Primary Malignant Melanoma of Anus

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ABSTRACT

We present a case of primary malignant melanoma of the anus in a patient who was not an ideal surgical candidate due to past medical history. Primary melanoma of the gastrointestinal tract is not as well characterized as cutaneous malignant melanoma within the medical literature, but should still be considered within differential diagnosis especially if the mass is seen within the anorectal region. These cancerous tumors typically have late presentation which leads to worse prognosis as metastasis has often occurred before diagnosis. Standard treatment options include surgical resection, chemotherapy, immunotherapy, and local radiation.

CASE REPORT

INTRODUCTION

A 66-year-old male with a history of colon cancer status post partial colectomy, one year of chemotherapy and two months of radiation therapy 37 years prior, presented to his primary care physician with a complaint of new onset blood in his stool. His family history was significant for multiple cancers, but no colon cancer. Colonoscopy revealed a partially obstructive anal mass that was less than 1 cm from the anal verge on the left posterolateral bowel wall and measured 6cm x 2cm with visible bleeding from simple palpation or contact.

Biopsy immunohistochemical staining (positive for Melan-A, HMB45, CD117, and SOX-10) results revealed the anal mass to be consistent with malignant melanoma with primary anorectal cancer being most likely, but correlation with imaging to rule out any other source was recommended (Figure 1). Computed tomography (CT) of chest, CT of abdomen and CT of pelvis following colonoscopy did not reveal distant metastasis (Figure 2). Additional imaging of the brain and pelvis via magnetic resonance imaging (MRI) and a positron emission tomography (PET) scan was performed to rule out any other source that was not seen on previous CT studies. This additional imaging did not reveal any sources of metastasis. The pelvic MRI determined the anal mass was lobulated and enhancing, measuring nearly 7 cm in length by 3 cm in maximum width (Figure 3). The mass appeared to be slightly pedunculated along the anterior rectal wall and sessile along the posterior wall with involvement of the mucosa and possibly the muscularis although no definite serosal involvement/breech was identified. The mass extends to the anal verge with staging-T2, N0, M0. The PET scan revealed hypermetabolic uptake in the anorectal region correlating with the known malignancy, abnormal activity in the left adrenal gland, and a lymph node in the AP window with no abnormal FDG activity identified (Figures 4,5).

The patient was started on an immunotherapy regimen consisting of nivolumab and ipilimumab every three weeks in order to decrease the size of the mass. The patient received one cycle of immunotherapy before treatment was suspended secondary to pneumonia and presumed side effects of watery diarrhea and abdominal pain. A repeat CT was performed 2 months after beginning immunotherapy which showed no interval change. Steroids were provided to counteract immunotherapy side-effects mainly consisting of severe thrombocytopenia. The patient experienced sepsis secondary to pneumonia in the subsequent months after receiving therapy. Unfortunately, the patient ultimately passed due to cardiac arrest approximately 4 months after diagnosis of the primary malignant melanoma of the anus.

DISCUSSION

Recent retrospective study for data from 1973 to 2016 found that there were only 872 cases of gastrointestinal (GI) melanoma documented compared to over 319,000 cases of cutaneous melanoma [1]. In addition to GI melanoma, there are extra dermal melanoma that have been known to manifest such as ocular, nail bed, conjunctival lesions [2]. Despite this relatively rarity of GI tract melanomas, the incidence has increased in recent years [1]. It is unclear whether this increase in incidence is due to increased true disease or due to increased surveillance and higher quality imaging modalities. The most common site of primary malignant melanoma within the GI tract was the anus, followed by rectum, esophagus, intestine, stomach, and colon [1]. The increased incidence in the anus

over other regions is thought to be related to increased number of melanocytes there compared to other locations in the GI tract [3]. Compared to those with cutaneous melanoma, individuals with primary anorectal melanoma had a 3.1 times increased risk of death [1]. A recent case report shares similar features: late presentation with vague symptoms that led to subsequent diagnosis [4].

As is the case with many cancers, surgical resection is the typical treatment for a non-metastasized primary melanoma of the GI tract [5,6]. Similar to other types of cancer, biochemotherapy and radiation are utilized for cases with metastatic disease present [5,6]. A recent meta-analysis of 208 cases found that lymph metastasis is an important prognostic factor, but that lymphadenectomy does not improve overall survival [7]. As radiation has been known to impact wound healing, it can have an impact on the decision to proceed with a surgical intervention for tumor resection. Wound healing is dependent on multiple factors and cell lineages. Radiation can affect these cells acutely or have a delayed impact resulting in inadequate wound healing [8]. The acute phase of healing has impaired healing through inducing fibroblast destruction [8]. The chronic impacts of radiation on healing is shown through deficient collagen production [8]. Interestingly enough after surgical resection, radiation therapy administered 1 week postoperatively had no effects on wound healing as major cellular events in healing occur in the first 5-7 days [8]. However, in individuals who have been chronically irradiated (like this patient), the ability for the tissue to heal has been impaired in multiple cell lines (mesenchymal, endothelial, and epithelial) [8,9]. Thus, individual treatment should be tailored to the individual patient taking into consideration whether or not they are suitable candidates for surgical resection.

Different imaging modalities have a unique role in the diagnosis and staging of anorectal malignancy. For staging, MRI is the ideal modality and is also the most widely used for this as well as for tracking therapeutic response to chemotherapy [10,11]. In patients with a bulky tumor or a lengthened craniocaudal axis, MRI has been shown to be especially valuable in staging and restaging anorectal malignancy [12]. PET scan can be utilized to understand if metastasis has occurred. While not widely used for staging, contrast-enhanced computed tomography (CECT) plays a role in the diagnosis of anorectal malignancy. A study found that almost 90% of patients with primary anorectal malignant melanoma presented with a polypoid mass in the anorectal region on CECT [12]. This was consistent with a recent case series of four patients with primary anorectal malignant melanoma which found each patient presented with a polypoid mass causing local expansion, obscured rectal lumen but no obstruction was observed on CECT [13]. Findings of a polypoid mass on CECT should warrant further investigation. Additional modalities can be beneficial for characterization as well as determining the significance of extension of the tumor and the consideration for surgical excision.

In our case, the patient had received radiation therapy (2 months of radiation nearly 30 years prior) for previous malignancy thus surgical intervention was avoided due to potential complications of impaired wound healing. Instead, immunotherapy was planned using cycles of nivolumab/ipilimumab and nivolumab maintenance therapy to induce tumor reduction. However, secondary to likely immunotherapy complications as previously mentioned and new acute problems, only one cycle of immunotherapy was completed. Our patient initially underwent CECT of the chest, abdomen and pelvis for characterization and signs of obvious metastasis with subsequent follow up PET scan. MRI was performed for staging and after 1 cycle of immunotherapy CECT was utilized for evaluation of interval change with no change being observed.

TEACHING POINT

Primary malignant melanoma should be considered for GI tumors, especially in the anorectal region.

Individuals who develop primary malignant melanoma of the GI tract have a higher risk of death than those with cutaneous malignant melanoma.

QUESTIONS

1. What location in the GI tract most commonly has primary malignant melanoma?

A. Esophagus
B. Stomach
C. Intestine
D. Colon
E. Anus (applies)
F. Rectum

A. Esophagus is the third most common site of primary malignant melanoma within GIT [1]
B. Stomach is the fifth most common site of primary malignant melanoma within GIT [1]
C. Intestine is the fourth most common site of primary malignant melanoma within GIT [1]
D. Colon is the least common site of primary malignant melanoma within GIT [1]
E. [Correct] Anus is the most common site of primary malignant melanoma within GIT [1]
F. Rectum is the second most common site of primary malignant melanoma within GIT [1]

2. T/F Individuals with primary malignant melanoma of the GIT have a lower chance of death compared to those with cutaneous malignant melanoma

False - those with primary GI malignant melanoma have a 3.4 increased risk of death compared to those with primary cutaneous malignant melanoma.

3. Radiation therapy impacts acute healing through which of the following mechanisms?

A. Deficient collagen production

B. Fibroblast destruction (applies)
C. Reduction in vitamin C absorption
D. Local inflammation leading to necrosis

A. This is true of chronic impacts of radiation to healing processes, but not within the acute stage [7]
B. [Correct] This is true within the acute phase of healing status post radiation therapy [7]
C. This is not the correct mechanism for radiation's impact on healing
D. This is not the correct mechanism for radiation's impact on healing

4. History of local radiation therapy has a relative contraindication to which of the following treatments for primary malignant melanoma of the anus?
A. Immunotherapy
B. Radiation therapy
C. Surgical resection (applies)
D. None are contraindicated

A. Immunotherapy is not contraindicated by history of previous radiation
B. Previous radiation therapy is not a contraindication to radiation therapy
C. [Correct] Surgical resection has a relative contraindication if wound healing has been impaired by chronic radiation therapy [7,8]
D. Surgical resection is contraindicated

5. What imaging modality is best suited for staging and monitoring therapeutic response in anal cancer?
A. MRI (applies)
B. CT
C. US
D. PET
E. Nuclear Scan

A. [Correct] MRI is ideal imaging modality for staging and restaging anal cancer [9]
B. CT is not the most ideal imaging modality for staging and restaging anal cancer
C. US is not the most ideal imaging modality for staging and restaging anal cancer
D. PET is not the most ideal imaging modality for staging and restaging anal cancer
E. Nuclear Scan is not the most ideal imaging modality for staging and restaging anal cancer

REFERENCES

1. Kahl AR, Gao X, Chioreso C, et al. Presentation, management, and prognosis of primary gastrointestinal melanoma: a population-based study. *J Surg Res*. 2021; 260: 46-55. PMID: 33316759.
2. Hussein MR. Extracutaneous malignant melanomas. *Cancer Invest.* 2008; 26(5): 516-534. PMID: 18568775.
3. Schuchter LM, Green R, Fraker D. Primary and metastatic diseases in malignant melanoma of the gastrointestinal tract. *Curr Opin Oncol.* 2000; 12(2): 181-185. PMID: 10750731.
4. Khan M, Bucher N, Elhassan A, et al. Primary Anorectal Melanoma. *Case Rep Oncol*. 2014; 7: 164-170. PMID: 24748866.
5. Kim KB, Sanguino AM, Hodges C, et al. Biochemotherapy in patients with metastatic anorectal mucosal melanoma. *Cancer.* 2004; 100: 1478–1483. PMID: 15042682.
6. Kelly P, Zagars GK, Cormier JN, et al. Sphincter-sparing local excision and hypofractionated radiation therapy for anorectal melanoma: a 20-year experience. *Cancer.* 2011; 117(20): 4747-4755. PMID: 21446049.
7. Ciarrocchi A, Pietroletti R, Carlei F, Amicucci G. Extensive surgery and lymphadenectomy do not improve survival in primary melanoma of the anorectum: results from analysis of a large database (SEER). *Colorectal Dis*. 2017; 19(2): 158-164. PMID: 27317493.
8. Drake DB, Oishi SN. Wound healing considerations in chemotherapy and radiation therapy. *Clin Plast Surg* 1995; Jan 1; 22(1): 31-37. PMID: 7743707.
9. Bullard KM, Trudel JL, Baxter NN, Rothenberger DA. Primary Perineal Wound Closure After Preoperative Radiotherapy and Abdominoperineal Resection has a High Incidence of Wound Failure. *Dis Colon Rectum.* 2005; 48(3): 438-443. PMID: 15719190.
10. Tonolini M, Bianco R. MRI and CT of anal carcinoma: a pictorial review. *Insights Imaging*. 2013; 4(1): 53-62. PMID: 23361151.
11. Roach SC, Hulse PA, Moulding FJ, Wilson R, Carrington BM. Magnetic resonance imaging of anal cancer. *Clinical radiology*. 2005; 60(10): 1111-1119.
12. Kim KW, Ha HK, Kim AY, et al. Primary malignant melanoma of the rectum: CT findings in eight patients. *Radiology.* 2004; 232(1): 181-186. PMID: 15220501.
13. Santhalia PK, Pandey JK, Agrawal N, et al. Primary Malignant Melanoma of Anorectum CT Findings: a Single Tertiary Center's Experience. *Indian J Surg Oncol*. 2020; 11(3): 367-371. PMID: 33013112.

FIGURES

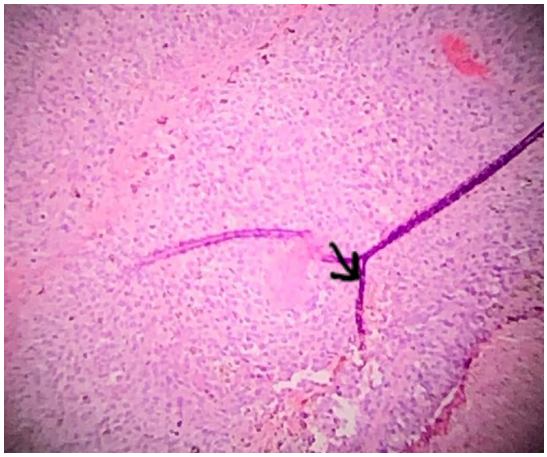

Figure 1: Histological hematoxylin and eosin stain at 10x magnification morphologically consistent (arrow) with primary malignant melanoma of the anus.

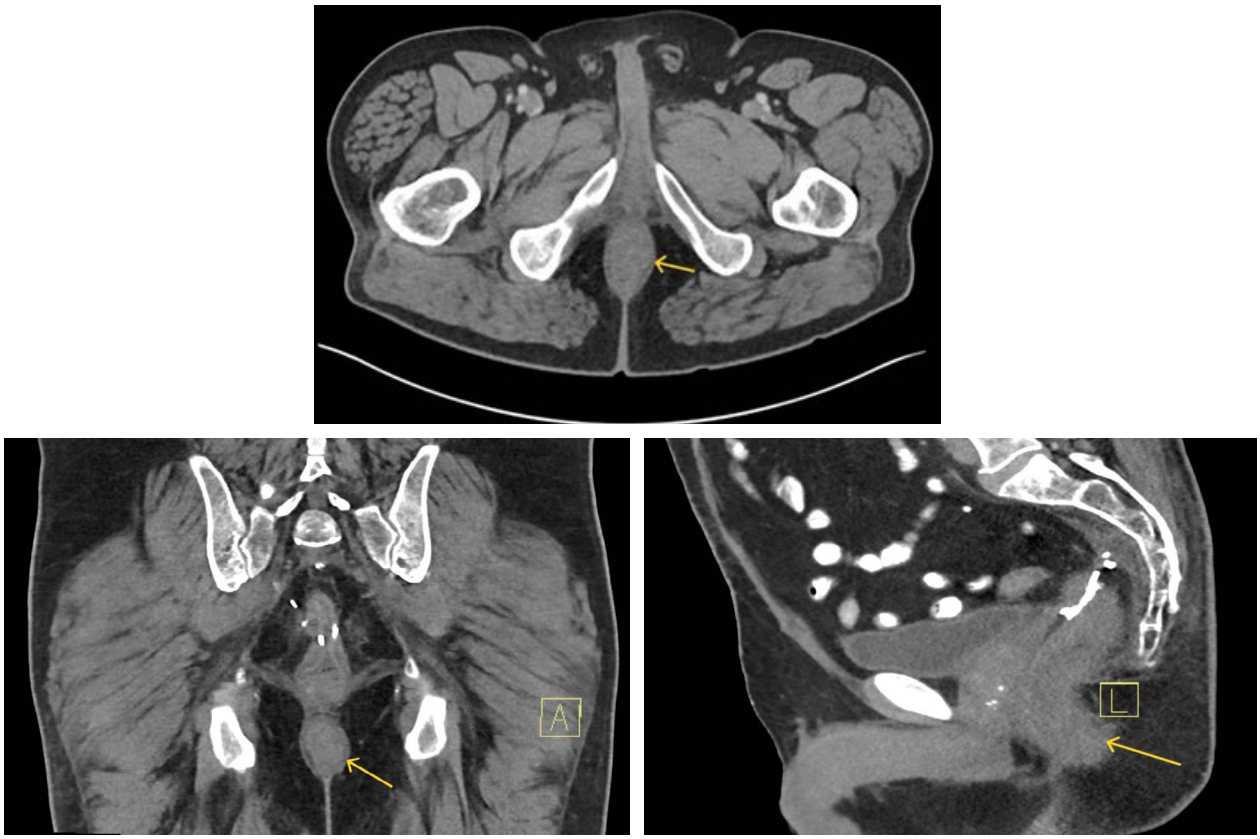

Figure 2: CT abdomen/pelvis with contrast showing postsurgical changes of the pelvis consistent with prior colon resections and anastomosis of distal colon with mass-like wall thickening of the lower/distal rectum consistent with a tumor without any obvious evidence of distant metastasis.

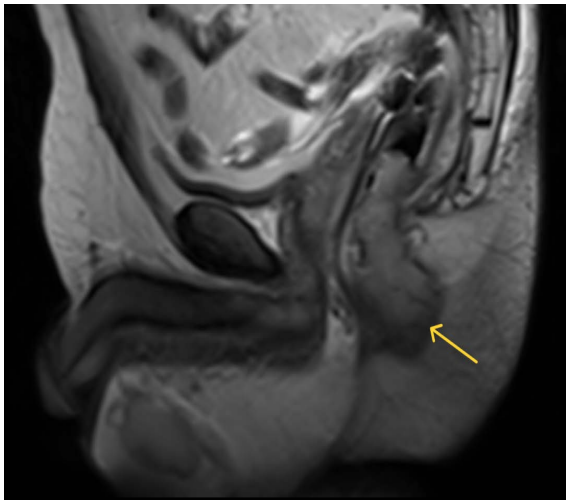

Figure 3: T2 MRI (Sagittal) showing lobulated enhancing mass measuring nearly 7 cm in length by 3 cm in maximum width which appears to be sessile along the posterior rectal wall although may have a pedunculated component along the anterior mucosa.

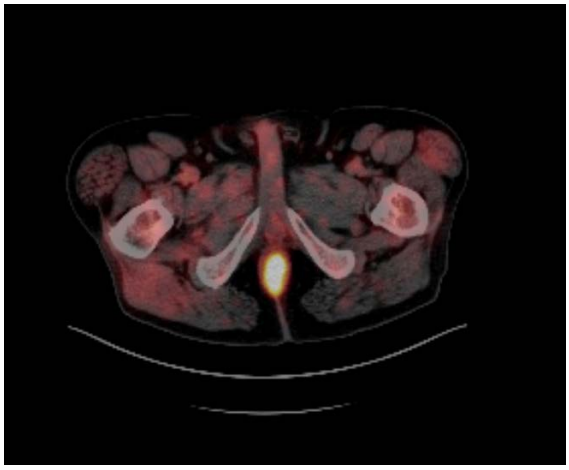

Figure 4: PET Scan (axial view) showing intense hypermetabolic anorectal lesion corresponding to known malignancy.

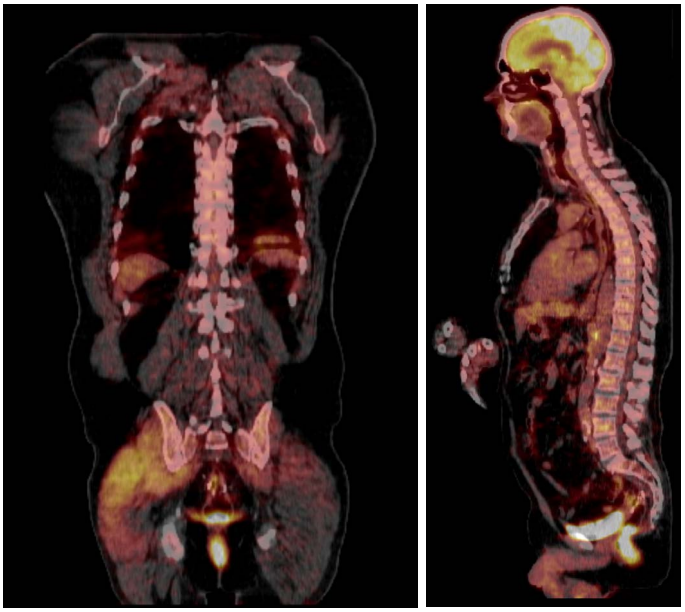

Figure 5: PET Scan (coronal and sagittal) showing no obvious signs of distant metastasis, but with an indeterminate AP window lymph node with no abnormal FDG activity identified, and mild hypermetabolic activity in the left adrenal gland likely to be adenomatous change.

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