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CASE REPORT | ENDOSCOPY

A Subepithelial Lesion in the Colon Masquerading as Metastatic Prostate Cancer

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ABSTRACT

Although the colon is a known site for tumor metastasis, it is relatively uncommon. In particular, prostate cancer may spread to the colon via locoregional penetration in locally advanced tumors. This can be easily seen on flexible sigmoidoscopy as an infiltrative lesion. However, a tumor deposit from prostate cancer presenting as a subepithelial lesion within the colon has never previously been reported. Here, we present a case of a patient with known prostate cancer who was found to have sigmoid colon uptake off imaging that demonstrated metastatic prostate cancer after endoscopic ultrasound-guided fine-needle biopsy of the subepithelial lesion.

KEYWORDS: endoscopic ultrasound; metastatic prostate adenocarcinoma; sigmoid colon subepithelial nodule; prostate-specific membrane antigen positron emission tomography

INTRODUCTION

Prostate cancer is the most common type of cancer among men in the United States with a prevalence of nearly 3.4 million.[1] Furthermore, approximately 12.8% of men will be diagnosed with prostate cancer during their lifetime. At the time of diagnosis, nearly 6% of patients will have metastatic foci with the most common locations of involvement being bone, lymph nodes, liver, and thorax.[2] The rectum and colon are postulated to be infrequently involved as a metastatic site as the presence of Denonvilliers fascia that covers the posterior surface of the prostate is thought to serve an anatomic barrier to local invasion.[3] Here, we present a case of a patient with oligometastatic prostate cancer found within a sigmoid colon subepithelial lesion (SEL).

CASE REPORT

A 66-year-old man with neurocognitive disorder due to a traumatic brain injury in the 1990s with a recent diagnosis of castrate-sensitive prostate adenocarcinoma was referred to gastroenterology after a prostate-specific membrane antigen positron emission tomography (PSMA PET) demonstrated a small focus of intense activity overlapping the sigmoid colon (see Figure 1). His prostate cancer was discovered less than a year prior after an elevated screening prostate-specific antigen test. A transrectal ultrasound biopsy confirmed prostatic adenocarcinoma with a Gleason score of 7 (ie, intermediate-risk). The patient opted for expectant management rather than pursuing radiation therapy or surgery. Approximately 7 months after his diagnosis, he underwent a colonoscopy notable for a sigmoid SEL with similar overlying mucosa with mucosal biopsies that demonstrated benign colon mucosa. The patient was then referred for endoscopic ultrasound examination. Endosonographic appearance of the sigmoid colon SEL revealed a relatively homogenous and ovoid 13-mm nodule that originated from the muscularis propria (layer 4) (see Figure 2). Fine-needle biopsy was performed, and histopathology demonstrated a poorly differentiated malignant neoplasm with mucinous features consistent with metastatic prostate adenocarcinoma (see Figure 3); by immunohistochemistry, the neoplastic cells were NKX3.1(+), Cam5.2(−), CK20(−), CDX2(−), CD34(−), DOG-1(−), CD117(−), PSA(−), and PSA-F(−). The patient was subsequently started on leuprolide, followed by abiraterone with prednisone. He continues with close oncologic follow-up.

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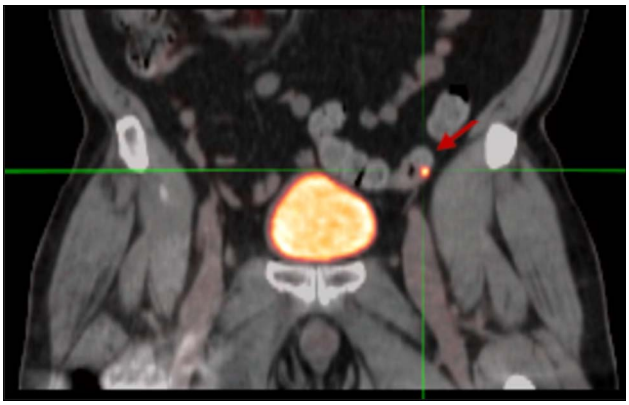

Figure 1. Coronal view showing focal uptake of prostate-specific membrane antigen along the sigmoid colon (red arrow).

DISCUSSION

Prostate cancer is known to have a high propensity for metastasizing to organs such as the bone, lung, and liver; however, it is exceedingly rare for prostate cancer to present as a metastatic, noninfiltrative lesion in the colon. Nearly 10% of patients will have bone metastases at the time of prostate cancer diagnosis; furthermore, of those with localized prostate cancer who undergo treatment, 20%–30% with have a relapse and of those, up to 80% will develop bone metastases.[4] Although incompletely understood, 1 hypothesis as to the cause of metastatic spread in patients with prostate cancer is that dedifferentiation from epithelial to mesenchymal type cells allows the cancer cells to spread to and colonize microenvironments that are hospitable (eg, the bone, liver, and lung). Another hypothesis is that certain cancer cells are genetically predisposed for metastasis through various mutations during tumorigenesis. For example, prostate cancer cells have integrins, which allow it to adhere to proteins in the extracellular matrix of specific organs such as bone, and have homing mechanisms via chemokines (C-X-C-motif), which further attract it to the bone.[4]

When prostate cancer does metastasize to the colon, it typically via direct invasion into the rectum, lymphatic spread, or iatrogenic such as by needle biopsy with implanting tumor cells.[5] An autopsy study found that 4% of patients with prostate cancer had colonic involvement, and of the group, the majority were due to locoregional involvement with only 3% due to separate metastatic lesions.[3] It is unclear how a solitary metastatic deposit ended up within a SEL. There are rare case reports of prostate cancer metastasis presenting as a colon mass, colon polyps, or colonic lymphadenopathy, however, none with a colon SEL.[6] Confirmation of metastatic disease off fine-needle biopsy altered oncologic management for the patient.

Vuijk et al found that PSMA PET scans may have a role in detection of gastrointestinal cancers (eg, colon, gastric or pancreas), however, still with limitations as compared to fluorodeoxyglucose-PET scans.[7] Indeed, these scans have been aided in the diagnosis of a gastric gastrointestinal stromal tumors, signet ring cell gastric cancer, duodenal adenocarcinoma, and an ileal gastrointestinal stromal tumor.[8–11] Furthermore, immunohistochemical analysis demonstrates that up to 85% of gastrointestinal cancers express PSMA in capillaries within the tumor bed, making them theoretical targets of PSMA imaging. There have been case reports of patients suspected to have prostate cancer and instead found to have colorectal cancer.[6] Activity of PSMA PET in the gastrointestinal tract warrants further investigation, and as in this case, can alter management. In our review of the literature, no prior case has ever reported a colon SEL presenting as oligometastatic prostate cancer. This further suggests the variability in cancer biology in presentation and imaging findings.

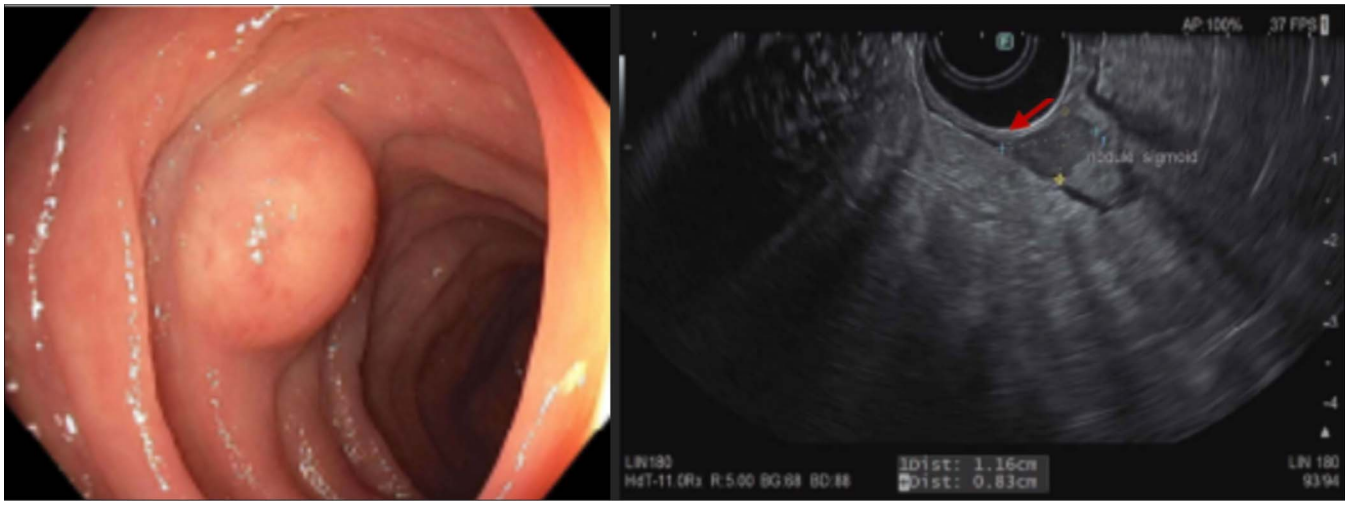

Figure 2. Colonoscopy image showing the subepithelial lesion in the sigmoid colon (blue arrow), and endosonographic appearance of the lesion originating from muscularis propria (red arrow).

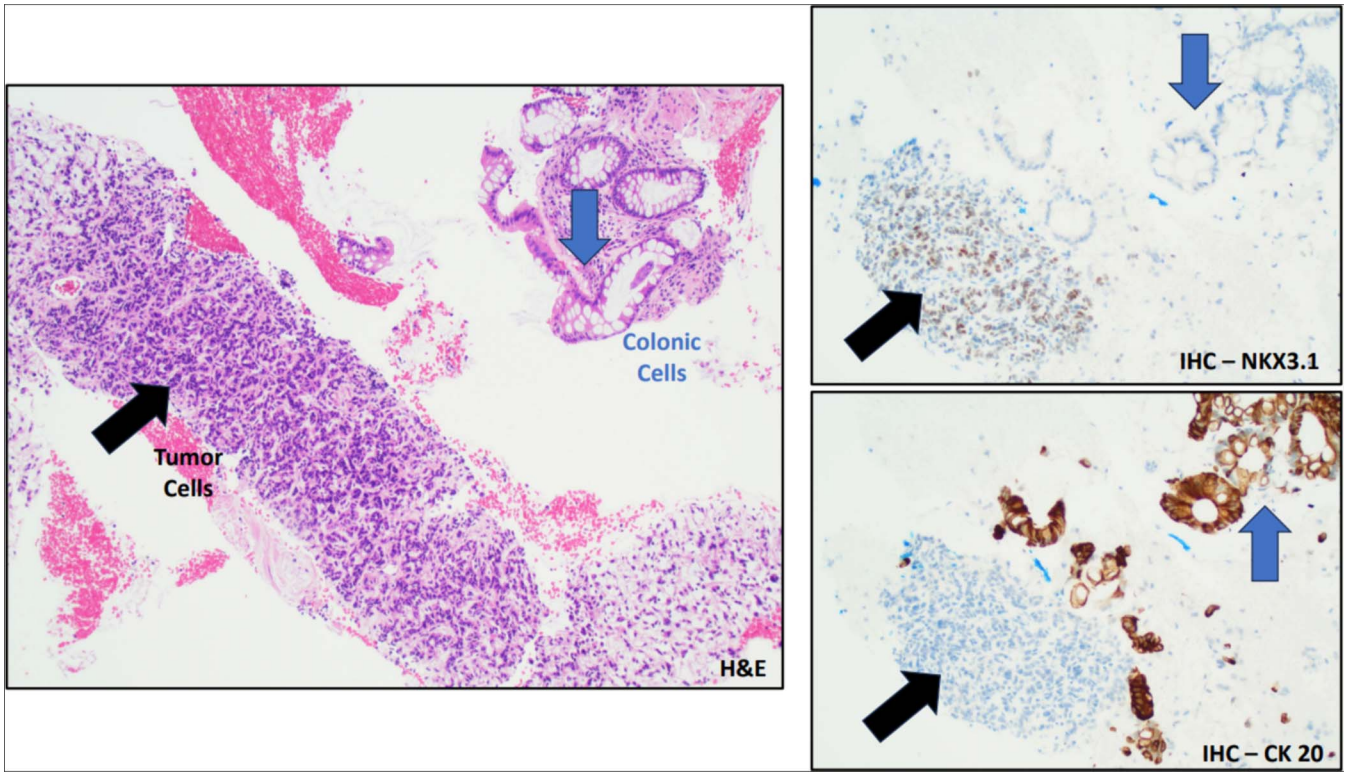

Figure 3. Histopathology (10×) from the fine-needle biopsy demonstrates tumor cells in the specimen adjacent to colonic cells as well as immunohistochemistry (IHC) staining (20×) positive for NKX3.1 (tumor suppressor gene highly specific to prostate tissue) and negative for CK20 (indicates not originating from the intestinal tract). H&E, hematoxylin and eosin.

DISCLOSURES

Author contributions: RH Shah: drafting manuscript, editing, and preparations for submission; MD Brophey: contributions to interpretation and preparations of radiographic imaging; M. Wachsmann: contributions to interpretation and preparations of histopathology imaging; B. Barker: contributions to interpretation and preparations of histopathology imaging; SL Shah: drafting manuscript, editing, and preparations for submission and is the article guarantor.

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