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TRICK OF THE TRADE

Sequential endoscopic and surgical removal of giant rectal adenomas extending to the dentate line

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Introduction

Large tubulovillous adenomas (TVA) in the low rectum that extend to or beyond the dentate line are a rare but challenging entity. Complete endoscopic resection is often not feasible. In this situation, abdominoperineal resection with end colostomy is the classic alternative to achieve an oncologically safe resection. For benign disease however, this represents an operation with a major long-term impact on quality of life. In this report, we propose a hybrid technique using endoscopic submucosal dissection (ESD) of the lower part of the tumor in the rectum followed by low anterior resection with total mesorectal excision (LAR/TME) and primary anastomosis. This approach allowed for complete resection of large TVAs with high oncological safety in three patients.

Endoscopic and surgical technique

Patients with large adenomas of the rectum that extend to the dentate line undergo endoscopy with biopsy to exclude carcinoma, pelvic magnetic resonance imaging (MRI), computed tomography (CT) scan (chest/abdomen) as well as endorectal ultrasound before endoscopic resection.

If no malignant process is found, the therapy shown in Fig. 2 is performed. First, the lower part of the adenoma is removed endoscopically with a submucosal sleeve-shaped dissection (Figs. 1a, b, 2a), thereby clearing the lowest part of the rectum (3–6 cm above the dentate line) from any adenomatous tissue. The submucosal defect reepithelializes and is checked for complete healing after 3 weeks (Fig. 1c) prior to the LAR/TME, which will then allow complete removal of the remaining adenoma tissue (Fig. 2b).

Case 1

A 63-year-old healthy female presented with rectal bleeding. The subsequent colonoscopy revealed a giant adenoma in the lower rectum with low-grade dysplasia. The tumor extended from the sphincter muscle upwards for a distance of 15 cm. The diagnostic workup showed no signs of invasive growth and no distant metastases.

Due to the size of the tumor and its close relationship to the sphincter the above-mentioned procedure was attempted. With ESD of the most distal parts of the tumor (Fig. 1a) approximately 6 cm of the distal rectum could be cleared from tumor (Fig. 1b). Microscopic examination revealed TVA with low-grade dysplasia, without invasive carcinoma. After 6 weeks, complete healing was noted endoscopically (Fig. 1c). TME with colonic J-pouch anal anastomosis (3 cm from the anal verge) and diverting loop ileostomy was then performed. Histological examination confirmed a TVA with mostly low-grade dysplasia and a small central area with high-grade dysplasia. All margins were negative for dysplasia.

Case 2

A 64-year-old male presented with a giant TVA in the low rectum. MRI showed one area with suspicious infiltration, indicating the presence of invasive adenocarcinoma which was confirmed by endoanal sonography (uT1b, uN0). We performed an ESD of approximately 6–7 cm of the lower rectum, which did not include the site with the presumed infiltration. Approximately 8 cm of the tumor remained. Histology revealed a TVA with low-grade dysplasia and no signs of invasive carcinoma. Six weeks later TME with

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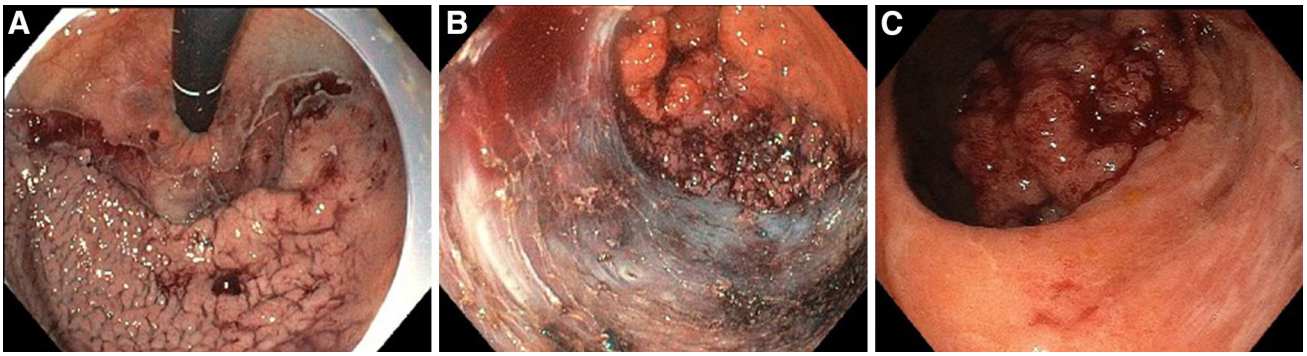

Fig. 1 Endoscopic submucosal dissection. **a** Removal of adenomatous tissue close to the dentate line. **b** Completion of endoscopic submucosal dissection (ESD) of the lower part of the rectum. **c** Endoscopic reevaluation 6 weeks after ESD with complete reepithelialisation

coloanal anastomosis was performed. Pathology confirmed a giant tubulovillous adenoma with a small focus of invasive carcinoma extending to the submucosal layer (pT1 pN0 cM0).

Case 3

A 55-year-old male presented with a giant TVA (8 cm in diameter) of the lower rectum reaching just above the dentate line. Laparoscopic low anterior rectum resection with TME and colonic-J-pouch anal anastomosis with diverting loop ileostomy was performed. Intraoperative frozen section showed a serrated adenoma and revealed tumor residuals on the distal resection margin, without high-grade dysplasia. Therefore, we chose to perform endoscopic mucosectomy of the remnant lesions during the early postoperative period.

Discussion

Giant adenomas of the low rectum represent a rare therapeutic challenge with only a few cases described in the literature. In a series of 165 patients with adenomas larger than 3 cm 27.5% were not endoscopically resectable [1]. The tumors presented in our series were much larger than 3 cm and complete endoscopic resection was technically impossible. Oncological resection may, therefore, result in abdominoperineal resection with end colostomy. In patients with premalignant lesions; however, acceptance of and satisfaction with an end colostomy is low.

To overcome the difficulty of achieving both radical resection of the tumor and sphincter preservation, we propose the hybrid approach described above consisting of ESD followed by laparoscopic TME. This procedure may be safely performed if no malignant tissue is present in the area that will be removed by ESD. If adenocarcinoma is found in the specimen resected by ESD, abdominoperineal resection is indicated.

In order to proceed with the TME, an area free of adenoma of at least 3 cm above the sphincter is required. Otherwise there is a risk that adenomatous tissue will remain.

In our three cases this strategy allowed a radical resection of the tumor with complete mesorectal lymphadenectomy while avoiding abdominoperineal resection. Especially in cases with an early T1 cancer, a radical oncological resection without the need for end colostomy could be achieved.

Alternatives to the technique described above are limited. Adenomas are usually more resistant to chemoradiation than adenocarcinomas. In one series 67% of patients that had shown complete pathological response after chemoradiation of their rectal cancer still harbored adenomas [2]. Surgical options may include intersphincteric rectal resection, where part of the internal sphincter is removed or rectal resection combined with mucosectomy. Both technique results in a very low anastomosis and are associated with poor function and high incontinence rates [3–5].

Finally, however, the shortcomings of our technique need to be noted: Invasive carcinoma may be detected in the ESD specimens. The oncological relevance of this is debatable as long as abdominoperineal resection is performed thereafter. Furthermore, recurrence of the adenoma may occur in the endoscopically cleared lowermost part of the rectum. Such a recurrence may, however, be accessible to repeat endoscopic dissection as we showed in our third patient.

In summary, the technique represents a novel option to treat giant adenomas in the low rectum, offering sphincter preservation in patients in whom abdominoperineal resection may be the only other method to achieve an oncologically safe resection.

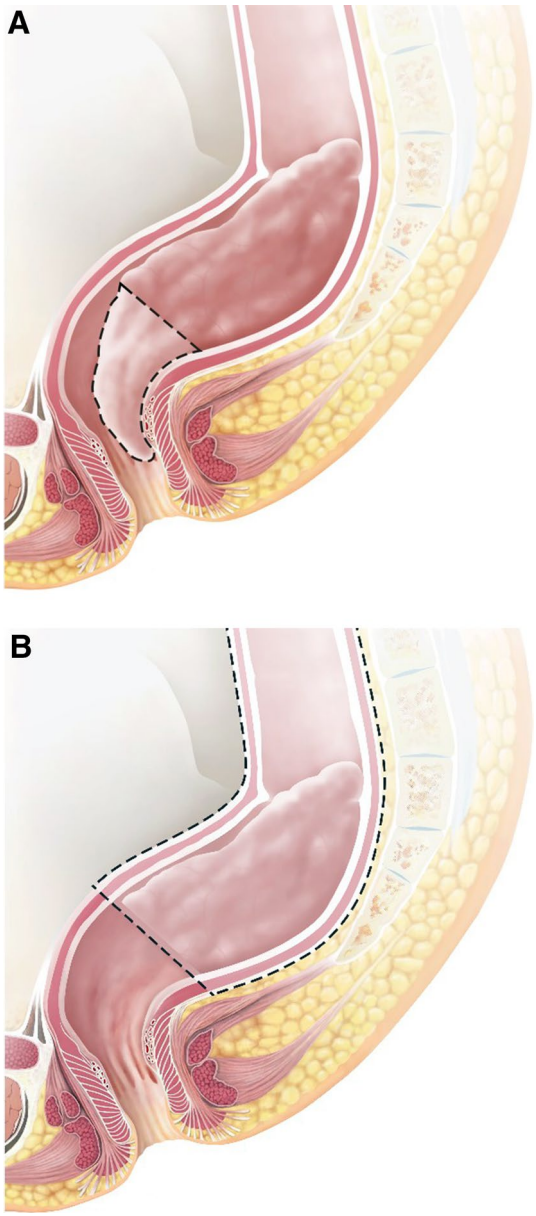

Fig. 2 Schematic endoscopic and surgical technique. **a** Removal of the lowermost part of the rectal tumor. **b** Surgical resection of the tumor with low anterior resection and total mesorectal excision (LAR/TME)

Compliance with ethical standards

Conflict of interest The authors declare that they have no conflict of interest.

Informed consent All patients gave writen informed consent.

Ethical standard The study was conducted according to Swiss ethical standards and in accordance with the Helsinki declaration and its amendments.

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