Case Report

Laparoscopic total pelvic exenteration and perineal amputation with wet colostomy. A case report

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ABSTRACT: Advanced rectal tumors can be treated with curative intent by surgical resection of the rectum including other pelvic organs. The reconstruction of the urinary and gastrointestinal tracts depends on the distance between the tumor and the anus, the patient's status and the experience of the surgical team. This is a case of a male patient with a locally advanced low rectal tumor that underwent a laparoscopic pelvic exenteration. The anus and the tumor and other organs were excised by peritoneal approach. The uretero-colic anastomosis was performed extra-abdominally. The patient was discharged on the 14th postoperative day and remains healthy six months after the surgery. This approach has shown to be feasible and safe. The aesthetical result was well accepted by the patient. The laparoscopic route should be considered as an alternative approach to pelvic exenteration in the treatment of locally advanced low rectal tumors that demand perineal amputation.

Keywords: rectal neoplasm; pelvic exenteration; laparoscopy.

RESUMO: O tumor de reto localmente avançado pode ser tratado com intenção curativa com uma operação ampliada que inclua outros órgãos da pelve. A reconstrução do trânsito urinário e do trânsito intestinal dependerá da distância do tumor em relação à margem do ânus, da experiência da equipe de cirurgiões, assim como das morbidades associadas do paciente. Apresentou-se neste artigo o caso de um paciente do sexo masculino, com tumor de reto baixo localmente avançado que foi submetido à exenteração pélvica por laparoscopia. Houve indicação para ressecção do ânus e a peça cirúrgica foi retirada por via perineal. A anastomose uretero-colônica foi confeccionada de maneira extracorpórea. O paciente recebeu alta hospitalar após 14 dias e encontra-se com seis meses pós-operatórios. O método se mostrou factível e seguro. O resultado estético foi bem aceito pelo paciente. A via de acesso laparoscópica pode ser considerada uma alternativa para a exenteração pélvica no tratamento do tumor de reto baixo avançado que necessita de amputação anoperineal.

Palavras-chave: neoplasia de reto; exenteração pélvica; laroscopia.

INTRODUCTION

A locally advanced rectal tumors is a challenging situation in the clinical practice. Only complete surgical resection can offer the possibility of long-term disease control.

Total pelvic exenteration is a surgical procedure used in the treatment of locally advanced or recurrent colorectal and cervical cancer within the pelvis. This treatment is adopted when the tumor is extended to other organs, such as prostate, seminal vesicle and bladder trigone[1]. Despite the considerable morbidity

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of pelvic exenteration, it is possible to have good survival rates within five years[2,3].

Laparoscopy has shown to be an alternative to the treatment of locally advanced neoplasms within the pelvis, with some reports and series of cases published in the world literature[4,5,6].

The purpose of this study was to describe, with emphasis on the surgical approach, the case of a patient with locally advanced rectal tumor, treated with pelvic exenteration and wet colostomy by laparoscopy.

CASE REPORT

A 43-year-old male patient, with body mass index of 19, presented hematochezia and tenesmus three months ago. Low rectal cancer was confirmed near the pectineal line, as well as moderately differentiated adenocarcinoma, with fistula directed to the anus margin. The computed tomography showed invasion of prostate. Tomographic exams showed no signs of hepatic or pulmonary metastasis. The neoadjuvant treatment with chemotherapy was indicated (5-Fluorouracil 675 mg and Leucovorin 50 mg) and radiotherapy. The preoperative bowel preparation was performed with polyethylene glycol.

Total pelvic exenteration was performed using six trocars: umbilical (10 mm), right hypochondrium (5 mm), right iliac fossa (12 mm), two in left iliac fossa (5 mm) and hypogastric (5 mm) trocars (Figure 1). The patient remained in dorsal decubitus position, with lower limbs extended, during the laparoscopic exams of rectosigmoidectomy and cystoprostatectomy. The patient's lower limbs were placed on stirrups only during the perineal surgical time. The colorectal surgery was performed before the bladder and prostate surgery. A double-barrel stroma was placed in the left iliac fossa trocar incision (Figure 1). As the patient had the preoperative stoma marking, it was used for one of the trocars. A monopolar cautery was coupled to the laparoscopic curved scissors for the surgery and the 400 clips were used for hemostasia of mesenteric, vesical and prostatic vessels. The vesicoprostatic dissection started with the Retzius space opening. The vascular pedicles were posterolaterally connected with the 400 clips and Hemolock. The ureters were distally identified, released above the iliac vessels. The prostate dissection started with the endopelvic fascia opening, with the venous complex controlled with 2-0 silk suture, incision of the urethra and rectourethralis near the pelvic musculature. Denovilliers' (rectoprostatic) fascia was not opened, and the single vesicoprostatic specimen was laterally dissected until the pelvic floor. A pelvic drain was placed through the right iliac fossa trocar incision. The greater omentum, keeping the vascular nutrition through the left gastroepiploic artery, was placed in the pelvis to fill the empty space and between the ureters after the wet colostomy placement. No metastatic lesion was observed in the surgery. No lymphadenectomy of internal iliac vessels or obturator fossa was performed. The surgical specimen was extracted through the perineum by two surgeons, at the same time, and part of the team performed the anastomosis of ureters with the distal segment of the descending colon. That was an extracorporeal anastomosis (Figure 2).

The patient remained hospitalized for 14 days after the surgery. No supplementary nutrition was required, as the patient did not tolerate feeding for the maximum period of four days. No blood transfusion was required. Leucocytosis occurred after

Figure 1. *Image of the anterior abdominal wall. Incisions for the trocars, wet colostomy (arrow) in the left iliac fossa and pelvic drain in the right iliac fossa.*

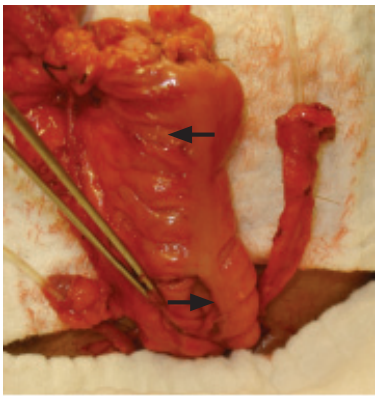

Figure 2. *Exteriorization of right and left ureters (arrows) and colon loop, in the left iliac fossa incision, for the extracorporeal ureterocolonic anastomosis.*

the sixth postoperative day, secondary to a left iliac fossa wall collection near the colostomy. This collection was treated with percutaneous drainage guided by ultrasound and use of Vancomycin and Meropenem. Histology showed an adenocarcinoma that invaded the muscularis propria, and the lymph nodes were free of neoplasm. In the prostate, fibrotic tissue was identified, but no signs of adenocarcinoma after the adjuvant treatment. The margins were not affected (R0). Four postoperative chemotherapy cycles were scheduled.

The total surgical time was seven hours and thirty minutes, with five hours and thirty minutes only for the laparoscopic procedure. The procedure was well tolerated by the patient, without any significant reduction of hemoglobin or blood transfusion. He remained 14 days hospitalized after the surgery due to a purulent collection near the stoma. He is in the 10-month follow-up. There is no evidence of recurrent hydronephrosis and no sign of metastatic disease.

DISCUSSION

Pelvic exenteration for the treatment of advanced pelvic tumors alleviates symptoms of refractory pain, lower limb edema, urinary sepsis and recurrent hemorrhage[7]. It is estimated that 6 to 10% of the rectal tumors invade adjacent organs[2]. The prostate involvement changes the primary treatment into a total pelvic exenteration[1,2,7]. The survival rate within five years after the total pelvic exenteration for primary rectal cancer is between 28 and 64%[1,2,7]. Pelvic oncologic surgery is also performed for the treatment of advanced cervical cancer, with radical hysterectomy and aortic and pelvic lymphadenectomy[8]. Anterior pelvic exenterations can be performed with the urinary tract reconstruction, using a ureter-sigmoid anastomosis[4]. Surgeries such as radical cystectomy and prostatectomy, via laparoscopic route, are performed by trained surgeons[9].

In this study, the urologist had already conclude the learning curve in laparoscopic urologic surgery. The colorectal surgeon had already performed more than 40 colorectal surgeries via laparoscopy and participated in a number of cases with wet colostomy via conventional access[10].

In this case report, the option of pelvic exenteration via laparoscopic route was considered due to the possibility of complete extraction of the surgical specimen through the perineum, as it is, according to the tomographic exams, a tumor close to the pectineal line and that invaded the prostate. The urology team performed the rectal touch examination and cystoscopy and kept the indication of pelvic exenteration. It is desirable to have the definition about the pelvic exenteration before the surgery, although it is known that some cases are only defined during the surgery[3].

The survival of patients with locally advanced rectal tumor without lymph nodes is better than when metastatic lymph nodes are present, and it is an independent variable for survival[2]. In locally advanced rectal tumors, the prostate is the second most frequently involved organ[3]. The neoadjuvant treatment is well accepted in the treatment of locally advanced rectal cancer with indication of pelvic exenteration (R0)[11], although some renowned authors prefer not to use neoadjuvant chemoradiotherapy. There is also some debate on the use of lymphadenectomy near the internal iliac vessels in cases of pelvic exenteration either via laparotomy[12] or laparoscopy[6]. The authors of this study preferred to use preoperative chemotherapy and radiotherapy and did not use lymphadenectomy near the internal iliac vessels during the surgery.

Possible advantages of the laparoscopic surgery are: reduced blood loss, reduced postoperative pain and better cosmetic effect without affecting the oncologic radicality[13]. Pelvic exenteration via laparoscopic route should not affect the oncologic radi-

cality and the complete excision of the tumor, and lymphadenectomy should follow the same parameters of the open technique.

Urinary derivation, combined with total pelvic exenteration, affects the patient's quality of life, and some options could be the Bricker procedure or double-barrel wet colostomy[14,15].

Double-barrel wet colostomy is an option for patients that require simultaneous urinary and fecal derivation[16]. It presents two derivations that drain to a single stoma[17,18]. It is considered a technique of low complexity, without intestinal anastomosis, involving reduced surgical time and acceptable quality of life[10].

The published series about urinary derivations via laparoscopic route have few case of wet colostomy, due to the difficult production of the reservoir and increased surgical time[4,6,8]. The extracorporeal production described in this case report had the double-barrel configuration, using a larger incision in one of the trocars in the left lower quadrant of the abdomen; thus, promoting reduced surgical time without increasing surgical morbidity. The authors know only few cases in the international literature with total pelvic exenteration combined with perineal amputation and ureterocolonic anastomosis for the treatment of advanced rectal tumor. The laparoscopic procedure, combined with wet colostomy, was feasible and safe and it enabled reduced blood loss and prevented abdominal incision. However, a greater number of patients is required, as well as a longer postoperative follow-up, for a better acceptance of this access route in the treatment of locally advanced rectal tumor.

CONCLUSION

The laparoscopic route is an alternative for the treatment of locally advanced rectal tumor in male patients that require pelvic exenteration, anoperineal amputation and wet colostomy.

REFERENCES

1. Koda K, Tobe T, Takiguchi N, Oda K, Ito H, Miyazaki M. Pelvic exenteration for advanced colorectal cancer with reconstruction of urinary and sphincter functions. Brit J Surg 2002;89(10):1286-9.
2. Costa SRP, Teixeira ACP, Lupinacci RA. A exenteração pélvica para o câncer de reto: Avaliação dos fatores prognósticos de sobrevida de 27 pacientes operados. Rev Bras Coloproct 2008;28(1):7-18.
3. Moriya Y, Akasu T, Fujita S, Yamamoto S. Aggressive surgical treatment for patients with T4 rectal cancer. Colorectal Dis 2003;5(5):427-31.
4. Puntambekar S, Kudchadkar R J, Gurjar AM, Sathe RM, Chaudhari YC, Agarwal GA, et al. Laparoscopic pelvic exenteration for advanced pelvic cancer: a review of 16 cases. Gynecol Oncol 2006;102(3):513-6.
5. Ferron G, Querleu D, Martel P, Chopin N, Soulié M. Laparocopy-assisted vaginal pelvic exenteration. Gynecol Obst Fertil 2006;34(12):1134-6.
6. Lin MY, Fan EW, Chiu AW, Tian YF, WU MP, Liao AC. Laparoscopy-assisted transvaginal total exenteration for locally advanced cervical cancer with bladder invasion after radiotherapy. J Endourol 2004;18(10):867-70.
7. Kecmanovic D M, Pavlov M J, Kovacevic P A, Sepetkovski A V, Ceranic M S, Stamenkovic A B. Management of advanced pelvic cancer by exenteration. Eur J Surg Oncol 2003;29(9):743-6.
8. Spirtos NM, Schlaerth JB, Kimball RE, Leiphart VM, Ballon SC. Laparoscopic radical hysterectomy (type III) with aortic and pelvic lymphadenectomy. Am J Obstet Gynecol 1996;174(6):1763-8.
9. Gupta NP, Gill IS Fergany A, Nabi G. Laparoscopic radical cystectomy with intracorporeal ileal conduit diversion: five cases with a 2-year follow-up. BJU Int 2002;90(4):391-6.
10. Queiroz FL, Barbosa-Silva T, Costa LMP, Werneck-Cortes BJ, Figueiredo JA, Guerra F, et al. Double-barrelled wet colostomy with simultaneous urinary e faecal diversion: results in 9 patients and review of the literature. Colorectal Disease 2006;8(4):353-9.
11. Bedrosian I, Giacco G, Penderson L, Rodrigues-Bigas MA, Feig B, Hunt KK et al. Outcome after curative resection for locally recurrent rectal cancer. Dis Colon Rectum 2006;49(2):175-82.
12. Costa SR, Antunes RC, Paula RP, Pedroso MA, Farah JF, Lupinacci RA. A exenteração pélvica no tratamento do câncer de reto estádio T4: A experiência de 15 casos operados. Arq Gastroenterol 2007;44(4):284-8.

13. Leroy J, Forbes L, Jamali F, Smith M, Rubino F, Mutter D, Marescaux J et al. Laparoscopic total mesorectal excision (TME) for rectal câncer surgery long-term outcomes. Surg Endosc 2004;18(2):281-9.
14. Takada H, Yoshioka K, Boku T, Yoshida R, Nakagawa K, Matsuda T et al. Double-barreled wet colostomy. A simple method of urinary diversion for patients undergoing pelvic exenteration. Dis Col Rectum 1995;38(12);1325-6.
15. Díez AB, Rosado EF, Castelo LA, Rodrígues-Losada JS, Abal VC, Castro SN et al. Colostomía húmeda em doble barra: análisis de una derivación. Actas Urol Esp 2003;27(8):611-7.
16. Gullón AO, Oca J, Costea MAL, Virgili J, Ramos E, Rio C, et al. Double-barreled wet colostomy: a safe and simple method after pelvic exenteration. Int J Colorectal Dis 1997;12(1):37-41.
17. Carter MF, Dalton DP, Garnett J.E. Simultaneous diversion of the urinary and fecal streams utilizing a single abdominal stoma: the double-barreled wet colostomy. J Urol 1989;141(5):1189-91.
18. Guimarães GC, Ferreira FO, Rossi BM, Aguiar SJ, Zequi SC, Bachega W et al. Double-barreled wet colostomy is a safe option for simultaneous urinary and fecal diversion. Analysis of 56 procedures from a single institution. J Surg Oncol 2006;93(3):206-11.

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