Inflammation and infection

An improbable trifecta: Occurrence of xanthogranulomatous prostatitis, prostate cancer, and prostatic abscess in a single patient

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ABSTRACT

Xanthogranulomatous prostatitis (XGP) is a rare disease that can mimic the clinical and imaging findings of prostate cancer. Differentiation of these diseases is vital in order to offer the correct treatment. Histological examination of prostate tissue is the definitive manner in which XGP is distinguished from prostate cancer. This case demonstrates the rare possibility of concurrent findings of prostate abscess, prostate cancer, and XGP, further clouding diagnostic assessment. Percutaneous aspiration and antibiotic treatment of the abscess reduced lower urinary tract symptoms and eliminated XGP on subsequent prostate biopsy. Careful work up is necessary to prevent unnecessary interventions or missed diagnoses.

Introduction

Xanthogranulomatous prostatitis (XGP) is a rare histological diagnosis comprised of prostate tissue that contains xanthomas, or cholesterol laden histiocytes, along with idiopathic granulomatous prostatitis. There are currently fewer than 20 reported cases in the literature. Common clinical manifestations of the disease include lower urinary tract symptoms (LUTS), pelvic pain, and palpable nodule on exam, with a diagnosis typically in the 6th decade of life. It has also been associated with prostatic abscess at the time of transurethral resection of the prostate.

The disease has histologically been characterized by lipid-laden macrophages, or “foamy histiocytes,” with giant cells, lymphocytes, and fibroplasia. Characterization of the disease via immunohistochemistry shows CD68 (+) and PSA (-). CD68 (+) is important for describing the xanthomas associated with the disease.

The prostate is often enlarged when associated with XGP, typically with a mass in the range of 50–60g. The presenting PSA is variable, ranging from 0.5 to 172 ng/dL. In those with significant elevations in PSA >150 ng/dL, decline in the PSA levels began 4 months after surgical treatment and decreased to 6 ng/dL 17 months after resection.

Case presentation

We present an interesting case of a 65 year old man with recently diagnosed diabetes mellitus type 2 who presented with Methicillin-sensitive Staphylococcus aureus (MSSA) bacteremia from an infected left shoulder joint. At presentation, he suffered from diabetic ketoacidosis, multiple septic cavitory pulmonary emboli, and multiorgan failure. His urine culture was positive for MSSA. CT of the abdomen and pelvis demonstrated an eccentric lobular rectal mass measuring 2.6 × 2.6 cm in AP plane. Gastroenterology was consulted for flexible sigmoidoscopy and biopsy of the suspected rectal mass. During endoscopy, they noted an external mass adjacent to the rectum (Fig. 1A), which was biopsied. This biopsy demonstrated hyperplastic rectal mucosa. On endoscopic ultrasound, they noted a 3.7 × 3.0 cm lesion that appeared prostatic in origin (Fig. 1B). Due to concern for cancer seeding, they elected not to further biopsy the mass.

Upon urologic evaluation, the patient reported baseline LUTS including nocturia, as well as weak stream, hesitancy, and incomplete emptying. His PSA was 1.23 ng/mL. Other urologic history included a previous spontaneous passage of a renal stone. He had no personal or family history of kidney, prostate, or bladder cancer. On exam, his prostate was non-tender, estimated at 40g, and demonstrated a palpable left sided nodule.

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After the patient had clinically stabilized and had been on antibiotics for several days, the patient was offered a prostate biopsy. On transrectal ultrasound of the prostate there was a hypoechoic area consistent with abscess fluid. An 18 gauge spinal needle was used to drain seropurulent fluid which was sent for culture. Biopsies were taken including the standard 12 core biopsy and 3 cores of the suspicious nodule.

Pathology from the prostate biopsy demonstrated xanthogranulomatous prostatitis in several cores, as well as Gleason 3 + 4 = 7 prostate adenocarcinoma in 5% of a single core (Fig. 2A and B). Prostatic fluid culture from the abscess was consistent with Staphylococcus aureus, which was subsequently treated with Daptomycin.

The patient’s symptoms, including dysuria, had improved. He elected for active surveillance of his favorable intermediate risk prostate cancer. Approximately 8 months after the original hospitalization a repeat prostate biopsy demonstrated benign prostatic tissue in the standard twelve cores and four extra biopsies taken in the previous area of cancer.

Discussion

To our knowledge, this is the first case report that demonstrates concomitant XGP, prostate abscess, and prostate cancer in the same patient. Xanthogranulomatous disease is most commonly recognized in the kidney, but has been observed in rarer cases in the gallbladder and prostate. In XGP, varying LUTS have been reported. On exam, a prostatic nodule is commonly palpated. As in the kidney, imaging may be deceptive and non-specific for xanthogranulomatous disease in the prostate. While the patient in our case had a normal PSA level, prior case reports have highlighted elevated levels, mimicking possible prostate cancer and further clouding the initial diagnosis.

Even more uncommon is the concurrent presentation of a prostate abscess in the setting of XGP, with as few as five cases documented in the literature prior to this. Our case highlights the possibility of XGP diagnosed in the setting of prostate cancer and prostate abscess, which further complicates the diagnosis. Therefore, this case stresses the need to pay close attention to the histopathology and any other concurrent disease, such as prostate abscess, in order to ensure accurate diagnosis and treatment. Conservative treatment with antibiotics and drainage, as in this example, successfully treated the abscess and XGP on subsequent biopsy. While the clinical presentation can be confused with prostatic adenocarcinoma, the two diagnoses can also co-exist.

Conclusion

XGP is a rare diagnosis that can be associated with prostate abscess. XGP has been known to mimic prostate cancer on imaging and in clinical presentation. We present a very rare case of a patient with normal PSA who was found to have XGP, prostate abscess, and prostate cancer. The patient was successfully treated with aspiration drainage, antibiotics, and was placed on active surveillance.
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CRediT authorship contribution statement

Jonathan Demeter: Writing - original draft, Writing - review & editing, Investigation. Advait Deshmukh: Writing - original draft, Writing - review & editing, Visualization. Bijan Salari: Writing - review & editing, Investigation. Puneet Sindhwani: Writing - review & editing. Omar Khan: Project administration, Writing - review & editing.

Declaration of competing interest

None.

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