

World Journal of *Clinical Cases*

World J Clin Cases 2020 July 26; 8(14): 2893-3135



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Semimonthly Volume 8 Number 14 July 26, 2020

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ABOUT COVER

Editorial Board Member of *World Journal of Clinical Cases*, Dr. Iva Brčić finished medical studies at the Medical University of Graz and received her MD degree in 2003. She received her doctoral degree in 2006 at the same institution. In 2007, she enrolled in the pathology residency program at the University Hospital Center Zagreb. In 2012, she passed her board exam and, until 2015, worked as a staff pathologist at the University Hospital Center Zagreb. From 2015, she is working as the University Assistant at the Medical University of Graz. At the end of 2017, she joined the bone and soft tissue team and spent 4-mo observership at the University of Miami, FL, USA. Her ongoing research interests include bone and soft tissue neoplasms.

AIMS AND SCOPE

The primary aim of *World Journal of Clinical Cases* (*WJCC*, *World J Clin Cases*) is to provide scholars and readers from various fields of clinical medicine with a platform to publish high-quality clinical research articles and communicate their research findings online.

WJCC mainly publishes articles reporting research results and findings obtained in the field of clinical medicine and covering a wide range of topics, including case control studies, retrospective cohort studies, retrospective studies, clinical trials studies, observational studies, prospective studies, randomized controlled trials, randomized clinical trials, systematic reviews, meta-analysis, and case reports.

INDEXING/ABSTRACTING

The *WJCC* is now indexed in Science Citation Index Expanded (also known as SciSearch®), Journal Citation Reports/Science Edition, PubMed, and PubMed Central. The 2020 Edition of Journal Citation Reports® cites the 2019 impact factor (IF) for *WJCC* as 1.013; IF without journal self cites: 0.991; Ranking: 120 among 165 journals in medicine, general and internal; and Quartile category: Q3.

RESPONSIBLE EDITORS FOR THIS ISSUE

Electronic Editor: Ji-Hong Liu, Production Department Director: Xiang Li, Editorial Office Director: Jin-Lai Wang.

NAME OF JOURNAL

World Journal of Clinical Cases

ISSN

ISSN 2307-8960 (online)

LAUNCH DATE

April 16, 2013

FREQUENCY

Semimonthly

EDITORS-IN-CHIEF

Dennis A Bloomfield, Sandro Vento, Bao-Gan Peng

EDITORIAL BOARD MEMBERS

<https://www.wjgnet.com/2307-8960/editorialboard.htm>

PUBLICATION DATE

July 26, 2020

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INSTRUCTIONS TO AUTHORS

<https://www.wjgnet.com/bpg/gerinfo/204>

GUIDELINES FOR ETHICS DOCUMENTS

<https://www.wjgnet.com/bpg/GerInfo/287>

GUIDELINES FOR NON-NATIVE SPEAKERS OF ENGLISH

<https://www.wjgnet.com/bpg/gerinfo/240>

PUBLICATION ETHICS

<https://www.wjgnet.com/bpg/GerInfo/288>

PUBLICATION MISCONDUCT

<https://www.wjgnet.com/bpg/gerinfo/208>

ARTICLE PROCESSING CHARGE

<https://www.wjgnet.com/bpg/gerinfo/242>

STEPS FOR SUBMITTING MANUSCRIPTS

<https://www.wjgnet.com/bpg/GerInfo/239>

ONLINE SUBMISSION

<https://www.f6publishing.com>

Successful treatment of basaloid squamous cell carcinoma in the rectosigmoid colon: A case report and review of literature

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Author contributions: Lee TG, Kim MJ and Yoon SM performed the diagnostic investigations and treatments; Lee TG and Yoon SM reviewed the literature and contributed to manuscript drafting; Lee TG was the patient's surgeon; Yoon SM was responsible for the revision of the manuscript for important intellectual content; all authors issued final approval for the version to be submitted.

Informed consent statement: Written informed consent was obtained from the patient for publication of this report and any accompanying images.

Conflict-of-interest statement: The authors declare that there is no conflict of interest regarding the publication of this manuscript.

CARE Checklist (2016) statement: The authors have read the CARE Checklist (2016), and the manuscript was prepared and revised according to the CARE Checklist (2016).

Open-Access: This article is an open-access article that was selected by an in-house editor and fully peer-reviewed by external

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Abstract

BACKGROUND

Compared with colorectal adenocarcinoma, basaloid squamous cell carcinomas (BSCCs) arising in the colorectum are rare and have very poor prognosis. To date, only nine cases have been reported. Most BSCCs are extensively involved in metastasis to the lymph node, liver, and lung at diagnosis. Despite many clinicians attempting to effectively treat BSCCs, therapeutic consensus has not been established due to lack of information.

CASE SUMMARY

A 58-year-old woman presented with abdominal pain, diarrhea, fever, and hematochezia. She was referred from a department of gynecology and was diagnosed with a suspicious leiomyosarcoma of the rectum or a pedunculated myoma of the uterus. An exophytic growing mass at the right lateral wall of the rectum with an internal cystic portion and hemorrhage was observed on magnetic resonance imaging. The patient underwent low anterior resection and total hysterectomy with bilateral salphingo-oophorectomy. Histopathological findings revealed a cellular mass with a solid growth pattern and few glandular structures, many foci of intratumoral necrosis, and a palisading pattern. The pathologist diagnosed tumor as a BSCC, and the patient received chemotherapy with fluorouracil/leucovorin without radiotherapy. The patient is currently alive 8 years after the surgery with no manifestations of metastatic colon cancer.

CONCLUSION

Our case suggest that curative resection and chemotherapy play important roles in improving survival, and radiotherapy may be an option to avoid radiation-associated enteritis.

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Manuscript source: Unsolicited manuscript

Received: April 1, 2020

Peer-review started: April 1, 2020

First decision: April 24, 2020

Revised: April 30, 2020

Accepted: July 14, 2020

Article in press: July 14, 2020

Published online: July 26, 2020

P-Reviewer: Bordonaro M

S-Editor: Gong ZM

L-Editor: A

E-Editor: Xing YX



Key words: Basaloid squamous cell carcinomas; Rectosigmoid colon; Colorectal cancer; Adjuvant chemotherapy; Curative resection; Case report

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Core tip: Basaloid squamous cell carcinoma in the colorectum is extremely rare and has poor prognosis. Here, we present a rare case of the successful treatment of basaloid squamous cell carcinoma in the rectosigmoid colon. The patient with this rare tumor has the longest survival, and thus, curative resection and chemotherapy may play important roles in improving survival. To avoid radiation-associated enteritis, postoperative radiotherapy may be an option.

Citation: Lee TG, Yoon SM, Kim MJ. Successful treatment of basaloid squamous cell carcinoma in the rectosigmoid colon: A case report and review of literature. *World J Clin Cases* 2020; 8(14): 3057-3063

URL: <https://www.wjgnet.com/2307-8960/full/v8/i14/3057.htm>

DOI: <https://dx.doi.org/10.12998/wjcc.v8.i14.3057>

INTRODUCTION

Most basaloid squamous cell carcinomas (BSCCs) are located in the transitional cloacogenic zone of the anus (cloacogenic carcinoma)^[1], the incidence of which varies between 2% and 3% among anorectal neoplasms^[2]. BSCC occurring in the colorectum is very rare, and only nine cases of primary BSCC in the colorectum have been reported. Histopathological analysis is focused on its origin and differential diagnosis based on microscopic findings and immunohistochemical characterization. BSCCs are often misdiagnosed because they have several histological patterns such as mucoepidermoid carcinoma-like and adenoid cystic carcinoma-like patterns^[3]. Immunohistochemistry can be performed for differential diagnosis of neuroendocrine tumors, gastrointestinal stromal tumor, and poorly differentiated anal and metastatic carcinomas from the lungs and genitourinary cancers^[4]. To date, most BSCCs in the colorectum have been reported to arise from a totipotent basal cell in the colonic mucosa because the cloaca remnant and mucosal dysplasia or metaplasia has not been found^[5].

Although some case reports have confirmed survival, most cases were associated with histopathological and immunological diagnoses. Survival was not sufficiently long as judged based on the efficacy of the treatment; hence, a therapeutic consensus regarding BSCC in the colorectum has not been reached. Here, we report a case of BSCC in the rectosigmoid colon that was successfully treated following curative resection and a postoperative chemotherapy with 5-fluorouracil (5-FU) and leucovorin (LV) regimen without radiotherapy.

CASE PRESENTATION

Chief complaints

A 58-year-old woman presented with lower abdominal pain from the deep pelvis and frequent failure of flatulence for 4 mo.

History of present illness

She was referred from a department of gynecology and diagnosed with a suspicious leiomyosarcoma of the rectum or a pedunculated myoma of the uterus after colonoscopy and abdominopelvic computed tomography (CT) in a previous hospital. She visited the outpatient clinic after 10 d and was transferred to the emergency center because of severe lower left abdominal pain on 2 d before her scheduled admission. She had nausea, vomiting, and non-whirling dizziness. She was diagnosed with colonic cancer perforation with an abscess and was admitted for antibiotic treatment. We ensured that the acute septic condition was stabilized, and the patient underwent operation.

History of past illness

She had no co-morbid disease.

Physical examination

On digital rectal examination, a circumferential fungating mass with a central ulceration was palpated 8 cm from the anal verge, and it was fixed in the pelvic cavity. In the emergency center, the patient's body temperature was 38.9 °C. The systolic and diastolic blood pressures were 110 mmHg and 70 mmHg respectively, pulse rate was 78 beats per minute, and respiratory rate was 20 breaths per minute.

Laboratory examinations

Laboratory results were as follows: White blood cell count (23900/ μ L; 93.9% of neutrophil), hemoglobin (11.6 g/dL), platelet count (416000/ μ L), C-reactive protein (16.14 mg/dL), lipase (9 IU/L), albumin (3.2 g/dL), alkaline phosphatase (265 IU/L), sodium (132 mEq/L), chloride (93 mEq/L), and prothrombin time percentage (73.2%).

Imaging examinations

Chest X-ray showed a nodule in the right upper lung field. Besides this, there was no active lesion in the lungs. Colonoscopy revealed a huge submucosal mass-like lesion with focal ulceration located 8 to 15 cm from the anal verge. Abdominopelvic CT showed a poorly marginated mass measuring 7.4 cm \times 6.3 cm \times 5.5 cm in size located between the rectum and uterus and separated from the uterus by fat tissues. The mass had focal non-enhancing lesions without lymph node enlargement. To rule out the origin of the mass, the patient underwent pelvic magnetic resonance imaging (MRI) before the operation. MRI revealed an exophytic growing mass with a maximum diameter of 7.2 cm at the right lateral wall of the rectum with an internal cystic portion and hemorrhage, multiple lymph node enlargement at the iliac bifurcations, obturator, and presacral areas, and a 2.2-cm-sized multiseptated cystic mass in the fundus of uterus (Figure 1A). Positron emission tomography-CT revealed a high possibility of a malignant tissue with a hypermetabolic mass (SUVmax = 15.1) and cystic changes in the rectum, and this lesion was considered to directly invade the adjacent uterus. Multifocal FDG uptake (SUVmax = 4.0) was observed in the left common iliac, perirectal area, and presacral area (Figure 1B).

Histopathologic examination

The tumor was a polypoid mass measuring 10 cm \times 4 cm \times 4 cm in size, and it invaded left ovary and salpinx via the serosal membrane (Figure 2A and B). No lymph node metastasis, lymphovascular invasion, or perineural invasion was observed. Microscopically, the tumor was a cellular mass that had a solid growth pattern with few glandular structures and many foci of intratumoral necrosis. Tumor cells had elongated nuclei and scant cytoplasm. Mitotic figures, including atypical ones, were also frequently observed. At the boundary between the tumor and normal tissue, tumor cells were arranged in a palisading pattern, resembling basal cell carcinomas of the skin (Figure 3A and B). Immunohistochemical examinations revealed that the tumor cells were focally positive for cytokeratin (CK) 7, p63, and Pan-CK and were negative for CK20; neuroendocrine markers, such as synaptophysin and CD56; and mesenchymal cell markers, including CD34, CD117, desmin, S100 protein, and α -smooth muscle actin. Additionally, the tumor cells were negative for vimentin, WT-1, calretinin, CD99, TTF-1, and CDX2.

FINAL DIAGNOSIS

The final diagnosis of the presented case was BSCC in the rectosigmoid colon.

TREATMENT

The patient underwent low anterior resection, lateral lymph node dissection, total hysterectomy with bilateral salphingo-oophorectomy, and diverting ileostomy on May 2, 2012. Adjuvant chemotherapy comprising 5-FU and LV was initiated 3 wk after the curative resection. Postoperative pelvic radiotherapy was not performed to avoid radiation exposure to the small bowel because the tumor was located above the peritoneal reflexion.

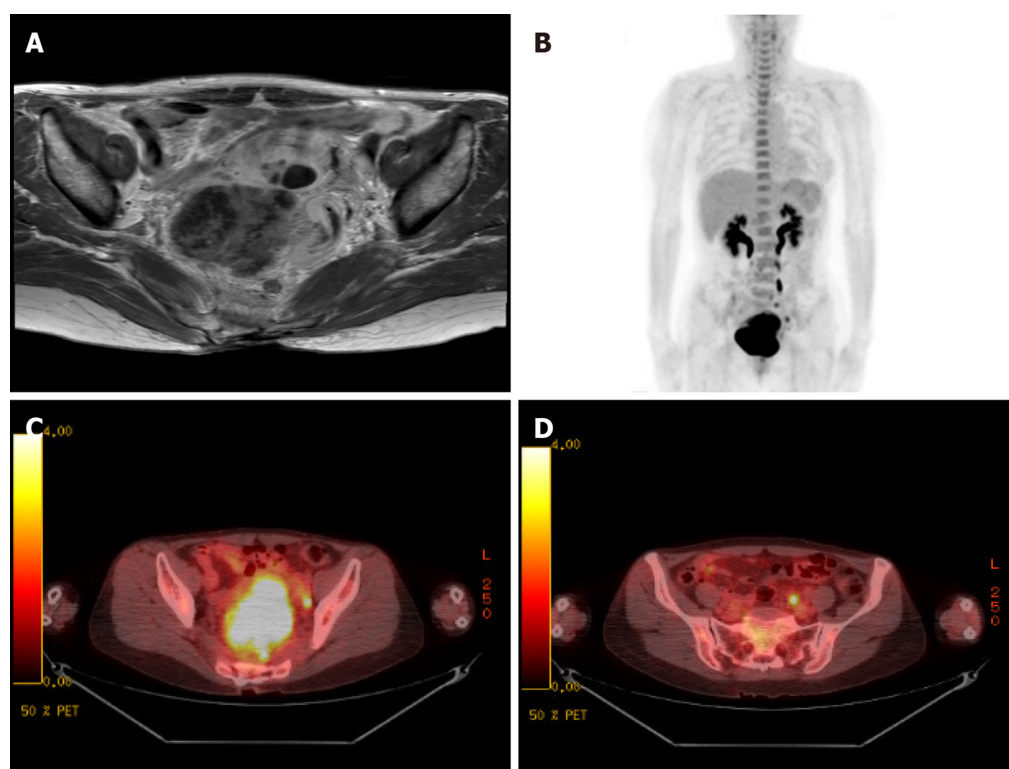


Figure 1 Magnetic resonance imaging and positron emission tomography image. A: T1 weighted axial image showing a low intensity multiseptated cystic lesion on the pelvic cavity and uterus; B: Positron emission tomography-computer tomography image (PET-CT) shows multiple hypermetabolic foci at the pelvis; C: PET-CT showing high ^{18}F -fluorodeoxyglucose (FDG) uptake in the rectum and uterus; D: FDG uptakes are noted in the left internal iliac lymph node.

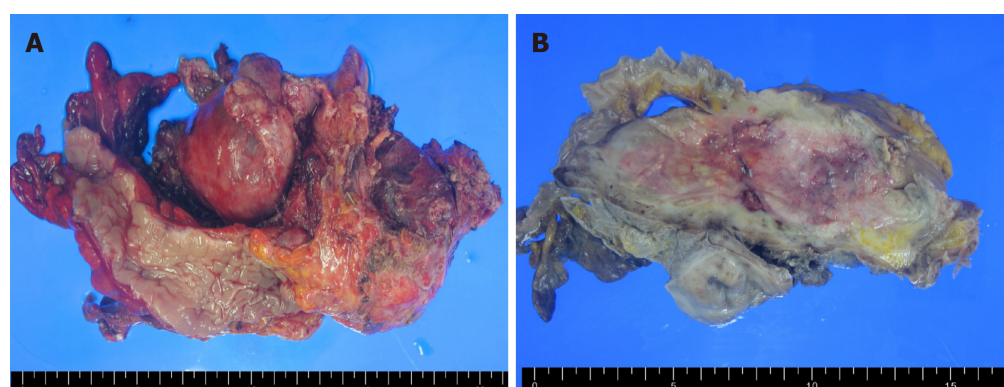


Figure 2 *En bloc* resected tumor. A: Fresh specimen; B: Formalin fixed specimen.

OUTCOME AND FOLLOW-UP

The patient is currently alive 8 years after the surgery and has no evidence of recurrence of a metastatic colon cancer.

DISCUSSION

BSCC is a rare subtype of squamous cell carcinoma (SCC), which often occurs in the skin, uterus, bladder, anus, and upper aerodigestive tract, such as the tongue base, hypopharynx, sinus, tonsil, and larynx^[6]. BSCC is more common in the anus and esophagus than in other parts of the digestive tract. BSCC of the anus is known as cloacogenic carcinoma because it originates from a persistent remnant of the cloacogenic membrane^[5]. Most BSCCs occur in the head and neck, and only nine cases of BSCCs outside the anal canal have been reported since Strate *et al*^[7] first published their report in 1977^[5,7-14]. Seven of the nine cases were located in the rectum and

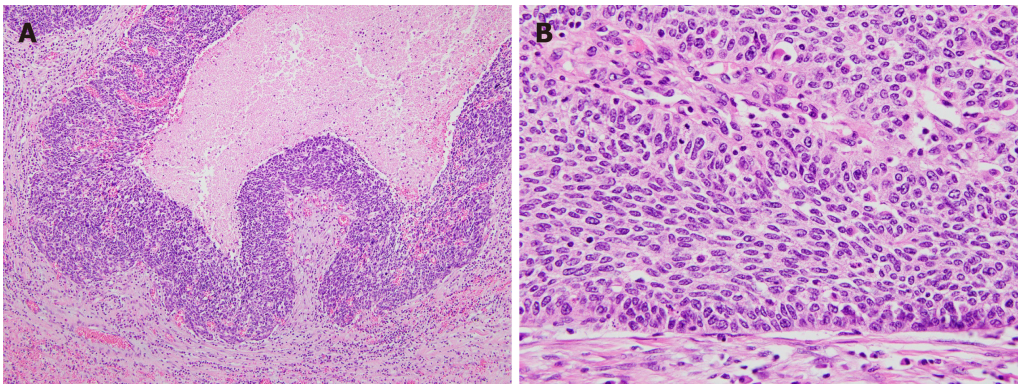


Figure 3 Pathological findings of the tumor. A: At a lower power view, the tumor shows a poorly differentiated carcinoma with solid growth pattern and foci of intratumoral necrosis ($\times 200$); B: At a high power view, tumor cells are pleomorphic and shows scant cytoplasm. Tumor cells are arranged perpendicularly to the boundary between the tumor and adjacent normal tissue ($\times 400$).

sigmoid colon. One case reported BSCC in the descending colon and splenic flexure (Table 1).

Distinguishing BSCC from other poorly differentiated carcinoma is difficult based on histopathological morphology because BSCC has several histological patterns such as mucoepidermoid and adenoid cystic carcinomas^[3,15,16]. To improve histological differential diagnosis of BSCC, the most frequent morphologic pattern, including neoplastic cells arranged in trabeculae with a peripheral palisade, and focal squamous differentiation are useful. Previous reports revealed that although the degree of squamous differentiation was variable, all cases had histopathological characteristics of basaloid carcinoma^[3,17]. In our case, the histological criteria for BSCC, such as palisading pattern, elongated nuclei, and scant cytoplasm, were observed, and immunohistochemical staining was helpful for differential diagnosis. Banks *et al*^[15] reported that head and neck BSCCs are positive for pan-CK (AE1/AE3; approximately 80%) and S100 protein (approximately 39%) and are negative for synaptophysin, chromogranin, and muscle-specific actin^[15]. A study of the differential diagnosis between BSCC and SCC showed that p63 and CK7 were often positive in BSCC. They also found that p63-positive staining in SCC was limited to peripheral and basal layers, but diffuse positivity was recorded in BSCC in the nucleus and peripheral layers. P63 stain has been used for discriminating poorly differentiated SCC from small cell carcinoma or adenocarcinoma^[16]. Graham *et al*^[3] reported that BSCC of the anus was negative for chromogranin, synaptophysin, S100 protein, Melan A, and KIT, but the tumor cells were positive for the squamous marker CK5/6. In our case, immunohistochemical staining was performed to distinguish gastrointestinal stromal tumor and poorly differentiated metastatic carcinoma from primary colon cancers and cancers of the genitourinary tract or lungs. Neuroendocrine markers, such as CD56 and synaptophysin, and gastrointestinal stromal tumor markers, including CD34 and CD117(c-KIT), were negatively stained in tumor cells. CDX2, a diagnostic marker for gastrointestinal differentiation (especially colorectal), was negative. The tumor was negative for TTF-1 and CK20 to distinguish primary colorectal cancer and metastatic carcinoma from cancers of the genitourinary or lungs and positive for CK7, p63, and pan-CK (AE1/AE3). Furthermore, P63-positive staining located nucleus. In our case, experienced pathologists confirmed diagnosis as BSCC.

Clinically, BSCC rapidly deteriorates because it is a more aggressive variant of SCC, is often presented and diagnosed at an advanced stage, and has earlier metastasis. BSCCs in the colorectum also have a poor prognosis and rapid progression based on the histological characteristics of BSCC^[5,7-14]. As shown in Table 1, two of the nine patients died early after operation due to postoperative hepatic failure, coagulopathy, and renal failure^[5,7]. Seven patients currently have metastasis to the lungs, liver, and para-aortic lymph nodes^[5,7,8,11-14]. Patients with cancers occurring in the colon had short survival than those with same staged colorectal adenocarcinomas between 5 wk and 19 mo. The patient who did not undergo curative resection died 5 mo after receiving palliative radiotherapy combined with chemotherapy and irinotecan (3 cycles)^[10]. Indinnimeo *et al*^[9] reported that the longest survival in case reports was 19 mo of disease-free survival, with the patient being treated with radiation and chemotherapy comprising cisplatin and 5-FU. No consensus has been reached regarding the treatment for BSCC in the colorectum. Despite different oncological characteristics between BSCC and colorectal adenocarcinoma, four of the nine patients were

Table 1 Previous basaloid squamous cell carcinoma in the colorectum (review of the literature)											
Ref.	Age/gender	Tumor location	Tumor size, cm	Operation methods	Depth of invasion	Lymph node metastasis	Systemic metastasis	Treatment after surgery	Survival, mo	Immune positive	Immune negative
Strate <i>et al</i> ^[7] , 1977	59/F	Sigmoid	7 × 1.5	palliating colectomy, colostomy	Subserosa	Yes	Liver	NA	0	PTH, ACTH	NA
Hall-Craggs <i>et al</i> ^[8] , 1982	69/F	Sigmoid	4 × 2	excised colon	Serosa	No	Liver	NA	NA	NA	NA
Indinnimeo <i>et al</i> ^[9] , 1998	61/F	Rectum	6 × 5 × 7	APR	Serosa	No	No	Radiotherapy Chemotherapy (cisplatin plus 5-FU)	19	ki67, CD31	NA
Newell <i>et al</i> ^[5] , 2001	54/M	Splenic flexure	10	palliative resection	Serosa	Yes	Liver	NA	0.3	Low/high-molecular weight keratin, CK 5/6, EMA, NSE	CK 7, CK 20, CEA, vimentin, desmin, SMA, chromogranin, synaptophysin, serotonin, PTH, ACTH, calcitonin, gastrin, glucagon, VIP, PP, CD34, somatostatin
Garcia-higuera <i>et al</i> ^[12] , 2002	67/M	Recto-sigmoid	3.5 × 3.2	Anterior resection	Serosa	Yes	Liver, lung	Radiotherapy Chemotherapy (cisplatin plus 5-FU)	6	NA	NA
Jaswal <i>et al</i> ^[13] , 2002	24/F	Descending colon	3 × 2.5	Left hemicolectomy	Serosa	Yes	Liver, para-aortic and iliac lymph nodes	NA	3	NA	NA
Akbulut <i>et al</i> ^[10] , 2009	23/M	Recto-sigmoid	8 × 8.5	Hartmann's operation	Serosa	NA	NA	Radiotherapy Chemotherapy (irinotecan)	5	High-molecular weight keratin, p63	NA
Ha <i>et al</i> ^[14] , 2013	70/M	Recto-sigmoid	6.0 × 7.0	Low anterior resection	Serosa	NA	Liver, lung	NA	Loss the follow up	NA	NA
Gurzu <i>et al</i> ^[11] , 2014	61/F	Sigmoid	3.5 × 2.5	Anterior resection	Subserosa	No	Liver	Chemotherapy (FOLFOX plus bevacizumab)	4	Pan-CK, CK 5/6, EMA, NSE, bcl-2, VEGF, CD105, p53	CK 7, CK 20, CEA, chromogranin, p63, c-KIT, maspin
Our case	58/F	Recto-sigmoid	10 × 4 × 4	Low anterior resection, PLND, diverting ileostomy, TAH with BSO	Serosa	No	No	Chemotherapy (Mitomycin C plus 5-FU)	96	CK7, p63, Pan-CK	CK20, CD34, CD117, Vimentin, CD56, WT-1, Calretinin, SMA, CD99, Synaptophysin, TTF-1, CDX2, desmin. S-100 protein

LN: Lymph node; APR: Abdominoperineal resection; PLND: Pelvic lymph node dissection; TAH: Transabdominal hysterectomy; BSO: Bilateral salphingo-oophorectomy; 5-FU: 5-fluorouracil; FOLFOX: Oxaliplatin with 5-fluorouracil and folinic acid; EMA: Epithelial membrane antigen; NSE: Neuron specific enolase; PTH: Parathyroid hormone; ACTH: Adrenocorticotrophic hormone; CEA: Carcinoembryonic antigen; SMA: Smooth muscle antigen; PTH: Parathyroid hormone; VIP: Vasoactive intestinal peptide; PP: Pancreatic polypeptide; VEGF: Vascular endothelial growth factor; WT-1: Wilms' tumor protein; TTF-1: Thyroid transcription factor 1; CDX2: Caudal type homeobox 2; NA: Not available.

administered chemotherapeutic regimen for colorectal or anal cancer^[9-12]. Three of the four patients underwent radiotherapy and chemotherapy with 5FU and LV combined

with cisplatin or irinotecan^[9,10,12]. One patient received palliative chemotherapy with FOLFOX (oxaliplatin with 5-FU and folinic acid) plus bevacizumab^[11]. In our case, pathologists recommend treatment with cisplatin or etoposide based on small cell lung cancer because tumor growth rate and invasiveness are very aggressive. However, the patient received a 5-FU, mitomycin, and LV regimen because she did not recover sufficiently to tolerate recommended regimen. We did not perform radiotherapy to avoid radiation exposure. The radiation field could include a large portion of the ileum because the main mass was located above the peritoneal reflexion. The patient is currently alive 8 years post-surgery with no manifestations of metastatic colon cancer.

CONCLUSION

To the best of our knowledge, we report the longest survival period of a patient with BSCC in the colorectum. Our case findings show that curative resection may play important roles in improving survival, and radiotherapy may be an option to avoid radiation-associated enteritis. Thus, the selection of an appropriate chemotherapy regimen is important because BSCCs have poor prognosis and rapid progression.

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