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Pelvic exenterations for specific extraluminal recurrences in the era of total mesorectal excision: is there still a chance for cure? A single-center review of patients with extraluminal pelvic recurrence for rectal cancer from March 2004 to November 2010

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Abstract

BACKGROUND: The benefits in terms of curative resection and survival of pelvic exenterations for specific extraluminal pelvic recurrences from rectal cancer in the era of total mesorectal excision were assessed.

METHODS: We conducted a single-center review of patients with extraluminal pelvic recurrence from colorectal cancer between March 2004 and November 2010. Twenty-seven pelvic exenterations (13 posterior and 14 total) were performed. Independent predicative factors such as age, sex, local control on first surgery, pelvic sidewall excision, initial International Union Against Cancer (UICC) staging, sphincter-preserving resection at first surgery, tumor presentation on computed tomography and magnetic resonance imaging (pelvis sidewall involvement, number of fixation sites, ureteral involvement), local disease-free interval, previous symptoms, and postoperative treatment were analyzed.

RESULTS: No operative mortality was noted in this series. Overall morbidity rate was 74%; 22% of the patients developed severe complications. Complete surgical clearance (R0) was obtained in 63% of the patients. The rate of R0 resections was lower in total pelvic exenteration (57%) than in posterior pelvic exenteration (69%). Three years overall survival and disease-free survival were 76% and

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59%, respectively. Curative resection (R0) was the only independent prognostic factor for overall survival ($P = .0016$) and disease-free survival ($P < .0001$).

CONCLUSION: Pelvic exenterations for extraluminal pelvic recurrences from rectal cancer afford a high R0 resection rate with acceptable morbidity.

Treatment of local recurrence (LR) from rectal cancer represents a difficult technical challenge that requires a multidisciplinary approach. The use of combined therapies has reduced the incidence of LR to less than 8% of rectal cancer patients;[1,2] however, without treatment the median survival for LR is about 3 to 6 months.[3–6] Whenever the local carcinological situation allows for an R0 resection, en bloc resections can be performed. These include total pelvic exenteration (TPE), which removes all adjacent organs that have potentially been affected. Pelvic exenteration is associated with a high morbidity rate and some studies report intraoperative mortality to be as high as 15%.[7,8] In addition, it is difficult to find surgical reports of pelvic exenteration for cases of LR with extraluminal components and these surgical procedures are performed in only a few expert centers.[9] Total mesorectal excision surgery (TME) has modified the localization of recurrence: now extraluminal involvement has become the most prevalent pattern of LR (with presacral or lateropelvic involvement),[10,11] yet most studies do not discriminate between intra- and extraluminal LR. This retrospective study therefore focused on extraluminal LR. The goals were as follows: (1) to describe the carcinological challenges presented by extraluminal LR; (2) to propose a therapeutic policy based on currently available multidisciplinary approaches that can be adapted to each patient according to both their presentation and their surgical and radiation history; and (3) to identify the major predictive parameters of curative resection, overall survival (OS), and disease-free survival (DFS).

Patients and Methods

Between March 2004 and November 2010, the records of patients who had undergone pelvic exenteration for the treatment of extraluminal recurrent rectal cancer in our institution were retrospectively analyzed. During this period, a total of 60 pelvic exenterations were performed, and 27 of these patients had developed extraluminal LR. In some cases, sciatica was present because of tumor invasion of either the sciatic nerve trunk in the sciatic notch or the sacral bone above the S1 to S2 junction; these cases were deemed inoperable. There are known pejorative prognostic factors that are associated with decreased R0 resection rates: male sex, age, no sphincter preservation, high-grade primary tumor, number of fixation sites, pelvic sidewall involvement, ureterohydronephrosis, local control and pre- or postoperative treatment for the first surgery, local disease-free interval (LDFI; defined as the delay between initial treatment and onset of local extraluminal recurrence), and certain characterized symptoms of recurrence such as sciatic pain. Only patients who had had a curative resection were analyzed. Patients who had undergone exploratory surgery but where no resection was performed because of pejorative intraoperative findings (major pelvic invasion, disseminated carcinoma, retroperitoneal invasion) were excluded.

Anatomic tumor involvement, preoperative imaging, and fibroscopy

Preoperative staging included cross-sectional imaging with systematic contrast enhancement computed tomography (CT) and pelvic magnetic resonance imaging (MRI). In our institution, pelvic MRI represents the gold standard method for analysis of all the major determinants of resectability such as lateral pelvic sidewall involvement or sacral bone involvement. MRI was not performed in 3 patients because of contraindications (eg, pacemakers, bullets, etc). Systematic (18)F-fluorodeoxyglucose positron emission tomography was performed to confirm the isolation of LR (pretreatment staging). Cystoscopies were performed on a case-by-case basis (urogenitary track involvement), whereas colonoscopies were performed systematically. MRI images were obtained using a Siemens Somatom Sensation 16. CT images were obtained using a Philips Achieva 1.5T XR MRI System. The location of fixed or invaded pelvic area was reviewed from a preoperative pelvic MRI and annotated as follows: *anterior* was used to denote invasion of the urinary bladder, vagina, uterus, seminal vesicles, or prostate; *posterior* denoted invasion of the sacrum and buttock; and *lateral* denoted invasion of the bony pelvic sidewall or sidewall structures including the iliac vessels, pelvic ureters, pelvic autonomic nerves, and sidewall musculature. The number of cumulated involved areas was calculated for each patient using the Mayo Clinic classification.

Despite a nonstandardized approach to treatment, a multidisciplinary oncologic committee considered all cases on a case-by-case basis to agree on the course of pre- or postoperative treatment. This took various factors into consideration: age, performance status, previous chemoradiation for primitive rectal cancer, and postoperative node status or specific histopathologic data (nervous infiltration, differentiation, vascular emboli). Preoperative radiation and chemotherapy treatment were given in accordance with the International Union Against Cancer (UICC) guidelines for the treatment of rectal cancer. Radiation treatment was delivered by a 3-field belly-board technique to a total dose of 45 Gy (25 single doses of 1.8 Gy over 6 weeks). Upper third rectal tumors or patients with prior pelvic irradiation with a cumulative dose exceeding 45 Gy did not undergo repeat radiation. Additional chemotherapy was administered during the first and last week of irradiation. Pelvic exenteration was delayed until at least 6 weeks after radiation but was