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Is total pelvic exenteration suitable for elderly patients with locally advanced or recurrent rectal cancer?

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ABSTRACT

Locally advanced and relapsed rectal cancer represent one of the most commonly reported indications for total pelvic exenteration especially in men, while in women the surgical procedure might be limited to a posterior exenteration. This procedure is still associated with high risks of postoperative complications and high rates of perioperative mortality, therefore careful selection of the cases is mandatory. However, in the last decades improvement in the field of oncology treatment leaded to the increase of the lifespan of patients diagnosed with rectal cancer; in this respect, it is easy to be understood the fact that an increased number of cases will develop at a certain moment of their evolution pelvic recurrences which need more extended surgical procedures at a more advanced age. Therefore, extended procedures such as pelvic exenterations are needed in these cases; the aim of this paper is to study whether pelvic exenteration is suitable for elderly patients and which cases could benefit most from this aggressive surgical approach.

Keywords: rectal cancer, pelvic recurrence, pelvic exenteration, elderly, benefits and risks

INTRODUCTION

The incidence of colorectal cancer has reported increasing trends worldwide especially due to the relatively facile methods of diagnostic of this pathology, alarming signs and symptoms such as pelvic pain, rectal bleeding and constipation being presented in most cases; meanwhile the lifespan has significantly increased in the last decades worldwide (1-3). Therefore, a higher number of patients have been diagnosed with locally advanced or even relapsed rectal cancer at a more advanced age. In this respect, is estimated that up to 10% of patients who had been diagnosed at a certain moment with a rectal tumor will develop at a certain moment of their evolution a pelvic recurrence (4,5); meanwhile, global increase of the lifespan in association with the progress reported so far in the field of medical oncology conducted to the apparition of this pathology especially in elderly patients (3-5).

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AIM

The aim of the current paper is to analyze the most relevant studies conducted on the theme of pelvic exenteration in elderly patients and to identify which cases could benefit most from this aggressive surgical approach.

MATERIAL AND METHODS

We performed a literature review by using the following keywords: "recurrent rectal cancer", "pelvic relapse", "exenteration" and "elderly" and we analyzed the reports which were reported in the resulting studies.

RESULTS

Data obtained after reviewing these papers were analyzed in regard to the influence of age on the intraoperative outcomes, short term outcomes (defined by perioperative morbidity and mortality) and respectively on the long term outcomes.

The impact of age on the intraoperative outcomes

Due to the fact that elderly patients usually present significantly more debilitating comorbidities, it is understandable why elderly patients are usually submitted to less demanding procedures; while the resectional phase cannot suffer significant modifications, the reconstructive one is usually less complex in elderly; therefore, in aged patients less demanding reconstructive procedure are chosen, muscular flaps being scarcely performed. Meanwhile association of other intraoperative procedures such as intraoperative radiation therapy is usually avoided in elderly patients. Therefore, usually the operative time, the blood loss as well as the necessity of administration of blood products is usually lower in elderly cases (3). In the meantime, the trend of performing less complex procedures should not be reflected into the histopathological findings such as the percent of cases with positive resection margins (3).

The impact of age on the short term outcomes

It is well known the fact that pelvic exenteration remains a technically demanding procedure associated with high rates of perioperative complications especially if associated with other oncological therapies such as chemotherapy or radiation therapy (6-9). The overall outcomes of these patients seem to be particularly influenced by the association of other comorbidities such as arterial hypertension, diabetes mellitus, atherosclerosis or chronic renal disease, more commonly encountered in advanced ages (10,11).

An interesting study which aimed to compare the postoperative outcomes of elderly patients submitted to pelvic exenteration for locally advanced or recurrent rectal cancer was conducted by Hagemans et al. and published in 2018; the study included 126 patients submitted to surgery between 1990 and 2017, 88 of them being younger than 70 years at the time of surgery. Elderly patients presented significantly more frequently associated comorbidities resulting into a significantly higher number of cases with American Society of Anesthesiology (ASA) score higher than II, the most commonly encountered ones being related to the cardio-circulatory system. These findings were also reflected into the rates of postoperative mortality, the number of reported deaths being significantly higher among elderly patients ($p = 0.02$) caused by both surgical and non-surgical complications. However, the rates of perioperative non-lethal complications were similar between the two groups while the length of hospital in stay was similar between the two subgroups (3). Meanwhile, in order to diminish the rates of postoperative complications less complex procedures (defined by lower number of anastomoses) have been also proposed.

However, other risk factors which should be taken in consideration the possibility of submitting a patient to pelvic exenteration for locally advanced or relapsed rectal cancer are represented by the nutritional status, body mass index and prior history of chemotherapy or radiation therapy (11-14).

The impact of age on the long term outcomes

Although the techniques of the reconstructive phase seem to be less complicated among elderly patients, this trend is not the same when reported to the resectional phase; therefore, whenever negative resection margins are achieved significant benefits of cancer related survival are expected irrespective to the group of age (3). However, it should not be omitted the fact that elderly patients are usually less frequently submitted to complex adjuvant therapies such as chemotherapy or irradiation and therefore, theoretically higher rates of recurrence might occur.

The initial studies which aimed to investigate if pelvic exenteration should be routinely performed in elderly patients with no significant associated comorbidities included both digestive and non-digestive lesions and demonstrated that the procedure is associated with a significant benefit in terms of survival especially in cases with rectal primaries. Therefore, in the study conducted by Radwan et al. and published in 2016, the authors included 94 patients with ages ranging from 70 to 90 years submitted to pelvic exenteration for rectal cancer (65 cases), gynecological cancer (20 cases) and bladder cancer (nine cases). Among cases with rectal

cancer there were 34 cases submitted to posterior pelvic exenteration and 31 cases submitted to total exenteration. Although the overall rates of postoperative complications reached 34% and the 30 day mortality rate was of 6% the median survival rate was of 64 months for rectal cancer patients, significantly higher when compared to the one reported in patients with gynecological tumors (30 months) or with bladder tumors (15 months). It should not be omitted the fact that the highest incidence of postoperative complications were reported after pelvic exenteration for rectal cancer; however, only two of the six reported deaths were seen among patients in this subgroup. Therefore, the authors underlined the fact that age itself should not be considered as formal contraindication for pelvic exenteration (15).

An interesting study which aimed to analyze the effect of pelvic exenteration on the long term outcomes in elderly has been recently published by Alahmadi et al. and included 710 patients submitted to pelvic exenteration between 1994-2019; these patients were classified according to their age in two subgroups, the cut off value being of 65 years. The authors demonstrated that elderly patients reported a significantly improved quality of life defined by a better mental component score and a better Functional Assessment of Cancer Therapy – Colorectal (FACT-C) score when compared to older groups. Meanwhile the long term survival outcomes demonstrated a median overall survival of 75 months in the younger cohort versus 53 months in the older cohort ($p = 0.004$). When including only cases with primary or rectal cancer, the median overall survival was of 37 months among elderly patients and 70 months among younger ones ($p < 0.001$), this fact being rather related to their cardiovascular associated comorbidities rather than to cancer related complications. This fact was sustained by the observations according to which the rates of complete resection with negative margins were similar between the two groups while the rates of cardiovascular severe comorbidities were significantly higher among elderly cases. Therefore, the study concluded that elderly patients should not be routinely omitted from pelvic exenteration especially if no significant comorbidities are associated (16).

CONCLUSIONS

Although elderly patients usually report more significant associated comorbidities, and therefore, higher rates of perioperative complications it seems that the long term outcomes are similar between different age groups. Therefore, elderly patients should not be routinely excluded from performing such extended procedures especially if radical resection and negative margins are achievable. However, in this particular subgroup of age less complex procedures should be the option of choice and therefore the reconstructive phase should be sometimes simplified in order to diminish the rates of perioperative complications.

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REFERENCES

1. Rutten HJ, den Dulk M, Lemmens VE, van de Velde CJ, Marijnen CA. Controversies of total mesorectal excision for rectal cancer in elderly patients. *Lancet Oncol.* 2008;9(5):494-501.
2. Arnold M, Sierra MS, Laversanne M, Soerjomataram I, Jemal A, Bray F. Global patterns and trends in colorectal cancer incidence and mortality. *Gut.* 2017;66(4):683-691.
3. Hagemans JAW, Rothbarth J, Kirkels WJ, Boormans JL, van Meerten E, Nuyttens JJME, Madsen EVE, Verhoef C, Burger JWA. Total pelvic exenteration for locally advanced and locally recurrent rectal cancer in the elderly. *Eur J Surg Oncol.* 2018;44(10):1548-1554.
4. van Gijn W, Marijnen CA, Nagtegaal ID, Kranenbarg EM, Putter H, Wiggers T, Rutten HJ, Pahlman L, Glimelius B, van de Velde CJH, Dutch Colorectal Cancer Group. Preoperative radiotherapy combined with total mesorectal excision for resectable rectal cancer: 12-year follow-up of the multicentre, randomised controlled TME trial. *Lancet Oncol.* 2011;12(6):575-582.
5. Bosset JF, Collette L, Calais G, Mineur L, Maingon P, Radosevic-Jelic L, Daban A, Bardet E, Beny A, Ollier JC, EORTC Radiotherapy Group Trial 22921. Chemotherapy with preoperative radiotherapy in rectal cancer. *N Engl J Med.* 2006;355(11):1114-1123.
6. Ferenschild FTJ, Vermaas M, Verhoef C, Ansink AC, Kirkels WJ, Eggermont AMM, Wilt JHW. Total pelvic exenteration for primary and recurrent malignancies. *World J Surg.* 2009;33(7):1502-1508.
7. PelvEx C. Surgical and survival outcomes following pelvic exenteration for locally advanced primary rectal cancer: results from an international collaboration. *Ann Surg.* 2019;269(2):315-321.
8. Fritsch A, Seidl W, Walzel C, Moser K, Schiessel R. Palliative and adjunctive measures in rectal cancer. *World J Surg.* 1982;6(5):569-577.
9. Vassilopoulos PP, Yoon JM, Ledesma EJ, Mittelman A. Treatment of recurrence of adenocarcinoma of the colon and rectum at the anastomotic site. *Surg Gynecol Obstet.* 1981;152(6):777-780.
10. Rutten H, den Dulk M, Lemmens V, Nieuwenhuijzen G, Krijnen P, JansenLandheer M, van de Poll Franse L, Coebergh JW, Martijn H, Marinjen C, van de Velde C. Survival of elderly rectal cancer patients not improved: analysis of population based data on the impact of TME surgery. *Eur J Cancer.* 2007;43(15):2295-2300.
11. Turrentine FE, Wang H, Simpson VB, Jones RS. Surgical risk factors, morbidity, and mortality in elderly patients. *J Am Coll Surg.* 2006;203(6):865-877.
12. Williamson JS, Jones HG, Davies M, Evans MD, Hatcher O, Beynon J, Harris DA, Swansea Colorectal Cancer Group. Outcomes in locally advanced rectal cancer

with highly selective preoperative chemoradiotherapy. *Br J Surg.* 2014;101(10):1290-1298.
13. Beaton J, Carey S, Solomon MJ, Tan KK, Young J. Preoperative body mass index, 30-day postoperative morbidity, length of stay and quality of life in patients undergoing pelvic exenteration surgery for recurrent and locally-advanced rectal cancer. *Ann Coloproctol.* 2014;30(2):83-87.
14. Harris DA, Davies M, Lucas MG, Drew P, Carr ND, Beynon J, Swansea Colorectal Cancer Group. Multivisceral resection for primary locally advanced rectal carcinoma. *Br J Surg.* 2011;98(4):582-588.
15. Radwan RW, Evans MD, Davies M, Harris DA, Beynon J, Swansea Pelvic Oncology Group. Pelvic exenteration for advanced malignancy in elderly patients. *Br J Surg.* 2016;103(2):115-119.
16. Alahmadi R, Steffens D, Solomon MJ, Lee PJ, Austin KKS, Koh CE. Elderly Patients Have Better Quality of Life but Worse Survival Following Pelvic Exenteration: A 25-Year Single-Center Experience. *Ann Surg Oncol.* 2021; in press.