Transanal endoscopic microsurgery in large, sessile adenomas of the rectum

A 10-year experience

S. Said, D. Stippel

1 Universitätsklinikum Charité-Berlin, Klinik und Poliklinik für Chirurgie, Schumannstrasse 20/21, 10117 Berlin, Germany
2 Department of Surgery, University of Cologne, Joseph Stelzmannstrasse 9, 50931 Cologne, Germany

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Abstract. The clinical and long-term results of 286 cases encountered from 1983 to 1993 in our Department of Surgery regarding the local excision of large, sessile rectal adenomas (>2 cm²) by the endoscopic surgical method and the influence of this selected series of adenomas on age, sex, size, grade of dysplasia, and architecture are subjects of this study. Histologically proven rectal carcinomas as well as non-neoplastic polyps were excluded from this trial.

Early postoperative complications amounted to 3.4%. The 1-year and 5-year recurrence rates ± SE of adenomas were 1.2 ± 0.7% and 7.0 ± 1.9%, respectively. Remarkably, there was no significant relationship between the histological type of the adenoma and the grade of dysplasia nor between the size and grade of dysplasia. However, there was a significant relationship between the size and histological type of the adenoma (P < 0.01).

With the endoscopic minimal-invasive system, we are able to achieve a superior rate of recurrence compared to any other local treatment as well as a more favorable operative result compared to extensive surgical procedures.

Key words: Large rectal adenomas — Transanal endoscopic microsurgery

Despite a vast amount of literature on adenomas of the colon and rectum, much confusion and little experience still exist over the pathological nature, frequency of malignancy, and adequate treatment of large, sessile adenomas of the rectum. Adenomas of the colon and rectum are now generally regarded as premalignant lesions [20, 22, 36]. Increasing attention is paid to the role of size, architecture (histological type), and grade of dysplasia of adenomas in the colorectum since these factors have been implicated in determining malignant transformation [11].

With the advent of the flexible colonoscope, the literature has focused mainly on pedunculated adenomas, which predominantly measure less than 2 cm² and which can easily be removed endoscopically [9, 24, 31]. Only a few studies (with a smaller number of patients) have evaluated the management and histological features of large, sessile adenomas of the rectum [2, 3, 33, 35]. The rarity of these adenomas means that individual surgeons, pathologists, and especially physicians of other departments are unlikely to gain wide experience on this topic. The following is a unique study of all patients encountered from 1983 to 1993 with large, sessile adenomas of the rectum, treated via a transanal microsurgical method developed and inaugurated in our Department of Surgery by Buess and colleagues. The purpose of this paper is to describe our 10-year clinical experience with transanal endoscopic removal of large, sessile adenomas, and especially to investigate for the first time the histological aspects regarding a considerable number of these particular lesions.

Patients and methods

During the period from July 1983 to December 1993, the endoscopic method was employed in the Department of Surgery at the University of Cologne on 260 patients with large adenomas. The technique of transanal endoscopic surgery and overall clinical results of patients with large adenomas, without focusing on their histological findings, have previously been published [29] and are included here. All patients referred to our Department of Surgery for transanal endoscopic surgery were residents of Cologne and the surrounding
area (2.5 million inhabitants). The present study excludes patients with familial adenomatous polyposis, all adenomas with an area of less than 2 cm², non-neoplastic polyps, and carcinomas of the rectum, which have been managed endorectally. The adenomas were all attached to the wall (no stalk or pedicle) and were mostly creeping (carpetlike) tumors or were projecting distinctly from the mucosa (Figs. 1 and 2). During the above-mentioned period only 18 rectal adenomas were treated by alternative methods (anterior resection or by the transanal route with retractors of the Parks type). These cases were excluded from the present trial. Not included in the present study are also “flat adenomas,” which appear roughly as a slightly elevated, red mucosal lesion not exceeding 1 cm in radial diameter and occasionally showing a central depression. These adenomas are reported to exhibit a different pathway than other adenomas encountered in the colon and rectum [1].

Diagnoses of large, sessile adenomas were made in all patients by digital rectal examination, by proctosigmoidoscopy, and by air-contrast barium enema. The site of the tumor was recorded as assessed during the operation. Only a few patients (less than 5% of all cases) were preoperatively examined by endoluminal ultrasound. Also, preoperative biopsy was not mandatorily performed in cases where clinically the rectal polyp did not show any malignant appearance. In these cases, total disc excision with a margin of clearance > 0.5 cm was made and the defect was then closed by a continuous suture.

The medical records, surgical pathology reports, and microscopic sections from each case were reviewed, the last by a pathologist from the University of Cologne experienced in oncology. Since dysplasia scoring is partly a subjective assessment, the pathologist was blinded to the surgeon’s plans regarding further surgery. The size of the adenoma was determined by the largest diameter as described by the pathologist. A recurrence was defined as a growth of a new adenoma at about the same site from which an adenoma had previously been endorectally removed. Accordingly, a subsequent adenoma was defined as any new polyp occurring at a site (>3 cm) distinct from that of the index polyp. Our follow-up regimen for patients with transanally excised polyps included an early (1–3 months) and a late (6–12 months) colonoscopic visualization of the polypectomy site with continued annual evaluation (air-contrast barium enema or colonoscopy and abdominal sonography).

The tabulated data were analyzed using the Statistical Package for the Social Sciences (SPSS 5.0). For univariate analysis, cross-tabulation was performed, using the Pearson chi square as a test for statistically significant inhomogeneties. A logistical regression analysis was done to identify risk factors for the incidence of severe dysplasia. The level of significance was $P < 0.05$. Where values are presented as mean ± SD, normal distribution was checked by the Kolmogorov-Smirnov test $P > 0.2$. Recurrence rates were calculated according to the Kaplan Meier method. To obtain unbiased data and maintain independence of observation in performing the chi-square tests, only data regarding the largest index adenoma were considered in those eight patients who presented with more than one adenoma. The tabulated data were analyzed in cooperation with the Department of Biostatistics (Computer & Statistic Center) at the University of Cologne.

Histological examination of adenomas

The resected specimens of the tumors were pinned to a cork board with a border of unchanged mucosa and fixed in a formaldehyde solution. From all adenomas serial sections were cut, specifically for this study, to evaluate the different histological types. The sections from each adenoma were examined, paying particular attention to both the dominant (i.e., occurring in more than two-thirds) pattern of mucosal growth as well as the degree of cellular and architectural atypia. In addition mucin and immunohistochemical examinations were used to complement the histopathological assessment.

Each adenoma was classified histologically in accordance with the classification adopted by the World Health Organization [21]. The grading of the dysplasia within the adenoma was mild, moderate, or severe. The term dysplasia was used for deviation from the normal with respect to cytology, tissue structure, and differentiation. As proposed by Morson [20] and Hermanek [11] a tumor confined to above the line of the muscularis mucosae (even in cases where the tissue changes satisfied all the cytologic criteria for adenocarcinoma) was classified as an adenoma with severe dysplasia. Thus, the expressions “carcinoma in situ” or “focal cancer” that are often equated with adenoma with severe dysplasia were avoided.

The endorectal operation method

This procedure has been described previously [29, 30]. In summary, the operation area is visualized by a rectoscope with an outside