Oncology

Appendicitis: A rare case caused by metastatic prostate cancer

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Introduction

Prostate cancer is the most common non dermatologic cancer in the United States in incidence and is second only to lung cancer in cancer-specific deaths. Metastatic disease may be found at the time of diagnosis or after failure of definitive treatment. Antibiotics use in cases of acute appendicitis has been advocated but this approach in patients with known metastatic disease may not be the best treatment strategy which could potentially delay the diagnosis of metastasis and put patients at risk. Metastatic prostate cancer to appendix is rare and a high index of suspicious is required in patients with acute appendicitis with a history of prostate cancer.

Case presentation

A 72 year old male former smoker with history of diabetes mellitus, hypertension was initially diagnosed with prostate cancer at the age of 57 and treated at an outside institution with retropubic radical prostatectomy. Pathology noted a Gleason 9 prostate cancer involving 80% of the gland with negative lymph nodes with (+) surgical margins Nadir post-operative Prostate Specific Antigen (PSA) was 0.88 ng/ml. Patient received 6 months of post-operative androgen deprivation therapy and was lost to follow up. He was evaluated 6 years later with a PSA of 14.2 ng/ml. Androgen deprivation therapy (ADT) was restarted and he also received pelvic radiation. Ureteral obstruction developed from retroperitoneal adenopathy and ureteral obstruction was managed with ureteral stents changed at intervals.

Two weeks before a scheduled stent exchange, the patient presented to the emergency room with one day history lower abdominal pain localized to the right lower quadrant associated with nausea and non-bilious vomiting. He was afebrile and vital signs were stable. On examination, right lower quadrant tenderness was elicited upon palpation. His white blood cells count were elevated to 15,600 μl, otherwise his labs were unremarkable. CT scan of abdomen demonstrated a mildly enlarged appendix with no contrast passing into the lumen suggesting acute appendicitis (Fig. 1). After adequate hydration and intravenous antibiotics, the patient was taken to the operating room and had an uncomplicated appendectomy with intra-op findings noted to have peritoneal deposits in the pelvis along with appendix infiltrated with tumor. Histopathological examination revealed metastasis of prostatic carcinoma to subserosa of the appendix (Fig. 2). Immunohistochemical stain revealed the tumor cells expressed strongly positive for prostate marker NKX3.1 and prostate specific antigen antibody but negative for chromogranin A, synaptophysin, CK7, and CK 20 antibody (Fig. 3). The prostate tumor in the appendectomy specimen was located both on the serosa as wells as in the lumen of the appendix. Post-operative course was uneventful and patient was discharge on post-operative day 1. On follow up, patient was seen in the clinic and was doing well and without complaints.

Discussion

Acute appendicitis is one of the most common emergencies on the surgical services. About 250,000 appendectomies are done every year. Neoplasia is one of the least common causes of appendicitis and metastatic to the appendix is rare. The most common primary neoplasia is carcinoid tumor followed by adenocarcinomas. Tumor causing appendicitis are reported to be 0.9%–1%.\textsuperscript{1,2} Tumor metastasis to the appendix could be potentially from ovary, liver, kidney, breast, lung, pancreas, stomach and like our case, from prostate.\textsuperscript{3} Prostate cancer primarily metastasize to the lymph nodes, bone and lungs.\textsuperscript{3}

Metastasis to the appendix from the time of initial diagnosis of prostate cancer is reported to be 5 years, in contrast our patient presented 10 years later.\textsuperscript{7}

Histopathological examination and Immunoreactivity PSA staining is used to confirmed the diagnosis of metastasis of prostate cancer.

Conclusion

Acute appendicitis caused by prostate cancer is rare and only few cases are reported in the literature. A high index of suspicious is required on patients with acute appendicitis especially when patient has a history of prostate cancer or other cancers that potentially could metastasize to the appendix.\textsuperscript{4}

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References

1. Lee Patrick M, Yoo Don C, Carlsten James R. Metastatic prostate cancer presenting as acute appendicitis: a case report. Rh I Med J. August 2016:37–38.
2. Ozyazici Sefa. Metastasis from Prostatic Carcinoma causing acute appendicitis: report of a case. International Journal of Surgery Case reports. 2013;4:409–411.
3. Arya B. Acute appendicitis due to metastasis of prostatic carcinoma. Med J Islam Repub Iran. November 2003;Vol 17(3).
4. Yang Kim HC. Metastasis to the appendix from a hepatocellular carcinoma manifesting as acute appendicitis: CT findings. Br J Radiol. 2008;81:194–219.

Appendix A. Supplementary data

Supplementary data related to this article can be found at http://dx.