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Transanal endoscopic microsurgery: an indispensable component of contemporary coloproctology

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Background / objective

At many surgical and gastroenterological working places still persists the problem what to do with an adhered tumour in the rectum at an unfavourable distance from the anus. This paper presents the possibilities offered by contemporary coloproctology by means of TEM (transanal endoscopic microsurgery) applied to the lesions that are hardly accessible.

Patients and methods

At the Department of Surgery of University Hospital Ostrava, the TEM method has been used since August 2002. The technique itself was implemented by *Buess* in the year 1983. His working place in Tübingen, Germany serves also as a training centre for teaching TEM. In the Czech Republic, the TEM method was used for first time in 1992. In TEM methodology the advantages of mini-invasive endoscopic medical help and the advantages of surgical treatment are combined.

Results

At the Department of Surgery of University Hospital of Ostrava in the period between 01/2003 and 12/2003 we carried out 37 operations by means of TEM. Of this number, 15 patients were operated on for benign rectum affection, 18 for malign disease, other 4 operations were twice on periproctal fistula, one operation for rectum stenosis, one introduction of a self-expandible stent. In malign rectum lesions we performed CT and endosonography preoperatively and used TEM twice for carcinoma *in situ*, 6 times for T1NXM0 lesions, 3 times for T2NXM0 lesions and 4 times for T3NXM0 lesions. These patients were then operated on transabdominally on the basis of definite histological findings. For a palliative effect we used TEM twice in patients with metastatic liver affection T3NXMl and once for a patient with T4NXMl.

Conclusions

The TEM methodology introduced in 2002 has become an inseparable and inevitable component of coloproctological operations at our department. We think the main contribution of this method consists in a safe treatment of wide benign rectum lesions, in treatment of early rectal carcinoma stages, and last but not least, the use of TEM in palliative surgery of rectum while emphasising the quality of life preservation.

Keywords: transanal endoscopic microsurgery, TEM unfavourable distance, indication, harmonic scalpel

Introduction

At many surgical and gastroenterological working places still persists the problem what to do with an adhered rectal tumour localized at an unfavourable distance from the anus. While all pedunculated polyps in the whole colon are the endoscopists' domain, patients with widely adhered tumours that cannot be removed colonoscopically are handed over into the hands of surgeons. The surgeons treating these patients used to have practically three possibilities: transanal ablation of rectum polyps (up to the distance of approx. 6–8 cm from the anus), transsacral access through the posterior rectotomy after Kraske (for the rectum lesions localized between 8 and 13 cm from the anocutaneous passage) and transabdominal access for lesions localized more orally. Other accesses mentioned in the bibliography aren't widely used [1, 2].

This paper presents the possibilities offered by contemporary coloproctology by means of TEM (transanal endoscopic microsurgery) applied to the lesions that are hardly accessible.

Patients and methods

At the Department of Surgery of University Hospital of Ostrava, the TEM method has been used since August 2002. The technique itself was implemented by Buess [3, 4] in 1983. His working place in Tübingen, Germany serves also as a training centre for TEM teaching. In Czech Republic, the TEM method was used for the first time in 1992 [5]. The TEM methodology combines the advantages of mini-invasive endoscopic medical help and of surgical approach.

At our institution, much attention is paid to the benign and malign diseases of colon and rectum [6–14]. That is why we could as one of few institutions of Czech Republic to include the TEM methodology to our spectrum of activities. We could draw on Buess' experience and closely co-operated with Smetka [15].

Results

At the Department of Surgery of University Hospital Ostrava in the period between 01/2003 and 12/2003 we carried out 37 operations by means of TEM. Of this number, 15 patients were operated on benign rectum affection, 18 on malign disease, other 4 operations were twice on periproctal fistula, one operation for rectum stenosis, one introduction of selfexpandible stent. In malign rectum lesions we performed CT and endosonography preoperativelly and used TEM twice for carcinoma *in situ*, 6 times for T1NXM0 lesions, 3 times for T2NXM0 lesions and 4 times for T3NXMO lesions. These 4 patients were then operated on transabdominally on the basis of a definite histological finding. For a palliative effect we used TEM twice in patients with metastatic liver affection T3NXMl and once for a patient with T4NXMl.

The relatively high proportion of patients with rectal carcinoma in our sample follows from several facts. First of all, Czech Republic – former Czechoslovakia – is a leader of the global chart of the incidence of colorectal carcinoma: moreover, our region (Northern Moravia) belongs to the most affected regions in Czech Republic. Another explanation of the high number of carcinoma follows from the observation specified below in the discussion, *i.e.* that a consensus was adopted in Czech Republic and in Slovakia that TEM can be used to resolve patients with T2N0M1, G1 with subsequent radiotherapy. There were three such patients in our sample; they were closely monitored at coloproctological outpatient department using rectoscopy, CT, PET, oncomarker sampling and endosonography.

However, a situation may occur when preoperative staging including Mason's criteria is inaccurately evaluated, thus resulting in underestimated TNM stage. In such cases, definite histology is the indicator for extension of the former operation or for application of some form of adjuvant therapy, as applicable (Fig.).

As to morbidity and mortality in respect of the disease in our sample, none of all the patients operated on in 2003 has died (mortality 0). Local relapse of the disease was detected in one patient in the resection area. This patient was reoperated on due to cardiac comorbidity after 6 months from the former operation, using TEM again. The patient is now under monitoring and after a one-year interval from the operation shows no symptoms of additional relapse. None of the patients was reoperated transabdominally due to relapse. It must be admitted here that 4 pa-

tients operated on using TEM with a definite T3N0M0 classification had been incorrectly examined prior to the operation with T2N0M0 staging; they were subsequently reoperated transabdominally.

As to the functional results of transanal operations, all patients are continent, with no painful defecation and without tenesmus.

Discussion

It shoud be noted here that to date neither the world nor the Czech professional bibliography have set any definite standards for TEM. Buess at the latest EAES congress in Barcelona says that he indicates the patients in stage T1N0M0 as low risk, while at the Meeting of TEM instrumentarium users in 2003 in Bzenec the Czech and Slovak surgeons adopted the consensus that also T2N0M0, G1 should be considered to be a radical operation, certainly followed by a careful dispensarisation, including PET (Positron Emission Tomography). This method, of course with regard to the age and associated diseases, is selected at our department. Still the question is the oncologists' attitude and their approach to the problems of lymphatic nodes.

Certainly the above paragraph can provoke an appropriate discussion. The creation of definite treatment standards will require longer prospective studies with a large number of patients involved.

The operation itself at our department does not differ from the methods stated in the bibliography [16]. Here I have to note that at our department we were the first in Czech Republic and according to the available bibliography one of the first in the world to use the harmonic scalpel in TEM operations [17]. The operation has become considerably accelerated by using the harmonic scalpel, with the operation field fully transparent and almost bloodless.

Conclusions

The TEM methodology, introduced in 2002 has become an inseparable and inevitable component of coloproctological operations at our department, thus having filled up the "black hole" which for many surgeons means the unfavourable distance of lesion (between 8 and 15 cm) from the anocutaneous passage. We think the main contribution of this method to consist in a safe treatment of wide rectum benign lesions, then in treatment of early rectal carcinoma stages and, last but not least, the use of TEM in palliative rectal surgery while emphasising the quality of life preservation.

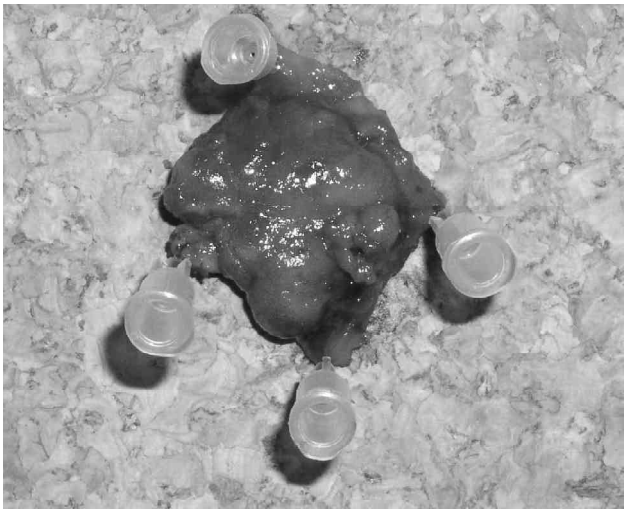

Fig. Before sending a specimen for histological investigation we fix it on a cork plate

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Invited commentary

We have read the article by Vavra P. et al with great interest. It deals with the topic of transanal endoscopic microsurgery, which has been introduced in 1983 but, unfortunately, has not yet widely spread to Eastern Europe. That is why we congratulate the authors for pioneering this technique. However, some important points of discussion arise from their report.

The most important point is that of the 37 patients from treated group only 15, i.e. less than half, were treated for benign conditions. Patients undergoing TEM for large adenoma of the rectum should be offered radical surgery in cases it proves to be T1 carcinoma with unfavorable histological criteria (poorly differentiated, lymphovascular invasion, and massive invasion of the submucosa (submucosal invasion greater than 200–300 micron from the *mucosa muscularis*) or a T2 carcinoma [1]. It is also known that the local recurrence rate after TEM for T1 cancer is 8.3% after 30 months [2], i.e. higher than after TEM resection. The consensus that authors are quoting seems less radical than usual oncological recommendations, so the patients should, to our mind, be informed about a less favourable long-term outcome.

On the other hand, the authors have shown that TEM in their hands is a very safe technique, with excellent functional results, so this is very important in patients whose operative risk is high, since they could be offered a less radical but safer surgery, even in cases of rather advanced cancer.

As TEM is proven to be an accurate, safe and relatively inexpensive technique when compared to low anterior resection (3), every report, especially from Eastern Europe, should be encouraged. Hopefully, we will soon get more reports from Lithuania, where TEM was introduced at Vilnius University Hospital "Santariškių klinikos" with good early results (V. Jotautas, personal communication).

We gladly recommend publishing this article.

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