ENDOSCOPIC RADICAL TREATMENT IN EARLY RECTAL CANCER

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ABSTRACT

PURPOSE: Standard radical treatment for early rectal cancer includes a removal of the tumour with total mesorectal excision. There are numerous new techniques for endoscopic treatment which could shift the strategy for obtaining the postoperative results.

MATERIAL AND METHODS: We report our radical endoscopic treatment of early rectal carcinoma by endoscopic submucosal dissection (ESD). Forty-five patients with early-stage rectal cancer (carcinoma in situ, T1sm1 and T1sm2) were enrolled. All of them were staged by 3-D endorectal ultrasound. In 43 cases, the tumours were endoscopically removed. The postoperative results were analyzed and presented only. No oncological results were reported.

RESULTS: The mean lesion size was 31,0 mm (range, 19-82 mm), and the mean operating time was 86 min. (range, 48-131 min.). Forty-two lesions were resected en bloc with tumour-free margins with a successful rate of 97,33% (42/43). Three lesions were understaged or their localization in the rectum was not suitable for endoscopic treatment. The following complications were observed: perforation of the rectum in one patient (4%) treated conservatively, and major bleeding in four patients (10%) stopped by endoscopic hemostasis. Neither systematic complications, nor mortality were observed.

CONCLUSION: ESD procedure for early-stage rectal cancers is safe and effective. It has the advantage of a shorter hospital recovery. The postoperative results are significantly better in comparison of radical surgical treatment such as transanal excision. The perioperative morbidity is of different kind and the postoperative period is shorter.

Key words: *early rectal cancer, endoscopic submucosal dissection, advantages, postoperative complications*

INTRODUCTION

Rectal cancer is one of the most common gastrointestinal cancers worldwide (1). Low anterior resection and abdomino-perineal resection with total mesorectal excision are the standard treatment methods used for patients with low rectal cancer. However, rectal resection requires surgical intervention related with considerable morbidity rate (5). Low rectal cancer represents a challenge to surgeons with regard to local disease control and sphincter preservation. With conventional abdomino-perineal resection, an acceptable local control rate can be achieved; however, the permanent stoma is associated with an increased risk of sexual and/or urinary dysfunction (4).

Endoscopic resection and transanal excision are considered alternative procedures to radical surgery in patients with early rectal cancer. Analysis of surgically resected specimens reveals that in cases of early colon cancer with a depth of invasion of >1000 μm from muscular layer (SM1 or SM2), no lymphatic invasion, no vascular involvement, or without a poorly differentiated adenocarcinoma component,

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curative resection can be obtained by endoscopic treatment (3). Endoscopic submucosal dissection (ESD) is an advanced technique when compared with endoscopic mucosal resection (EMR), by which higher *en-bloc* resection and lower of tumour recurrence rates can be achieved. However, until now, there are no comparisons between transanal excision and endoscopic resection in patients with early rectal cancer available (2).

The aim of the present study was to compare the complete resection and recurrence rate of early rectal cancer after transanal excision to endoscopic resection as well as to investigate the safety and efficacy of transanal excision compared to endoscopic resection for early rectal cancer.

MATERIAL AND METHODS

Between May 2009 and December 2012, 45 patients were selected for the study. Candidates for transanal excision were chosen according to the following criteria: mobility, size (< 3,5 cm), and accessibility (usually within 16 cm of the anal verge) of the tumour.

Criteria for endoscopic resection of early rectal cancer at First Clinic of Surgery, St. Marina University Hospital of Varna, included the following: i) well or moderately differentiated adenocarcinoma on the forceps biopsy; ii) mucosal or minute submucosal (sm - submucosal layer 1 or 2) (sm1 <1000 μm or sm2, diagnosed ultrasonographically by endorectal ultrasound) type; iii) no lymphatic or vascular invasion. Whether these criteria were satisfied or not was not known before endoscopic resection. The decision to treat cancer patients with endoscopic resection was therefore based on 3-D endoreactal ultrasonography with evaluation of the submucosal layer. In 43 cases, the tumours were endoscopically removed and in 42 casec, R-0 resection wac done. After the endoscopic resection procedure, the patients were regularly re-examined by means of colonoscopy and/or abdominal computed tomography. The postoperative results were analyzed and presented only. No oncological results were reported.

ESD procedure

In 45 cases, the neoplasm was of flat or excavated type. Submucosal hypertonic saline mixed with epinephrine (1:10000) was injected to make a mucosal bleb. The lesion was incised and dissected if larger than 3 cm (ESD). The resected specimens were washed in normal saline, fixed in 8% formaldehyde solution, and embedded in paraffin.

RESULTS

Tumor and patient characteristics

There were 21 males and 22 females in the endoscopic resection group. Their mean age was 59,8±8,9 years. The mean tumour size was 1,8±1,0 cm and the mean tumour distance from the anal verge was 9,6±6,5 cm. The histological diagnosis of the tumours was that of well-differentiated adenocarcinoma in all the 43 patients. Tumour invasion depth in the endoscopic resection group was mucosa in 14 and sm1 (<1000 μm) in one patient.

Complete resection rate

Forty-five patients were included in the study. One patient was found to have positive resection margins on the endoscopic resection specimen. Therefore, the number of complete resections carried out on the 43 endoscopic patients was 42 (97,33%). Complete resection was defined as free of marginal invasion by cancer cells, i.e. R0 resection (Fig. 1 through Fig. 4 of our own material).

Fig. 1. Bulky tumour with locus of carcinoma in situ

Clinical outcomes

The median follow up period was 12,0 months (range, 6-70 months). There was one episode of delayed bleeding after the endoscopic resection that was managed successfully by endoscopic

hemoclipping. This episode of delayed bleeding did not need a transfusion and the patient was hospitalized and treated for 2 days. The mean hospital-stay was 2,7±1,1 days. During the following-up, all the 43 patients in the endoscopic resection group were free of disease recurrence.

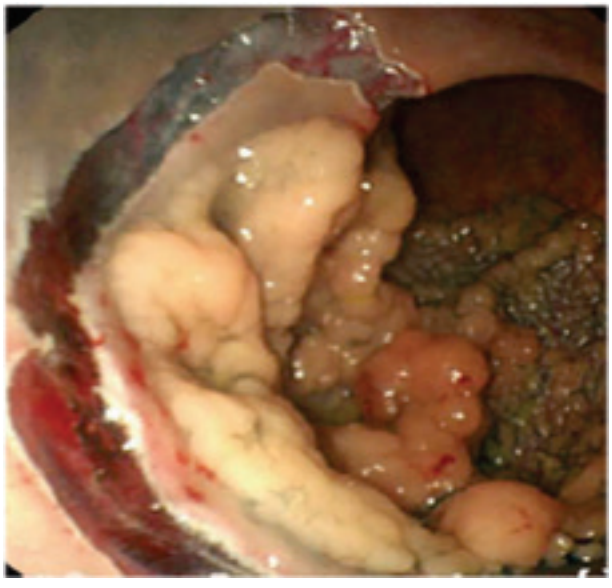

Fig. 2. Initial mucosal incision

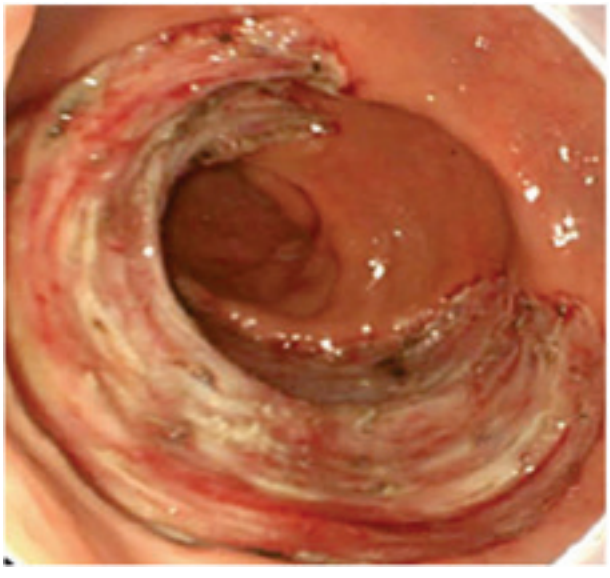

Fig. 3. Final layout after specimen removal

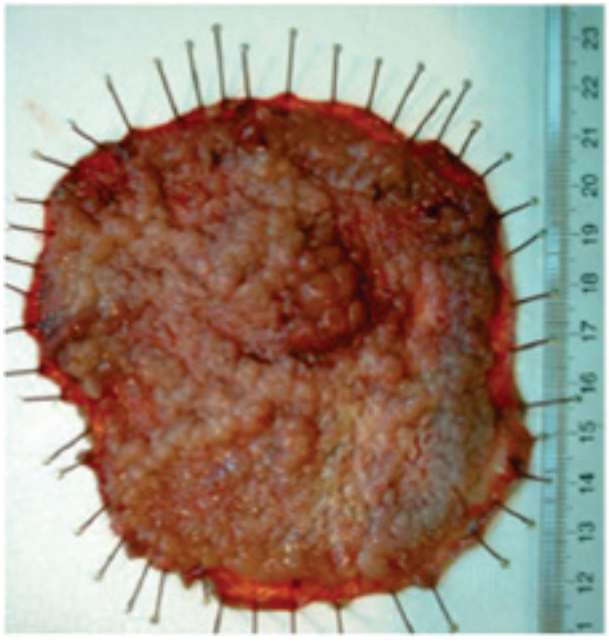

Fig. 4. The specimen

CONCLUSION

ESD procedure for early-stage rectal cancers is safe and effective. It has the advantage of a shorter hospital recovery. The postoperative results are significantly better in comparison of radical surgical treatment such as transanal excision. The perioperative morbidity is of different kind and the postoperative period is shorter.

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