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Transanal endoscopic microsurgery in rectal adenomas: Experience of six Italian centres

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Abstract

Background/aims. Transanal endoscopic microsurgery is a minimally invasive technique that allows the excision of benign and selected malignant tumours. We present a study for evaluating surgical morbidity, mortality and local recurrence rate of patients with rectal adenomas treated with transanal endoscopic microsurgery in six different Italian centres following the same protocol.

Methods. A total of 882 patients with rectal lesions (adenomas and early stage of carcinomas) underwent transanal endoscopic microsurgery in six different Surgical Departments from January 1993 to October 2004. Five hundred and ninety patients had preoperative diagnosis of adenomas but 588 patients were regularly followed up to determine treatment efficacy in terms of local recurrence rate.

Results. The study involved 588 patients, with a median age of 66 years (25th percentile–75th percentile = 58–71 years). No postoperative mortality was reported. Intraoperative complications were observed in three patients (0.5%). Minor complications occurred in 48 patients (8.2%) whereas major complications were found only in 7 patients (1.2%). Definitive histology confirmed adenomas in 530 cases (90.1%). Two patients (0.3%) were lost to follow-up so were not included in the paper. At median follow-up of 44 months (25th percentile–75th percentile = 15–74 months), 23 (4.3%) adenomas recurred and were successfully retreated by transanal endoscopic microsurgery [20 cases (87%)] and by conventional surgery [3 patients (13%)]. No further recurrences were observed at subsequent follow-up. Thirty-one (5.3%) patients died during follow-up for old age, cardiac disease, etc.

Conclusions. Transanal endoscopic microsurgery is, in our experience, an effective method for local resection of benign rectal tumours with morbidity of 11.4%, no postoperative mortality and with a percentage of local recurrence of 4.3%.

Keywords: Local excision; Rectal adenomas; Transanal endoscopic microsurgery

1. Introduction

Colorectal adenomas may evolve into carcinomas when they become larger and when they present villous histology; therefore, the main reason for excising adenomas is their malignant potential [1–3].

Since colonoscopic polypectomy is not able to remove all polyps, surgical options include local resection and segmental colectomy. Transanal endoscopic microsurgery (TEM) is a minimally invasive technique that has been employed in the excision of benign rectal tumours and in the so-called 'low-risk' T1 carcinomas [well or moderately differentiated (G1–G2) at histology without lymphvascular invasion] [4–6].

Such lesions, when located in the middle and upper part of the rectum, are inaccessible to local excision by standard transanal approach [1]. In absence of TEM, a major surgery

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is required. Traditional transanal surgical techniques (Parks, Mason, Francillon, etc.) do not have an adequate view of the operative field, are generally performed as full thickness excision without a wide ablation of the local perirectal fat and allow to remove only lesions located in the middle or low rectum. This study reviews the experience of six Italian centres using TEM for excision of rectal adenomas from January 1993 to October 2004 and evaluates surgical morbidity, mortality and local recurrence rate.

2. Patients and methods

2.1. Patients selection

Study design included patients with preoperative diagnosis of adenomas: all the lesions were located in the rectum within 20 cm from the anal verge independently of their diameter. We have enclosed patients with all classes of American Society of Anaesthesiologists (ASA) risk classification. The exclusion criteria was the preoperative diagnosis of cancer and we have not enrolled patients lost to follow-up.

All patients were accurately informed and signed a consent concerning the possible intra- and postoperative complications (bleeding, suture dehiscence, temporary gas or stool incontinence, conversion to laparotomy with colonic resection and colostomy, etc.) and the need for close postoperative follow-up as stated in our protocol. The study design was approved by the ethical committee.

2.2. Preoperative therapy staging

History, routine laboratory tests including tumour markers and accurate clinical examination were recorded for each patient in a database (Microsoft Excel, Windows XP) developed according to the same protocol for all centres.

Preoperative staging and tumour diameter were determined using the following procedures:

(1) digital examination to evaluate tumour fixation;
(2) total colonoscopy;
(3) rigid rectoscopy, mandatory in order to:
   (a) perform the macrobiopsies of the tumour area,
   (b) measure the distance of the lesion from the anal verge,
   (c) select the position of the patient on the surgical table during the TEM procedure;
(4) transanal endosonography (EUS) by a rotative probe;
(5) computed tomography (CT) scan or magnetic resonance imaging (MRI).

2.3. Patients preparation

The preoperative washout of the colon was performed the day before operation with 4 l of laxative with osmotic action [Selg–Esse 1000, Promefarm srl Milano] and short-term antibiotic prophylaxis was applied to all patients. TEM was performed under general anaesthesia in the majority of patients whereas in high-risk patients (ASA 4) spinal anaesthesia was employed.

2.4. Surgical technique and instruments

The instrumentation described by Buess and Mentges [7] and produced by Wolf Company (Tuttlingen, Germany) has been used. This consisted of a modified rectoscope 12 or 20 cm in length, with three-dimensional vision and operative channels. The lesion was preoperatively localised by rigid rectoscopy and the patient consequently positioned in supine, lateral or prone position in order to have the lesion placed in the inferior part of the operative field. The rectoscope was fixed to the operative field by a Martin's arm. A working insert was connected with sealing elements to prevent gas loss. The rectum was inflated with CO_2 and the endosurgical unit controlled the endoluminal pressure. In some cases we used a new multifunctional instrument (ERBE Company, Tubingen, Germany) that provided functions of suction, saline irrigation, coagulation and dissection.

In the majority of cases, a full-thickness excision including 1 cm minimum of normal mucosa around the lesion was performed whereas in patients in which the lesions were located in the intraperitoneal part of the rectum a mucosectomy was performed. The rectal defect was closed by an endoluminal running suture with application of a silver clip at each end of the suture to avoid an intrarectal node.

2.5. Postoperative follow-up

In the postoperative period, patients with fever, pain and relevant blood soiling underwent digital exploration and endoscopic control to confirm the presence of a suture leakage. We considered as '*minor complications*' all the complications resolved with medical therapy and only those that required an additional surgical procedure were considered as '*major complications*'.

According to the protocol, all patients were evaluated 1 month after discharge by clinical examination, digital rectal exploration and endoscopy. Subsequent follow-up visits were every 6 month for the first year and then annually.

Follow-up time ranged from the day of the TEM to October 2004.

3. Statistical analysis

Chi-square test was used to evaluate the differences among the centres in gender and histology; Kruskal–Wallis test was used to show the differences among the centres in age.

Results about continuous variables were presented as median value and the 25th percentile–75th percentile (25th p–75th p) in parenthesis.