

Simultaneous radical cystectomy and colorectal cancer resection for synchronous muscle invasive bladder cancer and cT3 colorectal cancer: Our initial experience in five patients

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To review cases of simultaneous radical cystectomy and colorectal cancer (CRC) resection for synchronous carcinoma of bladder and colorectum. Between May 1997 and September 2010, five patients were diagnosed with synchronous bladder cancer and CRCs. The primary colorectal tumors included three sigmoid cancers, one ascending colon cancer and one rectal cancer. All patients underwent simultaneous radical cystectomy and CRC resection. Pathologic types were confirmed by the biopsies of cystoscopy and colonoscopy. All patients were performed synchronous radical cystectomy and CRC resection. Four of them received adjuvant chemotherapies for CRC. Two of them died of liver metastasis 32.8 months and 13 months after surgery. Although patients with synchronous carcinoma of bladder and colorectum are rare, the Urologist should be alerted to this possibility when evaluating patients for the initially presenting symptoms and/or detected tumors. The simultaneous surgery is technically feasible for the selected patients.

Key words: Colorectal neoplasms, colorectal surgery, cystectomy, synchronous cancer, urinary bladder neoplasms

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INTRODUCTION

With advances in diagnostic techniques and treatment modalities, the number of patients with bladder cancer (BC) developing multiple primary malignancy during long-term follow-up has been increasing. This may suggest an underlying problem with the person's immune surveillance system or something inherently wrong with the genetic expression and/or tumor suppressor genes.^[1,2] The secondary tumors that occur with a higher incidence in patients with BC are melanoma, lung cancer, lymphoma, prostate cancer and renal cell carcinoma.^[3,4]

However, with regard to the incidence of concurrent BC and multiple primary malignancies, previous reports had merely indicated the number of concurrences.^[5] As we know, few reports had described the incidence of the concurrent colorectal cancer (CRC) and BC.^[6,7] And cases about the simultaneous surgeries of radical cystectomy and CRC resection were even rarer.

Herein, we reported our five cases of synchronous muscle invasive BC and CRC and described our initial clinical experience.

CASE REPORT

Between May 1997 and September 2010, five patients diagnosed with primary BC and CRC underwent simultaneous radical cystectomy and colorectal resection in our institution. The diagnostic criteria were used according to Warren and Gates:^[8] (1) Each tumor had to present a definite picture of malignancy; (2) each tumor had to be distinct; and (3) the probability that one was metastatic from the other had to be excluded.

Patients 1, 2, 3 and 5 were referred to our department for the chief complaints of painless hematuria. Patient 1 was accompanied with repeated lower abdominal pain. Patient 3 was accompanied with bowel habit change. Patient 4 was admitted for the recurrence of BC after repeated transurethral resection of the bladder cancer (TURB) [Table 1]. Cystoscopic examination performed in each patient revealed visible mass and the pathology was committed as the transitional cell carcinoma (TCC), cT2, G2-3. As a consequence of the routine lower abdomen computed tomography (CT) or magnetic resonance imaging before surgery, three patients were detected sigmoid masses, one patient was detected ascending colon mass and one patient was detected rectal mass. The

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Table 1: Characteristics of patients

Characteristics	Patient				
	1	2	3	4	5
Age/sex	55/F	48/M	42/M	60/M	66/M
Clinical manifestation	Hematuria, abdominal pain	Hematuria	Hematuria, bowel habit change	Tumor recurrence after repeated TURB	Hematuria
Colorectal tumor site	Rectum	Sigmoid	Sigmoid	Sigmoid	Ascending colon
Operative time, min	350	270	230	270	250
EBL, ml	800	370	800	1000	500
Blood transfusion, yes/no	Yes	No	Yes	Yes	Yes
Urinary division	ICD	ICD	ICD	ICD	ICD
Hospitalization, POD	16	15	18	13	11
Histologic type (CRC)	Adenocarcinoma, MD	Adenocarcinoma, MD	Adenocarcinoma, PD	Adenocarcinoma, MD	Adenocarcinoma, MD
pTNM stage (CRC)	T3N0M0	T3N0M0	T3N1bM0	T3N1aM0	T3N0M0
Histologic type (BC)	TCC, G2	TCC, G2-3	TCC, G2-3	TCC, G3	TCC, G2-3
pTNM stage (BC)	T2aN0M0	T2bN0M0	T2bN0M0	T2aN0M0	T2aN0M0
Post-operative chemotherapy	-	FOLFOX4+FOLFIRI	FOLFOX4	FOLFOX4	FOLFOX4
Survival, mo	180.1	32.8	13	27.7	27.3

EBL = Estimated blood loss; POD = Post-operative day; CRC = Colorectal cancer; BC = Bladder cancer; PD = Poor differentiated; pTNM = Pathological tumor-node-metastasis; MD = Moderately differentiated; TCC = Transitional cell carcinoma; TURB = Transurethral resection of the bladder cancer

colonoscopy was followed and all the masses were finally proved adenocarcinomas. After a thorough discussion of treatment options, they elected to undergo simultaneous radical cystectomy and CRC resection.

Patient was placed in the supine frog leg position. Colorectal surgery was performed first with a standard surgical form. Radical cystoprostatectomy and pelvic lymph node dissection were performed later. A 10-15 cm ileal segment was isolated to construct the conduit diversion. The negative margin of resection was confirmed by examining frozen sections intraoperatively.

Of the five patients, four were male and one was female. The average age was 63.2 years (range 55-72 year). The colorectal tumor sites were as follows: Three in sigmoid, one in ascending colon and one in rectum. The carcinoembryonic antigen level was slightly higher in patient 3 and 4. CT scanning of the abdomen and pelvis demonstrated no lymph node enlargement (1 cm or greater in short-axis diameter). None of them was found distant metastasis. The demographics data was detailed in Table 1.

Synchronous radical cystectomy and CRC resection were performed without any intraoperative complications. The successive operative time for patient 1-5 was around 350 min, 270 min, 230 min, 270 min and 250 min, respectively. The total estimated blood loss was 800 ml, 370 ml, 800 ml, 1000 ml and 500 ml. Patients 1, 3, 4 and 5 were given a blood transfusion after the whole operation. All the five patients received ileal conduit diversion (ICD). The main post-operative complications were intestinal obstruction (patients 2 and 3), incision

fat liquefaction (patient 3), hydrothorax (patient 5) and symptomatic pelvic lymphocele (patient 2). They were managed by gastrointestinal decompression and fasting (patients 2 and 3), drainage and change dressings (patient 3), observation (patient 5) and percutaneous drainage (patient 2). Patients 1-5 were discharged from the hospital on the post-operative day 16, 15, 18, 13 and 11. The pathologic results of patient 1-5 came as colorectal adenocarcinoma with pathologic stage T3N0M0, T3N0M0, T3N1bM0 (metastasis in two regional lymph node), T3N1aM0 (metastasis in one regional lymph node), T3N0M0; transurethral cell cancer with pathologic stage T2aN0M0, T2bN0M0, T2bN0M0, T2aN0M0, T2aN0M0. The operative data was presented in Table 1.

Except for one patient all others underwent adjuvant chemotherapy. Two of them developed liver metastasis in the course of the disease. No one survived more than 5 years. The clinical outcomes were presented in Table 1.

DISCUSSION

Urologic cancer patients developed with other primary malignancies may be an increasing cohort because of the increased aging population, increased worldwide incidence of obesity and increased exposure to numerous environmental causative agents, which may be detected by the advanced technology in imaging.^[5] It is difficult to ascertain whether having a urologic tumor is a risk factor for having another type of tumor, since this would require analyzing large population studies and not merely tumor registries. However, novel genes have been detected in different organ tumors, for example

UROC28 in prostate, breast and bladder tumors.^[9] Databases of human expressed sequence tags have revealed a common gene on chromosome 17 for both prostate and colon tumors.^[10]

Sugiyama *et al.*^[11] once found incidence of multiple cancers in their study with urologic cancer of 6.6%. In another study by Wegner,^[12] during a 19-year period, 4353 patients treated for urologic cancer from the University of Berlin Hospital had a secondary tumor incidence of 3.3%. Lehnert *et al.*^[13] analyzed the occurrence and distribution patterns of new malignancies following BC. They found that excess risks were observed for cancer of the respiratory tract and the prostate.

As we know, the incidence of synchronous primary cancers of bladder and colorectum was low. The simultaneous radical cystectomy and colorectal resection had been rarely reported. During 1997-2010, we found five patients developed synchronous BC and CRC. Colon tumor may be easily detected during the work-up for a urologic tumor, because of the use of CT scanning and colonoscopy. Most of the Urologists showed that the secondary tumor was usually asymptomatic and no strong family history could be found. They agreed that operating on one tumor did not change the natural history of the second one. As far as the treatment recommendations are concerned, most of the Urologists respond that they prefer to do the tumor resections simultaneously, unless one tumor is more aggressive than the other. Some colorectal surgeons also suggest that synchronous primary CRC and extracolonic cancer should both be radically resected at first laparotomy. The pathologic types of our cases were moderate to high-grade muscle invasive TCC and T3 CRC. Herein, we decided to perform synchronous resections, confirming both aggressive histological types.

In our initial five cases, we did not encounter much technical difficulty because of the better pre-operative preparations and discussion. No serious intraoperative complications were found. Furthermore, the combined surgeries did increase the surgical time and intraoperative blood loss. Considering the previous chronic blood loss, four patients received post-operative blood transfusion. ICD and orthotopic ileal bladder substitution (BS) are the two most frequently used urinary diversions after cystectomy.^[14,15] Regarding that the complicated technique of orthotopic ileal BS might prolong the anesthesia time and increase the risk of intraoperative mortality, we favored ICD. Complications in our cases were no special. However, more attention should be paid for post-operative ileus because of the ileal anastomosis and colorectal anastomosis.

Although our initial experience suggests a feasible way to perform the radical cystectomy and colon resection simultaneously for the synchronous carcinomas, we do not think radical cystectomy is necessary for those patients with non-muscle invasive BC. Synchronous TURB could provide a better life quality for those patients, with good control of BC. To those patients who reject radical cystectomy, chemoradiotherapy after TURB may provide a better cancer control.^[16] More cases with different clinical stages are required as well as long-term outcomes of follow-up.

CONCLUSION

Although rare, there exists a small cohort of patients with synchronous BC and CRC. Primary chief complaint, physical examination, enhanced CT and colonoscopy can help the Urologist to identify the synchronous CRC. For patients with both aggressive histological types of BC and CRC, simultaneous radical cystectomy and CRC resection is a feasible choice.

AUTHORS' CONTRIBUTIONS

All authors have contributed in designing and conducting the study. All authors have assisted in preparation of the first draft of the manuscript or revising it critically for important intellectual content. All authors have read and approved the content of the manuscript and confirmed the accuracy or integrity of any part of the work.

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