

Transanal endoscopic microsurgery (TEM): initial experience

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ABSTRACT: Introduction: Transanal endoscopic microsurgery is a technique created in the 1980's for resections of rectal tumors. This technique is a good option for the resections of rectal tumors, with low morbidity and mortality. **Objective:** To report the initial experience of two different services in the Brazilian Northeast, Bahia and Pernambuco. **Methods:** Retrospective and descriptive data collected from January 2010 to June 2012 regarding the postoperative outcomes of patients who underwent transanal endoscopic microsurgery for rectal tumor resection in these services. **Results:** Our initial experience consisted of 52 patients, being 59.6% males; 71.2% were benign diseases, and the mean distance from the anal margin was 5.6 cm. Mean hospital stay was 1.2 days. Complications included bleeding, perforation and entry to the abdominal cavity in three cases, as well as suture dehiscence and neoplasm recurrence in an advanced adenocarcinoma. **Conclusion:** Transanal endoscopic microsurgery is an excellent technical option for the resection of rectum adenomas, which are not feasible for endoscopic resection. The procedure may be used for other indications, as the resection of anal fistulae, being an useful instrument in colorectal surgery.

Keywords: TEM; adenocarcinoma; rectal neoplasms.

RESUMO: Introdução: A microcirurgia endoscópica transanal é uma técnica minimamente invasiva criada nos anos de 1980 para ressecção local de tumores retais. Essa técnica tem se mostrado uma boa opção para as ressecções de tumores retais, com morbidade baixa e mortalidade praticamente nula. **Objetivo:** Relatar a experiência inicial de dois serviços localizados no Pernambuco e na Bahia, Nordeste do Brasil. **Métodos:** Estudo retrospectivo e descritivo realizado de janeiro de 2010 a junho de 2012 dos resultados pós-operatórios de pacientes submetidos à microcirurgia endoscópica transanal nestes dois serviços. **Resultados:** Cinquenta e dois pacientes consecutivos submetidos a tratamento cirúrgico por meio de TEM foram revisados, 59,6% dos quais eram do sexo masculino. Em 71,2% dos casos, o procedimento foi realizado para lesões benignas, e a distância média dos tumores da borda anal foi de 5,6 cm. A média do período de internação foi de 1,2 dias. Das complicações encontradas, podemos citar sangramento, perfuração e entrada na cavidade abdominal em três casos, bem como deiscência de sutura e recidiva tumoral em um adenocarcinoma avançado. **Conclusão:** A microcirurgia endoscópica transanal é uma excelente alternativa técnica para os casos de ressecção de adenomas de reto que não são possíveis por colonoscopia. O procedimento pode ser utilizado em outras indicações, como a ressecção de fístulas anais, mostrando-se um instrumental útil na cirurgia colorretal.

Palavras-chave: TEM; adenocarcinoma; neoplasias retais.

Study carried out at the Hospital Santa Izabel of Santa Casa de Misericórdia da Bahia – Salvador (BA), Brazil, and at Hospital Barão de Lucena – Recife (PE), Brazil.

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INTRODUCTION

The transanal endoscopic microsurgery (TEM) is a minimally invasive surgical technique introduced in the 1980s by Dr. Gerhard Buess, which enables the excision of rectal neoplasms with excellent exposure of the surgical field and minimum morbidity¹⁻³.

In the lower third of the rectum, the endoanal resection is among the classic surgical techniques employed to treat rectal neoplasm^{4,5}. This technique presents difficulties concerning the control of resection margins, hemostasis, full-thickness resection of the rectal wall, and also regarding the definition of the proximal margin. In the medium third, Mason's trans-sphincteric-transrectal approach has become obsolete due to its high morbidity and anal incontinence. Kraske procedure enables the access to the upper third of the rectum, but it has also been neglected due to poor results and high morbidity⁶. The alternative to these techniques for major adenomatous lesions used to be the low anterior resection or abdominoperineal resection, which present with high morbidity and mortality^{3,7}. On the other hand, TEM leads to less complications in comparison to other techniques, also reducing hospital stay^{1,8}.

TEM is performed with a rectoscope (Figure 1) measuring approximately 15 cm in length and 4 cm in diameter. This set is introduced in the anus, after dilation, and placed in the rectum according to the location and height of the lesion. With the rec-



Figure 1. Surgical instruments. TEO - Karl Storz®.

toscope, it is possible to perform dissection by using curved instruments in its distal portion due to the its broad view^{9,10}. TEM makes it possible to magnify the image of the lesion with endoscopic view, thus improving the visualization of the neoplasm. When performing pneumorectum with the equipment, it is possible to obtain a better definition of the margins of the lesion, which facilitates the use of instruments and manipulation. Therefore, it is possible to remove the whole specimen, which will then be analyzed by the pathologist.

Moore et al.⁵ demonstrated that the fragmentation of the specimen and compromised surgical margins occurred in 35 and 29% of the cases, respectively, when the conventional endoanal resection was performed. In that same study, it was observed that such values decreased to 6 and 10% with TEM, also showing reduced rates of local recurrence with this technique (24% versus 4%).

TEM has been more and more used for other procedures other than the resection of rectal tumors, as shown by Zoller et al.¹¹, who performed the resection of retrorectal tumor. Another option for using TEM is the correction of stenosis in colorectal anastomoses¹².

OBJECTIVE

The aim of this article was to demonstrate the initial experience with transanal endoscopic microsurgery performed by two teams of the Northeast of Brazil (Bahia and Pernambuco) during two years.

METHOD

All patients who underwent TEM for benign and malignant neoplasms in Salvador (Bahia) and Recife (Pernambuco), from January 2010 to June 2012, were included. These patients were retrospectively reviewed and analyzed regarding demographic data such as age, gender, distance from the anal verge and type of resected lesion. Complications related to the procedure, both during surgery and postoperatively, were evaluated.

The available long-term results of patients were also reported, such as neoplasm recurrence and appropriate treatment.

RESULTS

Fifty-two patients who underwent TEM for resection of benign and malignant lesions were included. Most procedures were performed to treat benign disease (71.2%). General characteristics of the patients included are demonstrated in Table 1. The preoperative pathology submitted to surgical resection was benign in 71.2% of the cases, and 28.8% accounted for malignant lesions. The full-thickness resection was performed in 80.8% of the procedures, and partial-thickness resection or mucosectomy, in 19.2%. The closure of the rectal wall was performed in 84.6% of the lesions, not being carried out in eight cases due to the difficulty caused by the proximity to the anal verge, aiming not to cause tissue tension, and in cases of mucosectomy of small diameter lesions.

Nine cases (17.3%) presented with intraoperative and postoperative complications, Two patients had bleeding (3.8%), solved during surgery, and three patients (5.8%) had perforation and entry into the abdominal cavity. In two of the latter we performed

Table 1. Patients characteristics.

	n=52 (100%)
Gender M/F	21/31 (40.4/59.6%)
Mean age (years)	57.2 (16–92)
Distance from anal verge (cm)	5.7 (1–15)
Resected lesion	
Benign	37 (71.2)
Malignant	15 (28.8)
Full-thickness resection	42 (80.8)
Wound closure	44 (84.6)
Time of hospital stay (days)	1.2 (1–3)

M: male; F: female.

Table 2. Complications.

Intraoperative complications	
Bleeding	2 (3.8%)
Perforation of intraperitoneal rectum	3 (5.8%)
Postoperative complications	
Dehiscence	3 (6.8%)
Perineal sepsis	1 (1.9%)

transanal primary closure. In the other one, the patient was already diverted with a colostomy and a laparoscopic approach was performed to assess the defect. Perineal sepsis was reported in one case (1.9%), and it was treated with antibiotics. Wound dehiscence was observed postoperatively in three patients (5.8%). No other complications were reported during the surgical procedure and at the initial follow-up (Table 2).

Recurrence of benign lesions was demonstrated in two cases, which were submitted to new resection by TEM. In one patient with rectal adenocarcinoma who refused undergoing radical surgery, local resection by TEM was performed, and she presented with local recurrence eight months after surgery, not accepting other treatments.

DISCUSSION

The studied population does not differ much from the literature. As to gender, it has been observed that mostly females undergo TEM, ranging from 51 to 65%^{5,8,10,13,14}. In our population, the prevalence was of 59.6% (Figure 2), and this correlation was not associated with any specific characteristic of patients who underwent this treatment. We observed that the mean age (57.1 years old) was apparently lower than of the age seen in the literature (Figure 3). Regarding the distance of the lesion from the anal verge, our mean distance was 5.7 cm, similar to the population studied by Barendse et al.¹⁰, which presented with an average of 6 cm. Gonzalez et al.¹⁴ reported a mean distance of 9.1 cm (Figure 4). The distance of the lesion to the anal verge is probably related to the rates of peritoneal invasion. However, this was not the objective of this study.

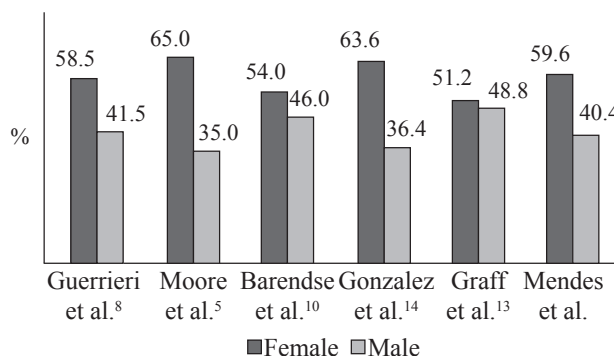


Figure 2. Distribution by gender.

TEM proved to be a safe technique with low rates of severe complications. In our study, the total complication rate was 17.3%, regardless of the etiology of the resected lesion. It is a known fact that patients with malignant neoplasm submitted to neoadjuvant chemotherapy and radiotherapy, followed by TEM, present with higher complication rates than those with no previous treatment¹⁵. The indication of TEM for malignant neoplasm should be highly selective, since there is no lymph node resection, which might compromise the final oncologic result.

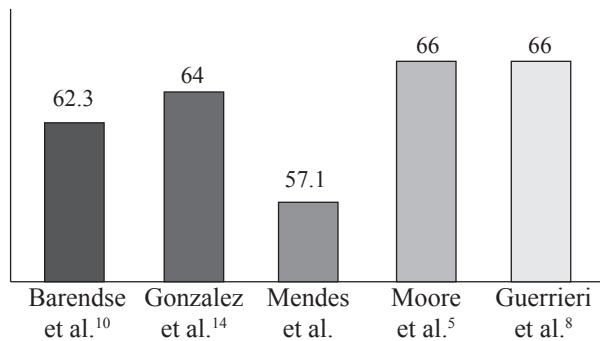


Figure 3. Mean age.

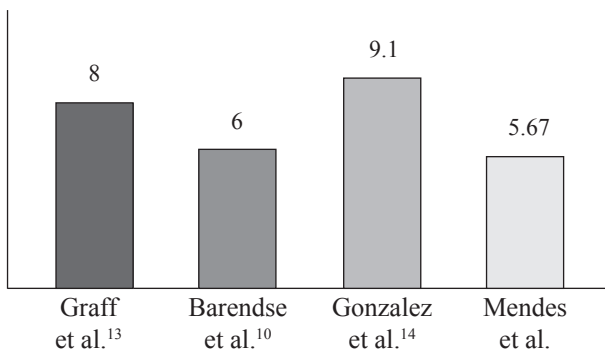


Figure 4. Mean distance to anal verge (cm).

In the study by Gonzalez et al.¹⁴, the percentage of patients with benign lesion submitted to TEM was 72.8%, which is very similar to our results (71.2%). This same study reported the complication rate after TEM including rectovaginal fistula in 3% and perforation associated with entry into the abdominal cavity in 6.1%, which is similar to our study, especially in lesions located 10 cm above the anal verge. The recurrence of a rectal lesion previously resected by TEM does not contraindicate the recommendation of the same method to treat the recurrence, as observed in this sample, apparently without increasing the complication rate. Due to the restricted number of patients in this sample who were submitted to re-resection by TEM, the evaluation of complications could not be objectively assessed.

Guerrieri et al.⁸ reported a median time of hospital stay of 3.5 days, more than our median hospital stay of 1.2 days (1 to 3 days). This study⁸, with 590 patients, also reported two rectovaginal fistula requiring diversion ostomy, complication not seen in our sample.

CONCLUSION

The transanal endoscopic microsurgery is a safe procedure with low morbidity and practically null mortality. This technique can be an excellent alternative to resect benign rectal adenomas and neuroendocrine tumors placed in the rectum. For the adenocarcinoma, new studies should be analyzed in order to better define its indication instead of performing a total mesorectal excision, and also the role of neoadjuvant and adjuvant treatment associated with the resection of malignant rectal tumors. Nonetheless, TEM is a very powerful tool whose indications may include other anorectal pathologies, besides benign and malignant rectal tumors.

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