

Case report of periorbital metastasis from rectal cancer

Jin-Hee Paik, MD, PhD^a, Hyun Jin Shin, MD, PhD^b, Hye Seung Lee, MD^c, Hye Seung Han, MD, PhD^c, Chun-Geun Ryu, MD^a, Dae-Yong Hwang, MD, PhD^{d,*}

Abstract

Introduction: Periorbital metastasis of colorectal cancer is rare. Therefore, herein, we report a patient with rectal cancer who presented with periorbital metastasis without any systemic metastasis.

Patient concerns: The patient was a 57-year-old man who had a painless nodule on his left eyelid.

Diagnosis: The patient presented with loose and frequent stools and was diagnosed with rectal adenocarcinoma via colonoscopic biopsy at the local clinic. Curative resection (low anterior resection with temporary ileostomy formation) was performed 4 weeks after completing chemoradiotherapy. The final TNM stage was yp stage T2N0M0. Eight months after the diagnosis of rectal cancer, a protruding lesion was noticed on the patient's left eyelid. Histologic evaluation of the nodule revealed metastatic adenocarcinoma of rectal cancer.

Interventions: The patient received neoadjuvant chemoradiotherapy and curative resection for rectal cancer. After excision of the periorbital nodule, he received 5 cycles of chemotherapy.

Outcomes: The patient underwent regular follow-up because he was not able to endure chemotherapy; no recurrence has been observed 21 months after the diagnosis of rectal cancer. Histologic examination revealed metastatic adenocarcinoma of rectal cancer on the patient's left eyelid. However, consecutive imaging studies revealed no other metastatic lesions. Finally, the patient was diagnosed with a solitary periorbital metastasis of rectal cancer.

Conclusion: This case report helps in understanding the course of progression from rectal cancer to periorbital metastasis.

Abbreviations: CRC = colorectal cancer, TNM = TNM classification of malignant tumors.

Keywords: eyelid neoplasms, neoplasm metastasis, rectal neoplasms

1. Introduction

Colorectal cancer (CRC) is the third most common cancer in men and second most common cancer in women worldwide.^[1] As early CRC does not present with typical symptoms, most cases of

CRC are diagnosed in advanced stages. Approximately 25% of patients with CRC have distant metastasis at the time of diagnosis. Common metastatic sites of CRC include the liver, lungs, distant lymph nodes, and peritoneum.^[2,3] However, orbital metastasis of CRC is extremely rare. Only 4% of gastrointestinal tract cancers have been reported to metastasize to the ocular region.^[4]

Herein, we report a rare case of periorbital metastasis in a patient who underwent neoadjuvant chemoradiotherapy and surgery for rectal cancer.

2. Case report

A 57-year-old man without a significant medical history visited the colorectal center of our hospital for further work-up and treatment of rectal cancer detected at a local clinic. He had presented with loose and frequent stools when he was first diagnosed with rectal adenocarcinoma via colonoscopic biopsy at the local clinic. Colonoscopic findings indicated a 4-cm encircling rectal mass without a movable anterior side. Pelvic magnetic resonance imaging revealed several enlarged regional lymph nodes. We planned to perform neoadjuvant chemoradiotherapy and curative resection assuming clinical stage III disease (T3N2M0). First, the patient underwent 23 cycles of preoperative radiotherapy, consisting of whole pelvic radiation at a dose of 46 Gy and boost radiation of 2 Gy. Chemotherapy was then administered with 3 cycles of 5-fluorouracil (425 mg/m²) and leucovorin (20 mg/m²) every 4 weeks. Curative resection

Editor: N/A.

Informed written consent was obtained from the patient for publication of this case report and accompanying images.

This study was approved by the institutional review board (Ethical approval number: KUH1020091).

The authors have no conflicts of interests to disclose.

^aDepartment of Surgery, Colorectal Cancer Center, ^bDepartment of Ophthalmology, Medicine, ^cDepartment of Pathology, ^dDepartment of Surgery, Konkuk University Medical Center, Konkuk University School of Medicine, Gwangjin-gu, Seoul, Republic of Korea.

*Correspondence: Dae-Yong Hwang, Department of Surgery, Colorectal Cancer Center, Konkuk University Medical Center, Konkuk University School of Medicine, 120-1 Neungdong-ro (Hwayang-dong), Gwangjin-gu, Seoul 143-729, Republic of Korea (e-mail: hwangcrc@kuh.ac.kr).

Copyright © 2020 the Author(s). Published by Wolters Kluwer Health, Inc.

This is an open access article distributed under the Creative Commons Attribution License 4.0 (CCBY), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

How to cite this article: Paik JH, Shin HJ, Lee HS, Han HS, Ryu CG, Hwang DY. Case report of periorbital metastasis from rectal cancer. *Medicine* 2020;99:1 (e18479).

Received: 14 March 2019 / Received in final form: 1 November 2019 /

Accepted: 14 November 2019

<http://dx.doi.org/10.1097/MD.00000000000018479>

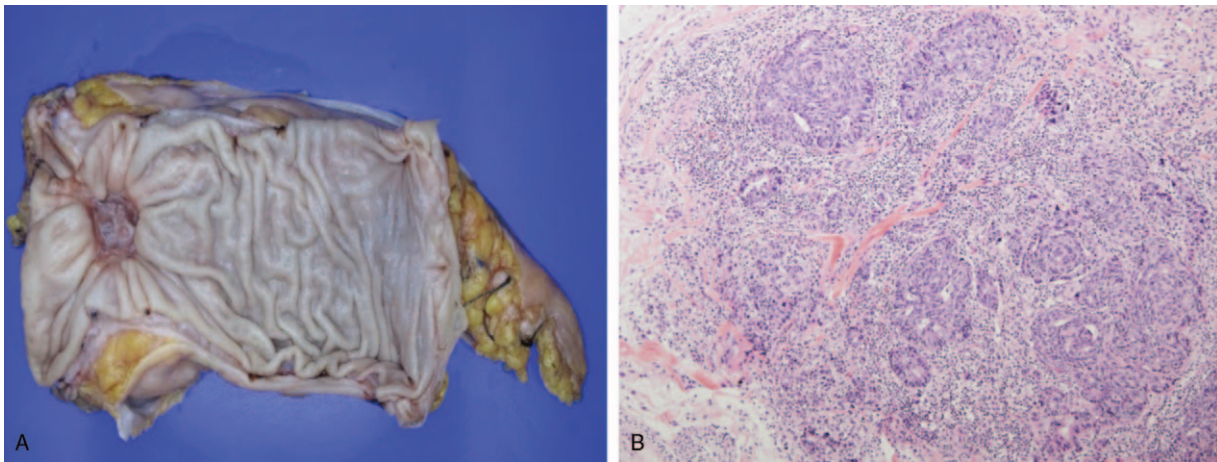


Figure 1. Gross pathology (A) and microscopic finding, (B) of rectal adenocarcinoma.

(low anterior resection with temporary ileostomy formation) was performed 4 weeks after chemoradiotherapy was completed. The pathology report indicated a moderately differentiated adenocarcinoma with yp stage T2N0M0 disease, according to the TNM stage (Fig. 1). Ileostomy repair was performed 3 months later, and postoperative care was initiated.

Eight months after the diagnosis of rectal cancer, a nodule was noticed on the patient's left eyelid (Fig. 2A, B). The protruding lesion on his left eyelid was noticed at the time of ileostomy repair. The patient was then referred to the ophthalmology department where en-bloc resection was performed for the eyelid lesion, including the skin, subcutaneous tissue, and muscle. Histologic evaluation of the specimen revealed metastatic adenocarcinoma of rectal cancer on the eyelid (Fig. 3), with a clear resection margin (upper margin, 1.0 mm; lower margin, 0.5 mm; lateral margin, 10.0 mm; surgical margin, 2.0 mm; and deep margin, 0.1 mm). Neither brain magnetic resonance imaging nor neck computed tomography revealed evidence of intracranial or cervical metastasis. Total whole body fluorodeoxyglucose-positron emission tomography also revealed no significant abnormal hypermetabolic lesions that were indicative of malignancy.

The patient then received chemotherapy with the FOLFOX (fluorouracil plus leucovorin and oxaliplatin) regimen, but he was not able to tolerate the treatment after the fifth cycle. Therefore, he stopped receiving chemotherapy, and periodic follow-up examinations were performed. The patient showed no

recurrence at the last follow-up, i.e., 13 months after excision for the nodule on the left eyelid.

3. Discussion

Survival after CRC diagnosis has been prolonged owing to the development of new chemotherapeutic modalities, including targeted agents. With the improvement in survival, CRC has an increased tendency to metastasize to rare sites, such as the bones, brain, and spleen. Nonetheless, periocular metastasis of CRC is extremely rare. Moreover, solitary periocular metastasis is uncommon among other malignancies. Furthermore, systemic metastasis of breast cancer is rare in the periorbital region.^[5] Distant systemic metastases are more common in rectal cancer than in colon cancer. This may be because of the venous circulatory system in rectal cancer, which allows rectal cancer metastases to better reach the periorbital region, compared to colon cancer.^[6]

Hematogenous dissemination of colon cancer is predominantly through 1 tract in the portal venous circulation, whereas rectal cancer leads to systemic metastasis via 2 routes: pulmonary circulation to the ophthalmic artery and seeding on Batson venous plexus to the ophthalmic vein through the vertebral plexus.^[6,7] These metastatic routes of rectal cancer are likely to cause metastasis at other sites, including the lungs and the vertebral column. In a previous study, infiltrative brain metastasis was associated with periocular metastasis of rectal cancer. The

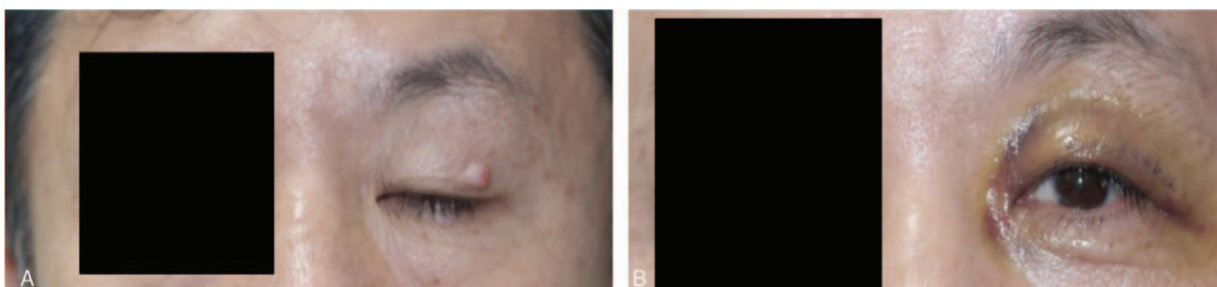


Figure 2. Gross image of the left eye of the patient (A: preoperative, B: postoperative).

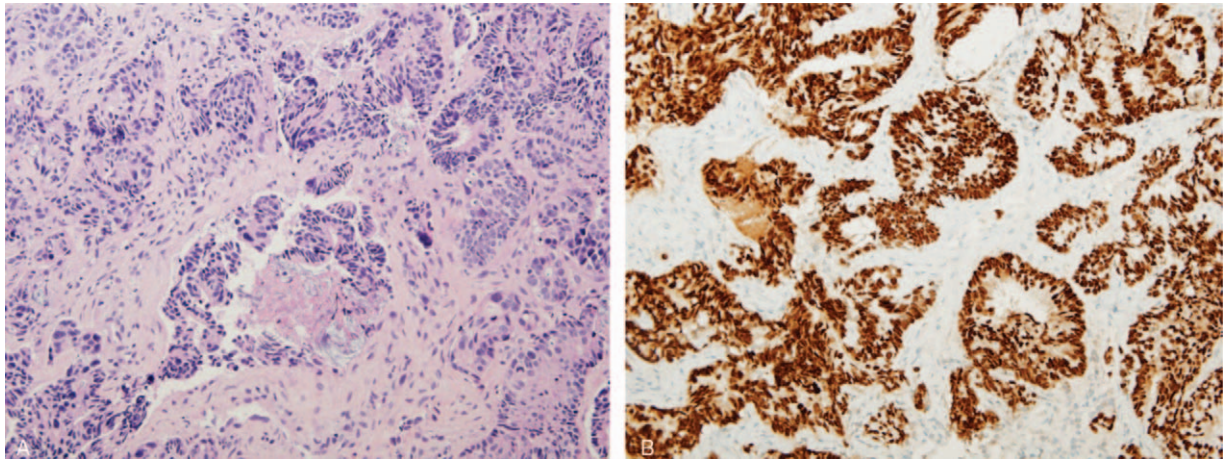


Figure 3. Pathologic findings of periorbital nodule. (A) The slide shows typical microscopic appearance of adenocarcinoma. Central necrosis can explain as a metastasis from rectal cancer rather than an adenocarcinoma from periorbital mucosa. (B) The slide shows Cytokeratin 7 negative, Cytokeratin 20 positive, Caudal type homeobox 2 positive that means carcinoma from lower gastrointestinal tract.

patient died 7 months after initial chemotherapy because of metastasis to other organs, including the bone and pleura.^[8] However, in the current case, only a solitary periorbital metastasis was observed, without other metastatic lesions. Therefore, the current case may be an example of tumor embolism, which can be explained by the hypothesis used to explain systemic metastasis of rectal cancer.^[9]

Patients with periorbital metastasis generally complain of symptoms such as painful nodules, diffuse eyelid swelling, diplopia, and blurred vision. In general, the prognosis of patients with orbital metastases is poor, with a median survival rate of approximately 10 to 20 months.^[10,11] In the present case, the patient did not have any specific symptoms, including visual disturbance or eyeball pain. Despite the absence of standard treatments for periorbital metastasis of rectal cancer, we administered additional chemotherapy for the treatment of systemic metastasis.

In conclusion, we reported a case of solitary periorbital metastasis of rectal cancer without other distant metastatic lesions. This case report helps in understanding the course of progression from rectal cancer to periorbital metastasis. Further studies should be conducted to establish the proper management for solitary periorbital metastasis of rectal cancer.

Author contributions

Data Curation: Hyun Jin Shin.

Methodology: Hye Seung Lee, Hye Seung Han.

Supervision: Dae-Yong Hwang.

Validation: Chun Geun Ryu.

Writing – original draft: Jin-Hee Paik.

Writing – review & editing: Dae-Yong Hwang.

Dae-Yong Hwang orcid: 0000-0001-9082-8431.

References

- [1] Torre LA, Bray F, Siegel RL, et al. Global cancer statistics, 2012. *CA Cancer J Clin* 2015;65:87–108.
- [2] Hugen N, van de Velde CJ, de Wilt JH, et al. Metastatic pattern in colorectal cancer is strongly influenced by histological subtype. *Ann Oncol* 2014;25:651–7.
- [3] Holch JW, Demmer M, Lamersdorf C, et al. Pattern and dynamics of distant metastases in metastatic colorectal cancer. *Visc Med* 2017;33:70–5.
- [4] Khawaja MR, Minturn JT, Spittler AJ, et al. Ocular metastasis of colorectal cancer: an uncommon presentation of a common malignancy. *Hematol Oncol Stem Cell Ther* 2015;8:176–80.
- [5] Homer N, Jakobiec FA, Stagner A, et al. Periocular breast carcinoma metastases: correlation of clinical, radiologic, and histopathologic features. *Clin Exp Ophthalmol* 2017;45:606–12.
- [6] Pearlman M, Kwong WT. A long and distant journey: a case of rectal cancer with metastasis to the orbit. *Ann Gastroenterol* 2015;28:151–2.
- [7] Batson OV. The function of the vertebral veins and their role in the spread of metastases. 1940. *Clin Orthop Relat Res* 1995;4–9.
- [8] Nabeel M, Farooqi R, Mohebtash M, et al. Rectal cancer in the eye: a case report of orbital metastasis. *Cureus* 2017;9:e1589.
- [9] Zeidman I, Buss JM. Transpulmonary passage of tumor cell emboli. *Cancer Res* 1952;12:731–3.
- [10] Cherif E, Ben Hassine L, Azzabi S, et al. Orbital metastasis as the inaugural presentation of occult rectal cancer. *BMJ Case Rep* 2014;2014:doi: 10.1136/bcr-2013-201428.
- [11] Font RL, Ferry AP. Carcinoma metastatic to the eye and orbit III. A clinicopathologic study of 28 cases metastatic to the orbit. *Cancer* 1976;38:1326–35.