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Single Case

Endoscopic Full-Thickness Resection of Synchronous Adenocarcinomas of the Distal Rectum

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Keywords
Full-thickness resection · Colorectal cancer · Adenoma relapse

Abstract
Endoscopic full-thickness resection (EFTR) with an innovative full-thickness resection device (FTRD; Ovesco Endoscopy, Tübingen, Germany) allows a safe and complete full-thickness resection of early colorectal cancer. We present the first case of two EFTR performed at the same time to treat synchronous rectal adenocarcinomas.

Introduction

Endoscopic mucosal resection and endoscopic submucosal dissection (ESD) are the two endoscopic options currently recommended for the treatment of early colorectal cancer [1–4]. Nowadays, ESD is considered the procedure of choice, as an alternative to surgery, in case of non-lifting sign adenomas or recurrent/residual adenomas on scars [5–7]. However, ESD requires good technical expertise with a long learning curve and a longer procedure time than other endoscopic techniques. Furthermore, colon ESD could be technically challenging in case of recurrent adenomas or non-lifting lesions, because of the presence of submucosal fibrosis, with a higher rate of complications (i.e., perforations) and incomplete en bloc resection [6–9]. Recently, a new endoscopic full-thickness resection device (FTRD; Ovesco Endos-

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copy, Tübingen, Germany) has been developed to achieve a safe and complete endoscopic resection of early colorectal cancer (Fig. 1) [10, 11].

Case Report

A 55-year-old male was referred to our hospital for endoscopic resection of two synchronous lesions of the distal rectum. On endoscopy, at 5 cm above the dentate line, we observed a 20-mm local recurrent adenoma on the scar of a previous endoscopic mucosal resection of a laterally spreading tumor (pseudo-depressed type) with high-grade dysplasia and a 25-mm laterally spreading tumor (mixed type), with no lifting sign, previously biopsied with histology positive for adenocarcinoma in situ (Fig. 2). Rectal endoscopic ultrasound and magnetic resonance imaging showed no lymphatic or metastatic disease of both lesions. Because of the lesions' characteristics and histology, we used the FTRD to achieve simultaneous R0 resections during the same colonoscopy. The lateral margins of the lesions were marked respectively with argon plasma coagulation. The over-the-scope clip (OTSC) device was mounted on the tip of the colonoscope (CFQ-145I Olympus). The first target lesion was grasped and pulled into the cap by the grasping forceps. Then, another FTRD was mounted on the tip of the colonoscope (CFQ-145I Olympus) and a second endoscopic full-thickness resection (EFTR) was performed (Fig. 3). The total procedure time was less than 30 min. No complications occurred, and after 24 h the patient was discharged. Histology of the non-lifting sign lesion showed adenocarcinoma with submucosa infiltration (sm1 sec. Kikuchi), no lymphovascular invasion, and a negative muscular layer. Histology of the local recurrent adenoma on the scar revealed a carcinoma in situ. The endoscopic follow-up after 3 months showed spontaneous OTSC dislocation with normal scars, negative for adenoma relapse.

Discussion

Despite recent improvements in endoscopic therapeutic technology, safety strategies, and procedures, the endoscopic resection of recurrent adenomas with no lifting sign, scars of R1 resection, and non-lifting lesions represents a major challenge especially in Western countries. ESD is considered the best approach, as an alternative to surgery, in the management of these lesions [5–7]. However, the high risk of perforation, ever more increased in case of fibrosis, the long procedure time, and the high level of skill required in order to be performed safely are still a major barrier for the spread of colorectal ESD among Western endoscopists [8, 9]. In the last years, the possibility to obtain an EFTR has aroused great interest among the scientific community. Recently, the FTRD has been developed [10, 11]. It consists of a 23-mm cap carrying a modified 14-mm OTSC. A 13-mm monofilament snare is preloaded in the tip of the cap. The handle of the snare runs on the outer surface of the scope underneath a plastic sheath. First of all, the lesion is marked with argon plasma coagulation. Then, a FTRD grasper pulls the lesion inside the cap. Immediately thereafter, the OTSC is deployed and the tissue above the clip is resected with the snare. The device has been well investigated in experimental models and animal studies [12–14]. At the moment, there are few case series describing the feasibility and safety of the technique in the literature. Fähndrich and Sandmann [11] described EFTR using a FTRD in 17 patients. The indications were: carcinoids, incompletely resected colon cancer, recurrent adenoma of the colon, and

submucosal lesions. The technical success was 94% (16/17), and the complete resection (R0) rate was 100%. No complications were described [11]. In a recent study, 24 cases of EFTR with FTRD in the lower gastrointestinal tract were reported. Resection of the lesions was macroscopically complete and en bloc in 20/24 patients (83.3%). The mean diameter of the resection specimen was 24 mm (range, 12–40 mm). The R0 resection rate was 75.0% (18/24), and full-thickness resection was histologically confirmed in 87.5%. No perforations or major bleeding occurred during or after resection [10]. Other limited case reports described examples of incomplete resection of rectal adenocarcinoma, small neuroendocrine tumors of the lower intestine, and adenomas in difficult anatomic locations unsuitable for conventional endoscopic resection, such as diverticulum, or adenomas involving the appendiceal orifice [10, 15–17]. We describe the first case of two EFTR with FTRD performed simultaneously in the same colonoscopy to remove synchronous adenocarcinomas of the distal rectum: a carcinoma in situ relapsed on the scar of a previous mucosectomy and a non-lifting sign lesion resulted positive for adenocarcinoma with submucosa infiltration (sm1 sec. Kikuchi). We experienced that this novel technique is safe, feasible and, unlike ESD, allows obtaining full-thickness resection easily and rapidly. EFTR with FTRD is a non-time-consuming procedure and could become the best strategy for the endoscopic management of residual/local recurrent adenoma or no lifting lesions. Prospective studies are needed to further evaluate the device and technique.

Statement of Ethics

The authors complied with the ethical guidelines for authorship and publishing in the journal *Case Reports in Gastroenterology*. They declare that the subject in this case report gave informed consent and that the investigation was approved by the Ethics Committee of University Campus Bio Medico.

Disclosure Statement

The authors have no conflicts of interest or funding sources to disclose.

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Fig. 1. The full-thickness resection device (FTRD; Ovesco Endoscopy, Tübingen, Germany). **a** A modified 14-mm over-the-scope clip (OTSC) is mounted onto a cap. **b** The FTRD assembled on a colonoscope.

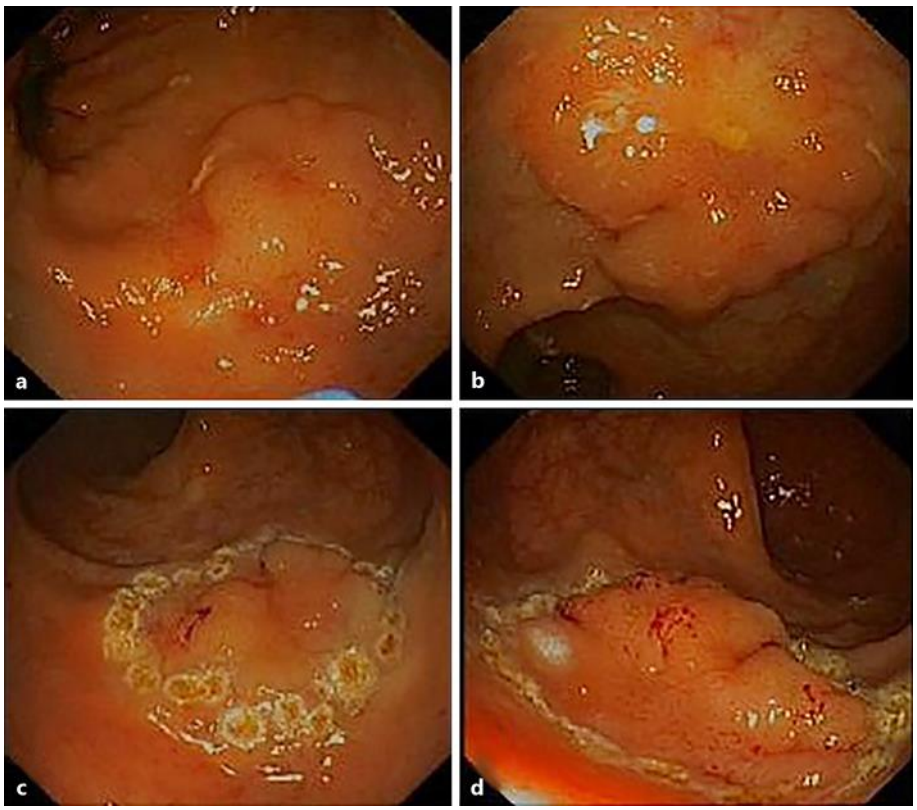

Fig. 2. Endoscopic images. **a** Local residual adenoma on the scar after incomplete endoscopic piecemeal mucosectomy in the rectum. **b** Laterally spreading tumor with no lifting sign, previously biopsied with histology positive for adenocarcinoma in situ. **c**, **d** Lesions marked with argon plasma coagulation.

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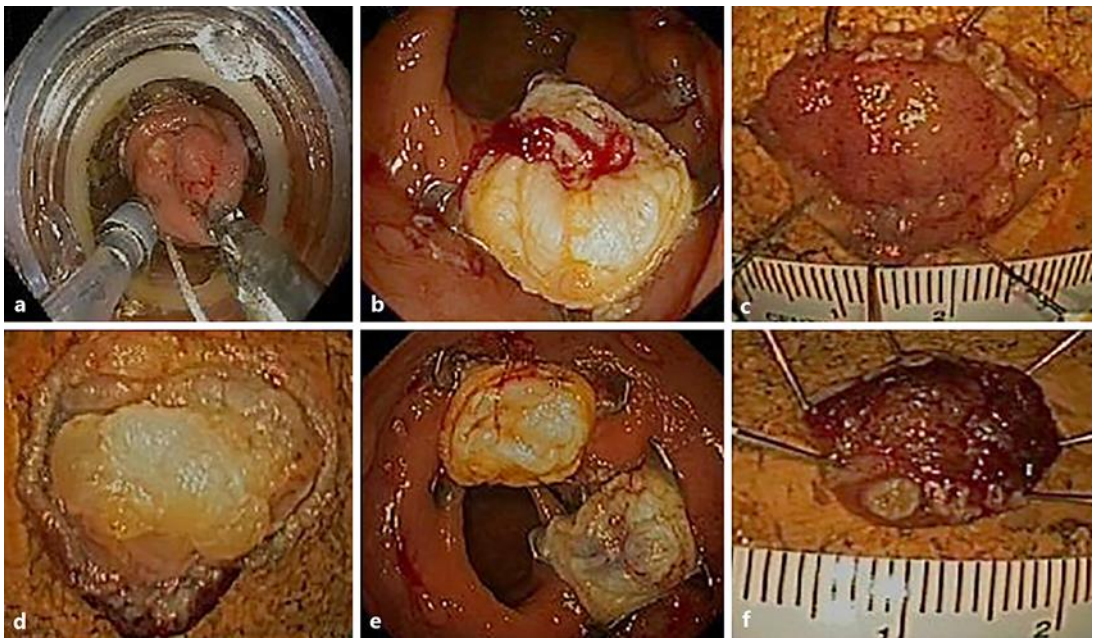

Fig. 3. Endoscopic images showing the target lesion that is grasped and pulled into the cap by the grasping forceps (**a**); the over-the-scope clip (OTSC) completely closing the full-thickness resection site (**b**); the rectal full-wall resection specimen (**c**); the serosal surface macroscopically visible on the specimen (**d**); two over-the-scope clips (OTSC) completely closing the full-thickness resection site (**e**); and the rectal full-wall resection specimen (**f**).