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CASE REPORT

A Rare Case of Rectal Squamous Cell Carcinoma Treated with Nigro Protocol

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Abstract

Squamous cell carcinoma (SCC) of the rectum is a rare malignancy, and the optimal treatment strategy remains unknown. Cases are limited in the literature, and although historically treated with surgical resection, more recent cases have suggested success with chemotherapy. Although Nigro protocol was initially developed for anal SCC, we present a case of rectal SCC successfully treated with the Nigro protocol. Our case supports the use of chemoradiotherapy as initial treatment for rectal SCC over surgery.

Keywords: Rectal cancer, Rectal squamous cell carcinoma, Nigro protocol, Colorectal cancer

1. Introduction

Colorectal cancer is currently one of the leading causes of cancer-related deaths among men and women in the United States. Although adenocarcinoma comprises 95% of colorectal cancers, squamous cell carcinoma (SCC) is extremely uncommon, accounting for less than 1% of total cases.[1] SCC can be occasionally seen in the upper aerodigestive tract and anal canal, but SCC of the rectum is a rare malignancy.[1] Given this infrequent incidence, the optimal treatment strategy for rectal SCC has yet to be determined, and cases describing various approaches remain limited in the literature. Historically, the vast majority of localized rectal SCC has been treated at diagnosis with primary surgical resection, which has known long-term treatment-related morbidities. More recent cases in the literature, however, have been noted to have successful outcomes with chemotherapy regimens. Although the Nigro protocol was initially developed for anal SCC, we present a case of rectal SCC successfully treated with the Nigro protocol rather than traditional surgical resection. Our case supports the use of chemoradiotherapy via the Nigro protocol as an initial treatment for rectal SCC over more aggressive interventions such as surgery.

2. Case report

A 74-year-old man with no significant past medical history presented to his primary care physician for a routine visit. He was found to have new-onset microscopic hematuria. As part of workup, he underwent a CT abdomen/pelvis which showed an incidental finding of a 4.8 cm mass arising from the right mid-rectal wall (Fig. 1A). He was asymptomatic with no changes in bowel habits including constipation, diarrhea or hematochezia. He had undergone a routine surveillance colonoscopy 2 years prior which was unremarkable. To evaluate the rectal mass, a colonoscopy was performed which revealed erythematous nodular friable mucosa located in the proximal rectum about 13 cm from the anal verge, with normal intervening mucosa between the anal canal and the lesion (Fig. 2). Biopsy results revealed a diagnosis of SCC (Fig. 3). The patient had no evidence or symptoms to suggest an alternate primary malignancy. A PET CT was subsequently performed, which was consistent with a primary rectal malignancy without distant metastases. After multidisciplinary discussions with colorectal surgery and oncology, due to the relatively distal location of the mass, a decision was made to treat the patient with Nigro protocol chemoradiotherapy rather than

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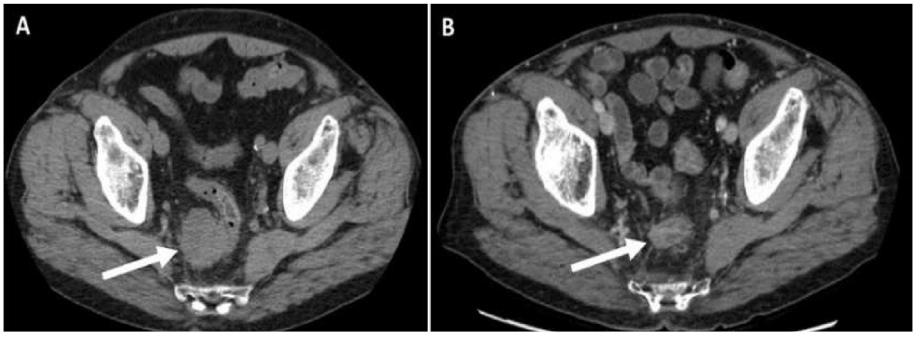

Fig. 1. (A) CT imaging demonstrating right rectal wall mass measuring 4.8 cm AP x 4.1 cm transverse; (B) CT imaging 3 months later demonstrating marked decrease in tumor size to a soft tissue rectal wall prominence.

primary surgical resection. Patient underwent radiation and chemotherapy via the Nigro protocol. Follow-up imaging 3 months later showed a marked decrease in tumor size down to a residual soft tissue prominence (Fig. 1B). He currently remains on active surveillance with serial PET CT scans every 6 months.

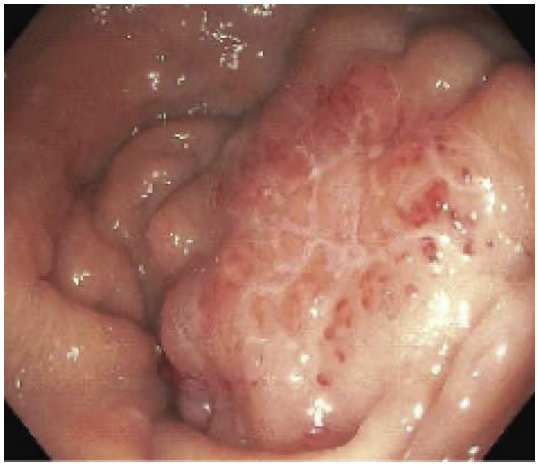

Fig. 2. Endoscopy image demonstrating erythematous nodular friable mass in the rectum.

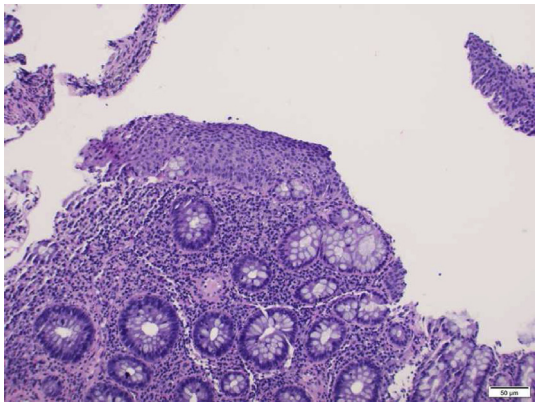

Fig. 3. H&E stain (10x) showing SCC on the surface and columnar colorectal mucosa (crypts) in the lamina.

3. Discussion

Rectal SCC is a rare primary gastrointestinal malignancy, with an incidence of 0.1/1000 cases of colorectal cancer.[1] When SCC involves the rectum, it is more commonly due to extension from primary anal SCC, which typically presents as a contiguous lesion. Our case, however, had normal intervening rectal mucosa between the anal mucosa and the mass. Initially reported in 1933, rectal SCC has since mostly been described in case reports and case series.[2] Typical symptoms have been reported to include rectal bleeding or altered bowel habits, however, our patient was unusually asymptomatic. Diagnosis is typically established by endoscopic biopsy. Most cases of rectal SCC are localized and early-stage at diagnosis. After tissue diagnosis, a PET scan can be helpful in ruling out an alternative primary squamous cell cancer.

Although the first case of rectal SCC was reported in the early 20th century, the pathogenesis has still not been well-established, though multiple theories have been proposed. The leading theory remains the metaplasia-dysplasia-carcinoma sequence.[3] Histologically, the squamous epithelium of the anal canal is adjacent to the columnar epithelium of the rectum. Repeated irritative and inflammatory changes of the mucosa can lead to metaplastic changes which occur naturally due to a reversible adaptive mechanism to withstand particular insults. These changes can progress stepwise into dysplasia and subsequently carcinoma. In addition to this, pluripotent stem cells, which are capable of multidirectional cellular differentiation under injurious conditions, have also been implicated in the development of rectal SCC.[4] Lastly, although there is no proven pathophysiologic mechanism of HPV leading to rectal SCC, there has been an association with increased incidence of HPV markers including p16 in patients with rectal SCC.[5]

Traditionally, the treatment for rectal SCC has consisted primarily of surgical intervention with anterior resection (AR) or abdominal perineal resection (APR). Over the past few years, however, in part due to the various long term treatment-related morbidities associated with these invasive surgeries, there has been increasing interest in development of less invasive treatment regimens for rectal SCC.[4,8–10] On review of literature, there are several prospective studies evaluating the role of chemoradiotherapy as the primary therapy. In the mid-1970s, the Nigro protocol, consisting of radiation therapy combined with 5-fluorouracil and mitomycin, was developed for anal cancer where it has been used for decades with success.[6] In limited cases, this protocol has suggested promise in treatment of rectal SCC with favorable overall survival results as well as the benefit of sphincter preservation when compared to surgical intervention.[7,10] Due to this, we opted to treat our patient with the Nigro protocol and had a successful outcome. Despite treatment success, it is important to note the complications of chemo-radiotherapy including stricture, fistula, perforation and radiation proctitis. Ongoing research into the optimal treatment of this rare malignancy, however, is needed and we encourage reporting of future cases of rectal SCC to help distinguish which patients may be better suited for chemoradiotherapy regimens over traditional surgical intervention.

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Ethics approval

No approval required.

Consent

Informed consent was obtained.

Guarantor

Hunza Chaudhry will be the guarantor.

Conflict of interest

The authors declare that there is no conflict of interest regarding the publication of this article.

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None.

References

1. Dyson T, Draganov PV. Squamous cell cancer of the rectum. *World J Gastroenterol*. 2009;15(35):4380–4386. https://doi.org/10.3748/wjg.15.4380.
2. Raiford T. Epitheliomata of the lower rectum and anus. *Surg Gynaecol Obstet*. 1933;57:21–35.
3. Guerra GR, Kong CH, Warrier SK, Lynch AC, Heriot AG, Ngan SY. Primary squamous cell carcinoma of the rectum: an update and implications for treatment. *World J Gastrointest Surg*. 2016;8(3):252–265. https://doi.org/10.4240/wjgs.v8.i3.252.
4. Nahas CS, Shia J, Joseph R, et al. Squamous-cell carcinoma of the rectum: a rare but curable tumor. *Dis Colon Rectum*. 2007 Sep;50(9):1393–1400. https://doi.org/10.1007/s10350-007-0256-z. PMID: 17661147.
5. Kong CS, Welton ML, Longacre TA. Role of human papillomavirus in squamous cell metaplasia-dysplasia-carcinoma of the rectum. *Am J Surg Pathol*. 2007 Jun;31(6):919–925. https://doi.org/10.1097/01.pas.0000213441.86030.fc. PMID: 17527081.
6. Nigro ND. An evaluation of combined therapy for squamous cell cancer of the anal canal. *Dis Colon Rectum*. 1984;27:763–766.
7. Vezeridis MP, Herrera LO, Lopez GE, Ledesma EJ, Mittleman A. Squamous-cell carcinoma of the colon and rectum. *Dis Colon Rectum*. 1983;26:188–191.
8. Loganadane G, Servagi-Vernat S, Schernberg A, et al. Chemoradiation in rectal squamous cell carcinoma: Bi-institutional case series. *Eur J Cancer*. 2016 May;58:83–89. https://doi.org/10.1016/j.ejca.2016.02.005. Epub 2016 Mar 11. PMID: 26974707.
9. Song EJ, Jacobs CD, Palta M, Willett CG, Wu Y, Czito BG. Evaluating treatment protocols for rectal squamous cell carcinomas: the Duke experience and literature. *J Gastrointest Oncol*. 2020 Apr;11(2):242–249. https://doi.org/10.21037/jgo.2018.11.02. PMID: 32399265; PMCID: PMC7212101.
10. Jeong BG, Kim DY, Kim SY. Concurrent chemoradiotherapy for squamous cell carcinoma of the rectum. *Hepato-Gastroenterology*. 2013 May;60(123):512–516. https://doi.org/10.5754/hge11293. PMID: 23635435.