However, it also requires a long learning curve and increases the financial costs of the procedure as a result of the material utilized.²⁰

Anterior resection of the rectum offers the advantage of completely removing the affected intestinal portion. However, in tumors that are very distal in the rectum, near the anal canal, it is difficult to obtain a satisfactory resection by abdominal approach, since the margins are very exiguous. In these cases, rectal eversion has advantages over the other techniques, since it affords the surgeon a direct view of the rectum, allowing resection with satisfactory margins, even in tumors very near the pectinate line. The concept of a low transanal colorectal anastomosis is not new and was described first by Maunsell more than a century ago for the treatment of rectal cancer, with the benefit of sparing sphincter function.⁸ In this report, the technique proved effective and seemed to be a good alternative for the approach of large adenomatous and circumferential lesions of the rectum that are difficult to resect by other routes. Dissection of the rectum to the level of the levator ani muscles and a complete release of the left colon allowed satisfactory eversion, resection with adequate margins and low coloanal anastomosis with no tension.

4. Conclusion

The rectal eversion technique with resection and external low coloanal anastomosis is a good surgical option to treat circumferential adenomatous polyps in low rectum, with extensive involvement of the colorectal wall, primarily due to easiness of the technique and low cost.

Conflict of interest

The authors declare there is no conflict of interest.

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Ethical approval

The authors inform that they obtained an informed consent from the patient and guardian.

Author contributions

Roriz-Silva, A. Andrade, and Ivankovics equally contributed to the writing of this paper and all approved the final version to be submitted.

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