



Rare Metastasis of Rectal Cancer to Scrotal Skin: A Case Report and Literature Review

Abbas Abdollahi¹, Armin Saeedi², Yeganeh Azadmanesh³, Mohammad Etezadpour⁴, Tooraj Zandbaf^{5,*}

¹Endoscopic and Minimally Invasive Surgery Research Center, Ghaem Hospital, Faculty of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran

²Department of Radiation Oncology, Reza Radiation Oncology Center, Mashhad, Iran

³Department of Emergency Medicine, Razavi Hospital, Mashhad, Iran

⁴Endoscopic and Minimally Invasive Surgery Research Center, Ghaem Hospital, Faculty of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran

⁵Assistant Professor of General Surgery, Department of General Surgery, Faculty of Medicine, Mashhad Medical Sciences, Islamic Azad University, Mashhad, Iran

* **Corresponding author:** Tooraj Zandbaf, Department of General Surgery, Faculty of Medicine, Mashhad Medical Sciences, Islamic Azad University, Mashhad, Iran. Tel: +985132250041; Email: tooraj.zandbaf@gmail.com

Received 2021 September 11; Revised 2021 November 13; Accepted 2022 February 24.

Abstract

Background: The most common manifestations of metastatic colorectal cancer are found in the liver, lung, bone, and brain. Cutaneous metastasis is rare in rectal cancer, and it indicates a widespread disease and a poor prognosis.

Case presentation: This report and review present a 58-year-old man who was diagnosed with rectal cancer (RC) and underwent abdominoperineal resection. The patient developed a skin lesion (indurated erythema) on his scrotum four months later. Histopathological examination revealed adenocarcinoma with lymphovascular invasion.

Results: The primary causes of mortality in people with RC have been reported to be disease dissemination and recurrence. Cutaneous metastasis to the scrotum happens seldom, accounting for less than one percent of the total surface area of the body.

Conclusion: Even if an RC patient has been asymptomatic for a long time, skin involvements must be considered by clinicians. Therefore, giving specific attention to all skin nodules, non-healing ulcers, and chronic indurated erythema is essential. Early detection relies heavily on patient engagement.

Keywords: Metastasis, Rectal cancer, Rectal neoplasms, Scrotal lesion

1. Background

The third most frequent malignancy worldwide is colorectal cancer. The important risk factors for Rectal Cancer (RC) have been identified as age, a family history of RC, and a Western lifestyle. (1) About 20% of patients may have distant metastases at the time of diagnosis, and the remaining 30% may develop metastases during the course of the disease. (2) The most common manifestations of disseminated colorectal cancer are found in the liver, lung, bone, and brain. Although RC metastases to the skin are rare, it indicates widespread disease and a poor prognosis. Cutaneous metastases are frequent and small 1-2 cm nodules that often simulate epidermal cysts, kerato-acanthomas, or pyogenic granulomas. It is critical to recognize suspicious skin lesions as probable harbingers of undiscovered visceral malignancy in patients with and without a history of cancer. (3) Cutaneous metastasis to the scrotum happens seldom, accounting for less than one percent of the total surface area of the body. (4) For this reason, the authors would like to present a clinical experience with rectal cancer that has metastases to the scrotal skin. This study has been documented by the SCARE guidelines.

2. Case presentation

A 58-year-old man was referred to the

Department of General Surgery in September 2020 due to rectal bleeding. A 10 cm mass from the anal verge was reported on colonoscopy. Invasive adenocarcinoma was discovered during a biopsy of the tumor. The CT scan of the chest, abdomen, and pelvis exhibited a locally invasive RC with no distant metastases. The patient was referred for neoadjuvant chemoradiation. In January 2021, the patient underwent abdominoperineal resection and was then discharged from the hospital in good general condition. In July 2021, the patient presented with a skin lesion (indurated erythema) on the scrotum (Figure 1). A biopsy was performed, and a histopathological examination showed adenocarcinoma with lymphovascular invasion. Immunohistochemistry staining confirmed cutaneous metastasis of the rectal adenocarcinoma (Figure 2). After consultation with an oncologist, treatment with cetuximab and capecitabine started. Fortunately, after chemotherapy, skin lesions and scrotal edema subsided. At the time of writing, the patient's general condition was good.

3. Discussion

After melanoma and lung cancer, colorectal cancer was the third most prevalent cause of cutaneous metastases in men and the seventh most common cause in women. The primary causes of death in people with RC have been reported to be

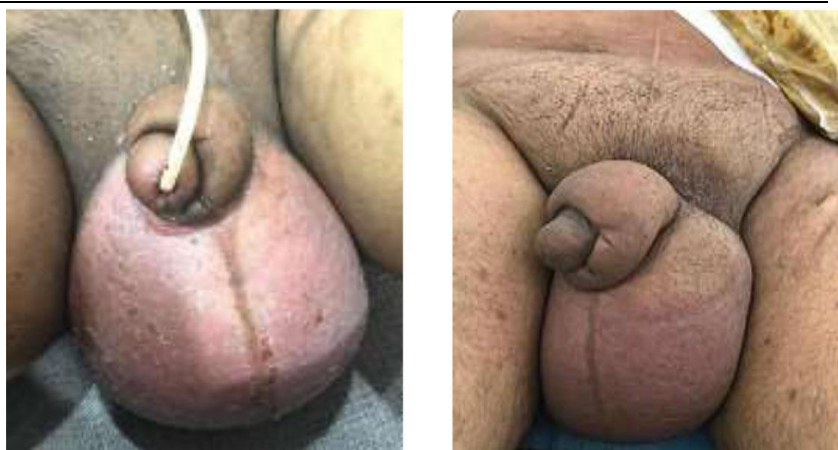


Figure 1. Scrotal lesions, before and after chemotherapy

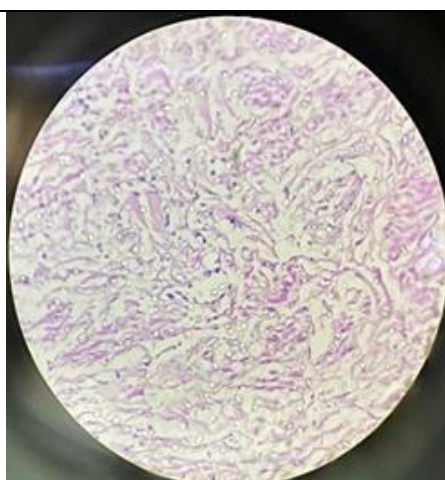


Figure 2. Histopathological Findings (Scrotal skin metastasis from rectal adenocarcinoma)

disease dissemination and recurrence. The average time from diagnosis to death was 18 months. (1,3) Previous research has shown that cutaneous RC metastasis occurs most frequently in the first three years of the disease while scrotal metastasis occurs between 4 to 24 months. (2)

In 2008, Gazoni et al. discovered metastatic lesions following the removal of the initial lesion in metastatic RC to the skin. Dermal invasion occurs within two years of the initial resection and has a dismal prognosis, with a median 3 to 20 months survival time. (3) Similarly, the patient under study developed scrotal metastasis six months after the initial surgery. Fortunately, after chemotherapy, the skin lesions and scrotal edema subsided. At the time of writing, the patient was in good general condition.

Most cutaneous RC metastases appear late in the disease progression. However, they could be the first signs of malignancy. Small subcutaneous or intradermal nodules, which are 1-2 cm in diameter, are the most common RC skin metastases. The RC can spread to the skin through lymphatic and hematogenous dissemination, direct extension, or surgical implantation. Although surgery is not a

possibility, systemic chemotherapy and radiotherapy may be helpful to manage the symptoms. (5) Similarly, in the patient under study, the lymphovascular invasion was also confirmed by the histopathological examination of the scrotal biopsy. This point confirms that RC spreads to the scrotum through lymphovascular dissemination. The patient under study did not undergo surgery and only received chemotherapy.

All RCs were discovered within 10 cm from the anal verge. Adenocarcinomas were found in all tumors. Skin metastases and RC were 100% identical in terms of histopathology. From the time of diagnosis, no patient lived more than seven months. Although they caused severe morbidity, skin metastases were not the cause of death. (3) Similarly, the patient under study had a tumor within 10 cm of the anal verge, and the histopathology of the RC was the same as the scrotal biopsy. Fortunately, the patient is still alive seven months after being diagnosed with scrotal metastasis.

In January 2009, McWeeney et al. reported a 72-year-old man with synchronous lesions 3 cm and 40 cm from the anal verge, as well as liver metastases.

Histopathological findings confirmed the presence of synchronous adenocarcinoma. Chemoradiotherapy was used to treat the patient. He returned eight months later with an ulcerating lesion on his right hemiscrotum. Metastatic adenocarcinoma of the large bowel was discovered using immunohistochemistry. (6) However, the patient in the present study was younger and did not have any synchronous tumors or liver metastases. Scrotal lesions developed 10 months after the initial diagnosis of RC and six months after the surgery.

In September 2013, Ozgen et al. reported a 65-year-old male patient with lower RC, 3 cm superior to the anal verge. The rectal adenocarcinoma was confirmed by biopsies. A CT scan of the abdomen and pelvis revealed a locally invasive RC with no distant metastases. He was scheduled for a low anterior resection once chemoradiotherapy was completed. Nineteen months after surgery, PET/CT scan was performed and a progression of rectal recurrences was revealed. The patient had painless, reddish nodules affecting the skin of the left scrotum. The skin biopsy demonstrated adenocarcinoma. Chemotherapy and palliative radiation were provided to the patient at this point. The patient is still alive and hasn't developed any distant metastases. (7) The patient in the present study had a very similar background, and he is still living but did not receive radiotherapy.

Skin metastasis should be considered in patients who come with suspicious skin lesions and have risk factors or symptoms consistent with RC. In patients with a history of cancer, a biopsy of suspicious lesions is also recommended. (3)

Early identification of cutaneous metastatic disease can have a significant impact on its management and prognosis. When new skin lesions are discovered in cancer patients, a high index of suspicion is advised. Patients with cancer should have regular dermatologic examinations, and practitioners should be aware of the possibility of skin metastases. (5).

4. Conclusion

Even if an RC patient has been asymptomatic for a long time, skin involvements must be considered by clinicians, giving specific attention to all skin nodules, non-healing ulcers, and chronic indurated erythema. Early detection relies heavily on patient engagement. Patients with a history of RC should be educated to examine all parts of their skin several times annually to recognize the signs of cutaneous

metastases and take appropriate actions if a suspicious lesion is discovered.

Acknowledgments

The authors would like to express their thanks to the Ghaem Hospital of Mashhad where this surgery was conducted.

Footnotes

Conflicts of Interest: The authors declare that they have no conflict of interest regarding the publication of this paper.

Ethical Statement: The patient's written informed consent was obtained for the publication of this case report and the accompanying photographs.

Funding: This case report had no funding or sponsors.

Authors' contribution: A.A. performed the surgery and reviewed the manuscript, T.Z. and Y.A. wrote the manuscript and reviewed the literature, and A.S. and M.E. reviewed the literature. All authors read and approved the final manuscript.

References

1. Hosseini SV, Rezaianzadeh A, Rahimikazerooni S, Ghahramani L, Bananzadeh A. Prognostic Factors Affecting Short- and Long-Term Recurrence-Free Survival of Patients with Rectal Cancer using Cure Models: A Cohort Study. *Iran J Med Sci.* 2020;**45**(5):333–40. doi: [10.30476/ijms.2020.72735.0](https://doi.org/10.30476/ijms.2020.72735.0). [PubMed: [33060876](https://pubmed.ncbi.nlm.nih.gov/33060876/)].
2. Moghimi M, Aryanfar A, Vahedian-Ardakani H, Joukar F. Scrotal lesions of metastatic rectal adenocarcinoma: Case report and literature review. *Acta Med Iran.* 2019;**57**(4):262–6. doi: [10.18502/acta.v57i4.1847](https://doi.org/10.18502/acta.v57i4.1847).
3. Gazoni LM, Hedrick TL, Smith PW, Friel CM, Swenson BR, Adams JD, et al. Cutaneous metastases in patients with rectal cancer: A report of six cases. *Am Surg.* 2008;**74**(2):138–40. doi: [10.1177/000313480807400210](https://doi.org/10.1177/000313480807400210).
4. De Giorgi V, Venturi F, Portelli F, Maida P, Scarfi F, Trane L, et al. Scrotal cutaneous metastasis from rectal squamous cell carcinoma: A rare evolution into a rare tumor. *Exp Oncol.* 2021;**43**(2):177–9. doi: [10.32471/exp-oncology.2312-8852.vol-43-no-2.16284](https://doi.org/10.32471/exp-oncology.2312-8852.vol-43-no-2.16284). [PubMed: [34190514](https://pubmed.ncbi.nlm.nih.gov/34190514/)].
5. Dehal A, Patel S, Kim S, Shapera E, Hussain F. Cutaneous Metastasis of Rectal Cancer: A Case Report and Literature Review. *Perm J.* 2016;**20**(1):74–8. doi: [10.7812/TPP/15-078](https://doi.org/10.7812/TPP/15-078). [PubMed: [26824966](https://pubmed.ncbi.nlm.nih.gov/26824966/)].
6. McWeeney DM, Martin ST, Ryan RS, Tobbia IN, Donnellan PP, Barry KM. Scrotal metastases from colorectal carcinoma: A case report. *Cases J.* 2009;**2**(1):1–3. doi: [10.1186/1757-1626-2-111](https://doi.org/10.1186/1757-1626-2-111).
7. Ozgen A, Karakaya E, Bozdoğan N. Scrotal skin metastasis from rectum adenocarcinoma. *Rare Tumors.* 2013;**5**(4):194–5. doi: [10.4081/rt.2013.e60](https://doi.org/10.4081/rt.2013.e60). [PubMed: [24416494](https://pubmed.ncbi.nlm.nih.gov/24416494/)]