

Contents lists available at [ScienceDirect](https://www.sciencedirect.com)

International Journal of Surgery Case Reports

journal homepage: www.casereports.com

TaTME approach as a rescue during a laparoscopic TME for high rectal cancer. A case report

F. Carannante*, G. Bianco, S. Lauricella, G. Mascianà, M. Caricato, G.T. Capolupo

Colorectal Surgery Unit, Università Campus Bio-Medico, Via Alvaro del Portillo 21, 00128, Rome, Italy

ARTICLE INFO

Article history:

Received 21 March 2021

Received in revised form 3 April 2021

Accepted 4 April 2021

Available online 7 April 2021

Keywords:

Transanal total mesorectal excision

Laparoscopic surgery

Rectal cancer

Radiotherapy

ABSTRACT

INTRODUCTION AND IMPORTANCE: In the last years, transanal total mesorectal excision (TaTME) has been described in rectal cancer treatment, especially in challenging patients, difficulties in pelvic exposure and limitations of instrumentation improving not only dissection but also the preservation of autonomic pelvic nerves and the achievement of a restorative procedure.

Here we report a case report of anterior laparoscopic rectal resection for adenocarcinoma of the high-mid rectum converted to transanal approach.

CASE PRESENTATION: A 69-year-old male presented hepatic nodules during radiological follow-up for prostate cancer treated with radical prostatectomy and adjuvant radiotherapy (70 Gy). The biopsy of the lesion demonstrated the presence of a metastatic lesion of an adenocarcinoma, with suspected intestinal origin. Then, we perform an endoscopic examination, which showed the presence of a rectal lesion, which cause a bowel stenosis extended from the middle part to the upper part of the rectum.

After chemoradiotherapy, an anterior rectal resection was performed. During surgery we could not perform the resection of the rectum due the thickness and fibrosis of the tissue, despite we used different branded mechanical stapler. So, we decided to complete the surgical treatment starting a TaTME procedure with resolution of the problem.

CLINICAL DISCUSSION: TaTME is a relatively new technique that had already become a valid option in the treatment of low rectal cancer, and, nowadays, also in the treatment of inflammatory bowel disease. As reported in literature, this technique has a number of advantages, especially in narrow pelvis and it is very useful in low rectal surgery.

CONCLUSION: This case report aims to describe the possible use of TaTME procedure as a rescue also when this approach is not the first choice.

© 2021 Published by Elsevier Ltd on behalf of IJS Publishing Group Ltd. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

1. Introduction

Colorectal cancer is one of the most common malignancies and it is the third most common cancer in men and the second in woman. Both genetic and environmental factors (smoking, alcohol intake and obesity) play an important role [1]. The etiology of colorectal cancer involves multiple genes and, in particular, three pathways: chromosomal instability (mutation in APC, k-ras, and p53), mismatch repair (MMR) and the hypermethylation of the promoter of the MLH1 gene. Three major strategies of treatment must be well integrated: surgery, chemotherapy and, for rectal cancer radiotherapy [2]. For locally advanced disease (T3–4 and/or N+) the treatment of choice is neoadjuvant chemoradiotherapy or radiotherapy followed by surgery, improving overall survival and cancer-specific survival [3,4].

Total mesorectal excision (TME) is the gold standard surgical technique for rectal tumors, reducing rectal cancer local recurrence [1]. There are several surgical approaches for rectal cancer, depending on tumor stage and tumor distance from anal verge. However, each technique aims for adequate oncological treatment.

In the last years, transanal total mesorectal excision (TaTME) has been described in rectal cancer treatment [5], especially in challenging patients, narrow pelvis and bad exposure improving not only dissection but also the preservation of autonomic pelvic nerves and the achievement of a restorative procedure [6].

Here we present a case report of anterior laparoscopic rectal resection for adenocarcinoma of the high rectum converted to transanal approach.

This work has been reported in line with the SCARE 2020 criteria [7].

* Corresponding author.

E-mail address: f.carannante@unicampus.it (F. Carannante).

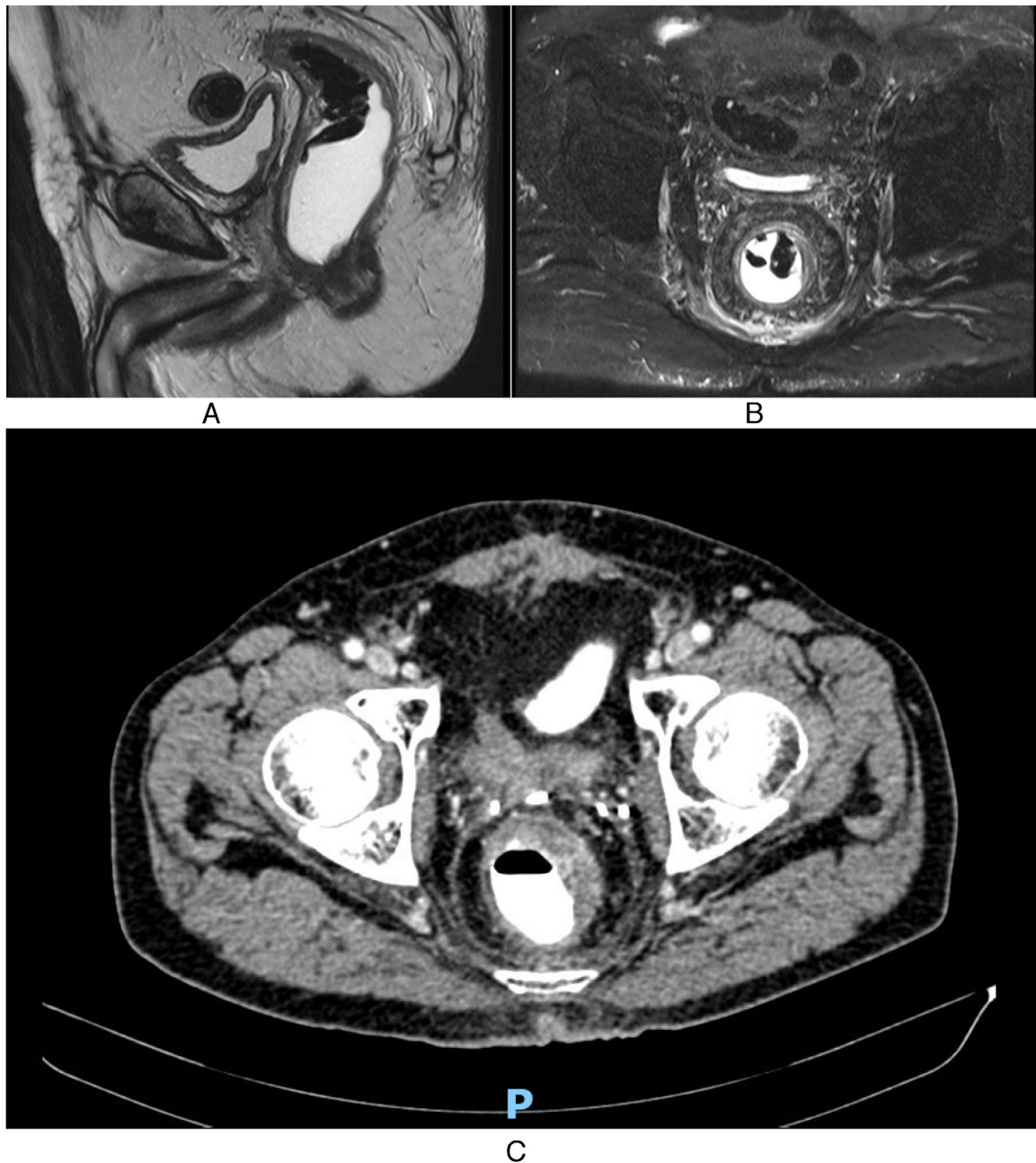


Fig. 1. a-b-c. MRI and CT scan before neoadjuvant chemotherapy.

2. Case presentation

We report a case of a 69-year-old male who presented hepatic nodules during radiological follow-up for prostate cancer treated with radical prostatectomy and adjuvant radiotherapy (70 Gy), many years before. The patient was in good clinical condition. He had only arterial hypertension treated with oral drugs. Physical examination showed distended abdomen, not painful. The biopsy of the lesion demonstrated the presence of a metastatic lesion of adenocarcinoma, with suspected intestinal origin. For this reason, we performed an endoscopic examination, which showed the presence of a rectal lesion, which cause a bowel stenosis extended in the upper part of the rectum (IE adenocarcinoma of the rectum) (Fig. 1a-b-c).

Due the bowel occlusion, according to oncologists, we perform a colostomy, before starting a neoadjuvant chemotherapy.

The restaging examination showed a reduction of the rectal lesion (reduction of the thickness from 16 mm to 12 mm), of the mesorectal lymphnodes (from 14 mm to 7 mm) and of the paraortic lymphnodes (from 11 mm to 6 mm). In addition, also the hepatic lesions were reduced (20 mm vs 30 mm) (Fig. 2).

At this time, we decided to perform a laparoscopic rectal anterior resection with complete TME. As standardized in our Institution, the surgical procedure started with the mobilization of the transverse colon and the descending colon. Then, the vascular phase was performed: the inferior mesenteric vein and the inferior mesenteric artery were identified and ligated both at their origin. At this point, the TME was conducted until the elevator mussel's plane, but when we tried to cut the rectum, we could not perform the resection due the thickness and fibrosis of the tissue, despite we used different branded mechanical staplers (Fig. 3). We were in big trouble, so we thought to complete the surgical treatment starting a TaTME



Fig. 2. CT scan after neoadjuvant chemotherapy and before surgical treatment.

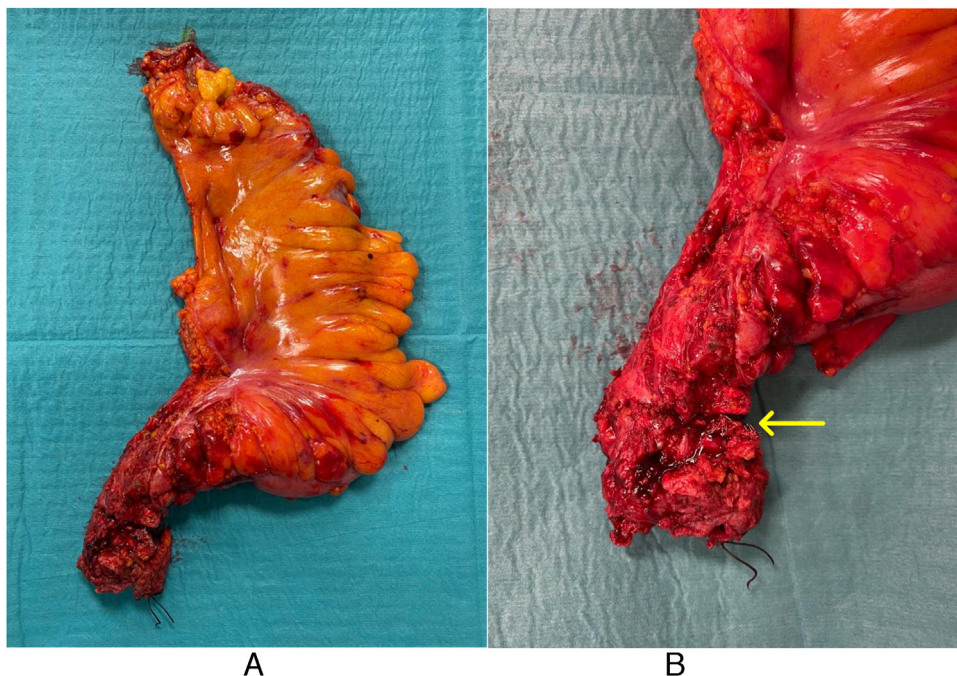


Fig. 3. a–b. Surgical specimen with clips of staplers cut.

procedure. A GelPoint Path platform was placed into the anal muscular cuff, and insufflation was initiated with CO₂ to a pressure of 12 mmHg using a conventional CO₂ insufflator. The TME plane was identified in a reverse manner, using a down to up approach. The resection was conducted until the transanal phases met the laparoscopic one. At the end, we performed a mechanical coloanal anastomosis with a derivative skin bridge loop ileostomy [8]. The surgical procedure was performed by Professor Caricato.

Early post-operative course was uneventful. The patient was discharged in IV post-operative day.

The pathological examination showed bowel without presence of adenocarcinoma with 17 lymphnodes harvested without neoplasia (Fig. 3a–b).

One month later, the patient was readmitted due to pelvic pain, with increased serum inflammatory markers. A CT scan showed a presacral abscess due to anastomotic leakage. We decided to

use Endo-SPONGE® (B-BRAUN) system with good clinical response (Fig. 4a–b). A sequent CT scan, after 2 weeks, showed resolution of the abscess.

Six months later, the patient is in good general clinical conditions, with no problems related to surgery. We are planning to close loop ileostomy.

3. Discussion

TaTME is a relatively new technique that had already become a valid option in the treatment of low rectal cancer, and, nowadays, also in the treatment of inflammatory bowel disease [9,10]. Ideal candidates to transanal approach are patients with narrow pelvis, prostate hypertrophy, visceral obesity or high body mass index (BMI > 30 Kg/m²), tumor diameter > 4 cm, distorted tissue

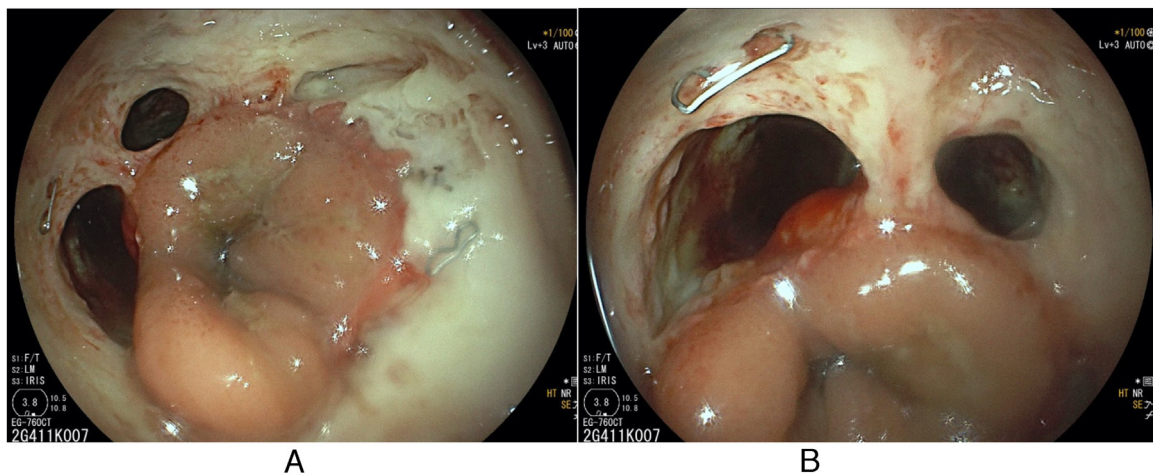


Fig. 4. a–b. Endoscopic visualization of anastomotic leakage before insert the Endo-SPONGE® (B-BRAUN).

planes due to neoadjuvant radiotherapy, difficult recognition of the distal resection margin and ultralow rectal tumors, allowing to preserve fecal continence [9]. This procedure could be performed in inflammatory bowel disease patients for a completion proctectomy to overcome some limitations of the traditional minimally invasive techniques, allowing better visualization in the low pelvis and easier dissection of the distal 5 cm of the rectum [11]. The described clinical benefits of TaTME are low circumferential margin positive rates, less morbidity and more sphincter-saving rectal resections compared to laparoscopic TME [12]. Some intraoperative complications for example urethral injury, were described, but all advantages make this surgical approach a good alternative to the laparoscopic and the robotic approaches.

4. Conclusions

This case report aims to describe the possible use of TaTME procedure as a rescue also when this approach is not the first choice. As reported in literature, this technique has a number of advantages, especially in narrow pelvis. In conclusion, we believe that, if performed by experienced surgeons, TaTME is safe and useful and could be used also not in his conventional use.

Declaration of Competing Interest

The Authors disclose no conflicts.

Funding

The Authors disclose no sources of funding for research.

Ethical approval

This is a case report. It's exempt from ethical approval.

Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

Author's contribution

F. Carannante: study design, data collections, data analysis, and writing.

G. Bianco: data collections, data analysis, and writing.

S. Lauricella: data collections, data analysis.

G. Masciana: data collections, data analysis.

M. Caricato: reviewer.

G.T. Capolupo: study design and writing.

Registration of research studies

Not Applicable.

Guarantor

Prof. M. Caricato.

Provenance and peer review

Not commissioned, externally peer-reviewed.

References

- [1] Ernst J. Kuipers, William M. Grady, David Lieberman, Thomas Seufferlein, Joseph J. Sung, Petra G. Boelens, Cornelis J.H. van de Velde, Toshiaki Watanabe, Colorectal cancer, *Nat. Rev. Dis. Primers* 5 (November (1)) (2015) 15065.
- [2] Yi Li, Ji Wang, Xiaowei Ma, Li Tan, Yanli Yan, Chaofan Xue, Beina Hui, Rui Liu, Hailin Ma, Juan Ren, A review of neoadjuvant chemoradiotherapy for locally advanced rectal cancer, *Int. J. Biol. Sci.* 12 (July (8)) (2016) 1022–1031.
- [3] Ellen Kapiteijn, Corrie A.M. Marijnen, Iris D. Nagtegaal, Hein Putter, Willem H. Steup, Theo Wiggers, Harm J.T. Rutten, Lars Pahlman, Bengt Glimelius, J. Han J.M. Van Krieken, Jan W.H. Leer, Cornelis J.H. Van De Velde, For The Dutch Colorectal Cancer Group, Preoperative radiotherapy combined with total mesorectal excision for resectable rectal cancer, *N. Engl. J. Med.* 345 (August (9)) (2001) 638–646.
- [4] Ethan B. Ludmir, Manisha Palta, Christopher G. Willett, Brian G. Czito, Total neoadjuvant therapy for rectal cancer: an emerging option, *Cancer* 123 (May (9)) (2017) 1497–1506.
- [5] P. Sylla, D.W. Rattner, S. Delgado, A.M. Lacy, NOTES transanal rectal cancer resection using transanal endoscopic microsurgery and laparoscopic assistance, *Surg. Endosc.* 24 (5) (2010) 1205–1210.
- [6] M. Penna, R. Hompes, S. Arnold, G. Wynn, R. Austin, J. Warusavitarne, et al., Transanal total mesorectal excision: international registry results of the first 720 cases, *Ann. Surg.* 266 (1) (2017) 111–117.
- [7] R.A. Agha, T. Franchi, C. Sohrabi, G. Mathew, for the SCARE Group, The SCARE 2020 guideline: updating consensus Surgical CAse REport (SCARE) guidelines, *Int. J. Surg.* 84 (2020) 226–230.
- [8] F. Carannante, G. Masciana, S. Lauricella, M. Caricato, G.T. Capolupo, Skin bridge loop stoma: outcome in 45 patients in comparison with stoma made on a plastic rod, *Int. J. Colorectal Dis.* 34 (December (12)) (2019) 2195–2197.

- [9] Ş. Tudor, C. Minciună, M. Lăcătuş, D. Gavrilă, S. Manciu, D. Ungureanu, M. Cordun, C. Vasilescu, Transanal total mesorectal excision - a case report, *Chirurgia (Bucur)* 114 (March-April (2)) (2019) 278–283, 8.
- [10] A. Vignali, U. Elmore, M. Milone, R. Rosati, Updates transanal total mesorectal excision (TaTME): current status and future perspectives, *Surgery* 71 (March (1)) (2019) 29–37, <http://dx.doi.org/10.1007/s13304-019-00630-7>, Epub 2019 Feb 8.
- [11] G.T. Capolupo, F. Carannante, G. Mascianà, S. Lauricella, E. Mazzotta, M. Caricato, Transanal proctocolectomy and ileal pouch-anal anastomosis (TaIPAA) for ulcerative colitis: medium term functional outcomes in a single centre, *BMC Surg.* 21 (January (1)) (2021) 17.
- [12] M. Fukase, H. Oshio, S. Murai, T. Kawana, Y. Saito, E. Kono, Y. Oshima, G. Yunome, S. Teshima, M. Ito, Transanal total mesorectal excision of giant villous tumor of the lower rectum with McKittrick-Wheelock syndrome: a case report of a novel surgical approach, *Surg. Case Rep.* 5 (November (1)) (2019) 173.

Open Access

This article is published Open Access at [sciencedirect.com](https://www.sciencedirect.com). It is distributed under the [IJSCR Supplemental terms and conditions](#), which permits unrestricted non commercial use, distribution, and reproduction in any medium, provided the original authors and source are credited.