

Original Article

Surgical Treatment of Recurrent Colorectal Cancer in The Pelvis

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Key Words

Pelvic recurrence;
Colorectal cancer

Purpose. The recurrence of cancer in the pelvis is a serious issue when it occurs after a resection for colorectal cancer. Resections are the most effective treatment; however, these resections are rarely successful. This study evaluated a surgeon's experience of surgical treatment of pelvic cancer recurrence.

Materials and Methods. From July 1988 to December 2010, a total of 120 patients with pelvic recurrence of colorectal cancer were managed by a single surgeon (TCH). Among the patients, 56 were men and 64 were women. Their ages ranged from 30 to 85 years (an average age of 58.6 years). One hundred and fifteen patients had adenocarcinomas. The initial surgeries for primary cancer were 107 anterior resections (ARs) and 13 abdominoperineal resections (APRs). The study excluded patients with distant metastasis, patients that received non-surgical treatment, and patients with metachronous malignancies.

Results. Surgical procedures for pelvic recurrences included 16 APRs, eight ARs, 17 tumor resections, seven bowel resections, 12 intestinal bypasses, 43 colostomies, 13 ileostomies, and 4 laparotomies. The operative mortality was 9.02% (11/120). Seventeen operations were considered curative resections; however, only 14 patients lived over five years.

Conclusion. Surgical resection may prolong life and offer a chance of a cure in particular cases. However, even a radical resection rarely cures the disease. Other surgical alternatives are recommended for palliation when possible.

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The pelvic recurrence of colorectal cancer is defined as a local recurrence in the pelvis without a systemic spread of the disease. The symptoms of pelvic recurrence of colorectal cancer include abdominal pain, anorexia, nausea, vomiting, weight loss, rectal bleeding, and change in bowel habit. The management of patients with locally recurrent colorectal cancer in the pelvis is technically challenging.^{1,2} The choice of therapy depends on the prior therapy of the patient and

the local extent of the recurrence. Local irradiation may provide palliation; however, it is not associated with long-term survival.³ Surgical resection provides the only chance for a cure; however complete resections are rarely efficiently performed.⁴ Pathologically negative margins obtained through a complete resection are beneficial for long-term survival in a subset of patients.⁵⁻⁷ However, the benefits of surgical procedures regarding the aspects of symptomatology and

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the quality of life of patients must be weighed against morbidity. This paper presents a retrospective analysis of the experience of a surgeon regarding the surgical treatment of pelvic cancer recurrence, focusing on surgical mortality, surgical morbidity, and long-term survival over a period of 22 years.

Materials and Methods

The data were obtained from the administrative data of colorectal surgery from Mackay Memorial Hospital. We identified all patients who had undergone surgical intervention for the recurrence of colorectal cancer in the pelvis. From July 1998 to December 2010, 120 patients with recurrent colorectal cancer in the pelvis were operated by a colorectal surgeon (TCH). Patients with distant metastases, patients who received non-surgical treatment, and patients with metachronous malignancies were excluded. The demographic data included sex, pathology reports, and types of initial operations. Morbidities, mortalities, and long-term survival were also analyzed.

Results

Among the 120 patients, 56 patients were men and 64 patients were women. The ages of the patients ranged from 30 to 85 years, with an average age of 58.6 years. One hundred and three patients were initially operated on by the senior surgeon (TCH).

The initial operations included 107 anterior resections (ARs) and 13 abdominoperineal resections (APRs). The pathology of cancer at the first operation included adenocarcinoma in 115 patients, leiomyosarcoma in two patients, and one patient each with fibrous histiocytoma, hemangiopericytoma, and malignant melanoma, respectively (Table 1).

Surgical treatment for pelvic cancer recurrence included APR for 16 patients, AR for eight patients, tumor resection for 17 patients, bypass in 12 patients, resection of the small intestine in seven patients, colostomy in 43 patients, ileostomy in 13 patients, and laparotomy in four patients (Table 2).

The time interval from the initial resection to the second operation for recurrences ranged between three months to 13 years, with an average period of 13.7 months. Seventeen operations were considered curative radical resections, with APRs in 12 patients, ARs in two patients, tumor resections in three patients. Eleven of 120 patients (9.02%) died following the surgery. Complications occurred in 28 patients (23.33%), including intestinal obstruction in eight patients, wound infections in eight patients, multiple organ failure in three patients, enterocutaneous fistulas in two patients, sepsis in two patients, urinary tract infections in two patients, and thrombocytopenia, retraction of stoma, and gastric outlet obstruction in one patient each, respectively (Table 3). Fourteen patients (11.7%) who underwent surgery for recurrent colorectal cancer in the pelvis lived for more than five years. Seven patients received APRs, three patients received ARs, three patients received tumor resections, and one patient received a colostomy (Fig. 1).

Table 1. Patient Characteristics

	<i>n</i> (%)
Gender	
Male	56 (47)
Female	64 (53)
Pathology	
Adenocarcinoma	115 (95.8)
Leiomyosarcoma	2 (1.74)
Fibrous histiocytoma	1 (0.82)
Hemangiopericytoma	1 (0.82)
Malignant melanoma	1 (0.82)
Previous surgery	
Anterior resection	107 (89.2)
Abdominoperineal resection	13 (10.8)

Table 2. Operation for recurrences

Type of operation	N
Abdominoperineal resection	16
Anterior resection	8
Resection of tumor	17
Bypass	12
Resection of small intestine	7
Colostomy	43
Ileostomy	13
Laparotomy	4

Table 3. Mortality and complications after operation for recurrences

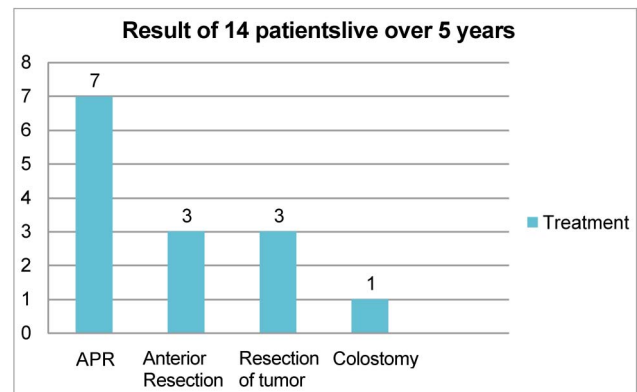
	<i>n</i> (%)
Operative mortality	11 (9.02)
Complications	28 (23.33)
Enterocutaneous fistula	2 (1.67)
Intestinal obstruction	8 (6.67)
Wound infection	8 (6.67)
Urinary tract infection	2 (1.67)
Gastric outlet obstruction	1 (0.83)
Retraction of stoma	1 (0.83)
Multiple organ failure	3 (2.5)
Sepsis	2 (1.67)
Thrombocytopenia	1 (0.83)

Discussion

The management of locally recurrent colorectal cancer is difficult because effective treatment options are limited.² The local recurrence rate after curative resection of colorectal cancer was between 2.6% and 32% in a previous study.⁸ Local irradiation alone may provide palliation for the recurrence; however, it is not associated with long-term survival.³ Surgical resection provides the only chance for a cure and may permit long-term survival in patients undergoing complete tumor resections.^{5,9-15} An extensive surgical procedure may be required in certain patients. However, the benefits must be weighed against the morbidity, the possibility of permanent stomas, chronic pain, and limited survival resulting from aggressive surgery.

A thorough medical history and adequate physical examination are essential to detect recurrences. Pre-operative imaging is a vital tool for selecting patients for surgical treatment. Post-operative follow-up after a curative resection of colorectal cancer at our hospital is to examine the serum CEA, and liver functions every three months. Chest X-rays is ordered every six months. Abdominal echoes or computer tomography (CT) is normally scheduled every year. Frequency of examination changes to every six months till the fifth year after operation. Colonoscopy is performed every three years after operation.

Prior study have shown that complete resections can provide meaningful survival benefits.¹⁶ Long-term

**Fig. 1.** Types of surgery for patients who survived more than five years following surgical intervention for recurrent colorectal cancer in the pelvis.

survival was observed in one-third of all patients following a radical complete resection.¹⁷ Kruschewski et al. included 60 patients with recurrences after they had undergone curative resection of their primary tumors previously. The study indicated that the mortality rate was up to 7% (6/82) following a complete resection of pelvic recurrent colorectal cancer, which was close to the rate obtained in this study.⁶ A systematic review of the related literature authored by Bhangu et al. included 22 studies of 1460 patients, and provided outcomes of a comparison of their resection margin status for locally recurrent colorectal cancer.¹⁸ Our review has a similar result showing that patients who underwent complete resections have survival advantages. Long-term survival was mostly observed in patients that underwent curative radical resections.

The introduction of total mesorectal excision (TME) has reduced the local recurrence rate to below 8% following a resection of rectal cancer.¹⁹ Rahbari et al. examined 107 patients who underwent surgical exploration for recurrent rectal cancer after a previous TME between October 2001 and April 2009.⁷ Long-term survival can be achieved in approximately 50% of all cases. Noncurative (R1; R2) resection ($p < .0001$), surgical morbidity ($p = .001$), and the presence of extrapelvic disease ($p = .006$) were identified as independent adverse predictors in multivariate analysis. The results indicated that complete resection for recurrences is helpful; however, surgical morbidity related to this aggressive procedure must be carefully evaluated.

Literature review indicated that the contraindications for extensive procedures are as follows: (1) bilateral ureteral obstruction; (2) proximal (S1, S2) sacral invasion extending to the sacral promontory; (3) circumferential involvement of the pelvic wall; (4) tumor encasement of the iliac vessels; (5) extension of the tumor through the greater sciatic notch; (6) nerve root involvement above the L1-2 level; (7) unresectable extrapelvic disease; and (8) involvement of the paraaortic lymph nodes.^{20,21} However, Harji et al. indicated that awareness of the surgical options and a willingness to consider more aggressive options may result in more patients being considered for potentially curative resections.⁴ Radical curative resections must be applied to patients who have the potential to full recovery.

In an article published by Dozois et al,²² he included 9 patients with locally recurrent colorectal cancer involving the sacrum above the third sacral body between 1999 and 2007. The overall median survival period was 31 months (range of 2-39 mo). Three patients were alive and free of disease 40, 76, and 101 months after surgical resection, respectively. All deaths were caused by metastatic disease. They considered radical procedures, such as a high sacrectomy, are safe and feasible.

The efficacy of combined modality therapy for locally recurrent rectal cancer in previously unirradiated patients is supported by few previously published retrospective studies.²³⁻²⁵ However, these patients usually have short-term survival.²⁶ A surgical resection may be the most appropriate treatment for patients without extrapelvic disease.² Beart showed that a resection of pelvic recurrence can provide a 5-year survival rate of up to 30%, similar to that after resection of solitary metastases to the lung, liver, or brain.²⁷ If a liver or lung metastectomy can be resected, it may be effective to resect locally recurrent colorectal cancer.

Conclusion

The resection of pelvic recurrence of colorectal cancer in selected patients offers a chance of a cure.

Other surgical alternatives are recommended for palliation when possible. A radical complete resection remains the only approach to cure patients with pelvic recurrence of colorectal cancer.

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原 著

骨盆腔復發大腸直腸癌之手術治療

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目的 大腸直腸癌手術後之骨盆腔復發是一個重大的難題。手術切除是達到根治唯一的希望。然而，只有少數的復發腫瘤可被成功的切除。本研究在於評估單一外科醫師在骨盆腔復發大腸直腸癌的手術治療上之經驗。

方法 自 1988 年 7 月至 2010 年 12 月，共 120 位病患接受同一位外科醫師對骨盆腔復發大腸直腸癌之手術治療。在這些病人中，包含 56 位男性及 64 位女性，年齡介於 30 至 85 歲之間 (平均年齡 58.6 歲)，115 人之腫瘤病理組織型態為腺癌，首次手術切除原發腫瘤之術式包含 107 例前位直腸切除術及 13 例腹部會陰切除手術。本研究之排除條件為：病患有遠端轉移，病患接受非手術治療以及病患有不同發性的腫瘤。

結果 對於骨盆腔復發大腸直腸癌的 120 例手術治療病患中，16 例接受腹部會陰切除手術，8 例接受前位直腸切除術，17 例接受腫瘤切除，7 例接受部分小腸切除，12 例接受腸道繞道手術，43 例接受大腸造瘻術，13 例接受迴腸造瘻術，另有 4 例僅剖腹探查。手術相關死亡率為 9.02% (11/120)。17 例手術為治癒性手術；有 14 個病患存活超過五年。

結論 骨盆腔復發大腸直腸癌之手術治療可延長病患的生命，甚至提供治癒的機會，但即使最根治性的手術切除亦鮮少治癒病患，手術以外的治療僅能在無法手術的情況時供症狀緩解之用。

關鍵詞 骨盆腔復發、大腸直腸癌。