Received: 2021.04.25
Accepted: 2021.07.15
Available online: 2021.07.28
Published: 2021.09.03

Xanthogranulomatous Prostatitis: Novel Presentation of a Rare Condition

EF **Chenelle M.C. Joseph**

Department of Internal Medicine and Psychiatry, Altru Health System, Grand Forks, ND, USA

Authors' Contribution:
Study Design A
Data Collection B
Statistical Analysis C
Data Interpretation D
Manuscript Preparation E
Literature Search F
Funds Collection G

Corresponding Author: Chenelle M.C. Joseph, e-mail: cjoseph@altru.org
Conflict of interest: None declared

Patient: Male, 65-year-old
Final Diagnosis: Xanthogranulomatous prostatitis
Symptoms: Constipation • pelvic pain • tenesmus • urinary retention
Medication: —
Clinical Procedure: Biopsy
Specialty: General and Internal Medicine • Psychiatry • Urology

Objective: Unusual clinical course
Background: Xanthogranulomatous prostatitis is rare, with no more than 10 to 15 cases reported to date. The presentation typically includes lower urinary tract or lower urinary tract infection symptoms. The present case report describes a 65-year-old man diagnosed with xanthogranulomatous prostatitis after a prolonged course of atypical symptoms. Symptom remission was achieved with low-dose Cymbalta and 6 weeks of ciprofloxacin.
Case Report: A 65-year-old man had a 1-year history of pelvic floor disorder, including treatment-resistant tenesmus and rectal and perineal pain. The patient eventually developed a reduced urinary stream with urinary retention. On digital rectal examination, his prostate was non-tender and had significant firmness on the left side. Magnetic resonance imaging of the prostate with and without contrast showed a Prostate Imaging-Reporting and Data System 5 lesion involving the left peripheral zone of the prostate with diffuse enhancement and low signal throughout the gland. Suspicious adjacent lymphadenopathy also was present. The patient's prostate-specific antigen level was within the normal range at 2.4 ng/mL. All 13 left prostatic biopsy specimens showed acute and chronic inflammatory changes with prominent xanthogranulomatous features and without evidence of necrosis. All of the patient's symptoms, including pain, resolved after he started taking Cymbalta and completed a 6-week course of ciprofloxacin.
Conclusions: The present case report describes an atypical presentation of xanthogranulomatous prostatitis, which started with symptoms of pelvic floor disorder that preceded urinary symptoms by at least 1 year. The patient's symptoms improved after he started taking Cymbalta and completed a 6-week course of ciprofloxacin, 500 mg twice daily, and without concurrent treatment with an alpha blocker, corticosteroids, or pelvic floor therapy.

Keywords: Adenocarcinoma • Necrobiotic Xanthogranuloma • Pelvic Floor Disorders • Prostatitis

Full-text PDF: <https://www.amjcaserep.com/abstract/index/idArt/932869>

2463 — 1 8

Background

Xanthogranulomatous inflammation involving the kidneys and gallbladder is common [1,2]. However, xanthogranulomatous prostatitis is rare, with no more than 10 to 15 cases reported in the literature [3-6]. The age at which patients present can range. Cases have been reported in patients in their 20s and in the elderly; the average age at diagnosis is in the early 60s [3,7]. The presentation typically involves lower urinary tract symptoms or symptoms of a lower urinary tract infection (UTI), including possible urethral discharge. The prostate-specific antigen (PSA) level is typically elevated, as high as 150 ng/mL [3-5,8]. Imaging such as transrectal ultrasound and magnetic resonance imaging (MRI) cannot distinguish between xanthogranulomatous prostatitis and primary prostatic adenocarcinoma [5]. The diagnosis of xanthogranulomatous prostatitis can only be made definitively by pathological examination [6]. Conservative management is recommended for xanthogranulomatous prostatitis, including use of alpha blockers and corticosteroids.

The present case report describes a 65-year-old man diagnosed with xanthogranulomatous prostatitis after a prolonged course of atypical symptoms and laboratory findings. Remission in his symptoms eventually was achieved with low-dose Cymbalta and a 6-week course of ciprofloxacin. He was not treated with an alpha blocker, corticosteroids, or pelvic floor therapy. In these cases, treatment with a nonsteroidal anti-inflammatory drug (NSAID) can provide pain relief, if needed, as well as anti-inflammatory benefits, but further studies of this approach are required.

Case Report

A 65-year-old man presented to the clinic with a 6-week history of tenesmus. During the previous month, he had developed sharp, stabbing rectal pain, which progressed to include perineal pain without testicular or penile pain. The pain was worse when he sat. He reported no dysuria, urinary urgency, urinary frequency, reduction in urinary stream, or hematuria.

The patient's medical history included Rai stage 0 chronic lymphocytic leukemia (CLL), hyperuricemia, major depressive disorder, social anxiety disorder, hyperlipidemia, hypertension, and obesity, with a body mass index of 40.76 kg/m². His medications included allopurinol (100 mg daily), aspirin (81 mg daily), clonazepam (3 mg at bedtime) and Olmesartan-hydrochlorothiazide (40-mg/12.5-mg daily).

On physical examination, there were no palpable rectal masses and the patient's stool guaiac test was negative. On digital rectal examination (DRE), his prostate felt normal. His PSA

level was 0.43 ng/mL. A diagnostic colonoscopy showed small non-bleeding internal hemorrhoids. A rectal polyp resected on colonoscopy and was found to be hyperplastic. Biopsies of the terminal ileum, rectum, and the ascending and descending colon were all negative for colitis, dysplasia, and malignancy. The patient reported some improvement in rectal pain with over-the-counter Aleve, but was advised against continued use of this medication by a gastroenterologist. A urologist recommended Bactrim DS, 1 tablet twice daily for 6 weeks, for suspected chronic prostatitis. However, the patient discontinued the Bactrim DS after 3 weeks because of worsening of tenesmus. There was also no improvement in his symptoms with trials of Bentyl and nortriptyline.

Over the next 6 months, the patient presented at least 12 times to Emergency Rooms (ERs) in at least 3 health systems because of persistent and worsening tenesmus, constipation, and rectal pain. During that time, computed tomography (CT) with contrast and an MRI with and without contrast of his abdomen and pelvis were unremarkable. The patient's constipation was temporarily relieved in the ER with either Dulcolax suppositories or soap enemas, as needed. He was prescribed various medications prescribed for pain relief, including hydrocodone-acetaminophen as needed, lidocaine patches, Tylenol with codeine, gabapentin, oxycodone-acetaminophen, and hydromorphone. From the onset of his symptoms, the patient's weight unintentionally decreased from 300.6 lb to 215.8 lb over a 1-year period, which was ascribed to his fear of recurrent suppositories and enemas for constipation relief. The symptoms were so severe that the patient attempted suicide by taking an overdose of the hydromorphone and required stabilization on the inpatient psychiatric unit for 3 days.

An MRI of the patient's lumbar spine showed a right paracentral disc protrusion at the L5-S1 level, which displaced the traversing right S1 nerve root within the right lateral recess, as well as advanced degenerative endplate changes and degenerative endplate edema at the right aspect of the L2-L3 interspace. There was no high-grade spinal canal narrowing and the sacroiliac joints were unremarkable. The patient subsequently underwent an L5-S1 laminectomy with microdiscectomy. Unfortunately, the procedure did not relieve his tenesmus, constipation, or rectal pain. He was then referred to a tertiary health care system for further evaluation.

At the tertiary center, a repeat MRI of the patient's pelvis with and without contrast was unremarkable, including no abnormalities along the pudendal nerves. High-resolution anorectal manometry showed a rectal evacuation disorder/pelvic floor disorder with decreased anal relaxation and abnormal rectal balloon expulsion (>60 seconds). A repeat MRI of the lumbar spine without contrast showed interval postsurgical changes on the right at the L5-S1 level with recurrent right paracentral

Figure 1. Histopathology of 1 of 13 left Prostate Imaging-Reporting and Data Stem 5 lesion biopsies (20 objective).

disc protrusion contacting the right S1 nerve root. An electromyogram and nerve conduction study (EMG-NCS) showed mild chronic L5 lumbar radiculopathy in both lower extremities (asymptomatic) with no findings of pudendal neuropathy.

Because the patient had a sensation of incomplete emptying after urination, complex uroflowmetry was performed, which showed a residual volume of 389 mL after urination of 96 mL. On physical examination of his non-tender prostate by a urologist, significant firmness was noted on the left side versus the right. The patient's PSA level was normal at 2.4 ng/mL. An MRI of his prostate with and without contrast showed a Prostate Imaging-Reporting and Data Stem (PI-RAD) lesion involving the left peripheral zone of the prostate with diffuse enhancement and low signal throughout the gland. The prostate volume was 33 cc. There were also findings suspicious for extracapsular extension and neurovascular bundle invasion without suspicious bone lesions. Suspicious positive lymph nodes were seen, including an 8-mm left common iliac node, bilateral obturator nodes (1.1 cm on the left and 1.0 cm on the right), and distal external iliac lymph nodes.

On pathology, periodic acid-Schiff diastase staining of the prostate biopsy specimens was negative. All 13 biopsy specimens from the left PI-RAD 5 prostatic lesion showed acute and chronic inflammatory changes (from mild to severe), with prominent xanthogranulomatous features without evidence of necrosis (**Figure 1**).

Special stains (Gram, Grocott's Methenamine Silver, and acid-fast bacilli) were all negative, and antibodies against CD20 and CD3 showed lymphocytic infiltrates, predominantly of CD3-positive T lymphocytes, with a minor population of CD20-positive B lymphocytes. CT-guided biopsy of an external iliac lymph node was consistent with the patient's history of CLL, with antibodies positive against CD20, CD5, and LEF1 antigens. The external iliac lymph node specimen also showed no growth on fungal culture, or on aerobic or anerobic bacterial cultures.

Because the patient had worsening depression and anxiety that his prostatic lesion and adjacent lymphadenopathy was prostatic adenocarcinoma, he was started on Cymbalta (30 mg daily). The dosage could not be titrated because he experienced fatigue as an adverse effect. Based on the patient's prostate biopsy results, he was prescribed ciprofloxacin (500 mg twice daily for 6 weeks) for treatment of xanthogranulomatous prostatitis and tamsulosin (0.4 mg daily) for management of mild benign prostatic hyperplasia on cystoscopy. The patient completed the ciprofloxacin as prescribed but never started the tamsulosin. For neurogenic bladder, he was advised to self-catheterize 3 to 4 times daily as needed. He also was advised to complete pelvic floor therapy, which he never started. For chronic constipation, the patient was advised to take MiraLax daily, senna-docusate (8.6 to 50 mg, 1 to 2 tabs every other day), and enemas as needed.

The patient reported improvement in all of his symptoms after starting Cymbalta and the course of ciprofloxacin, with normalization of urination and discontinuation of catheterization, resolution of rectal and perineal pain, and normalization of bowel movements with only MiraLax daily. For fear that his symptoms would recur after completing ciprofloxacin, the patient started 1 tablet daily of over-the-counter Aleve "for the inflammation" involved with xanthogranulomatous prostatitis. One year after his symptoms resolved, the patient's PSA level was 1.26 ng/mL. He declined a DRE on follow up.

Discussion

Granulomatous inflammation is classified as nonspecific or idiopathic, infective, iatrogenic, xanthogranulomatous, malacoplakia, or associated with systemic granulomatous disease and allergy [2,3,8]. Of the various forms of inflammation of the prostate, the nonspecific type is the most common, and granulomatous is rare. Xanthogranulomatous inflammation involving the kidneys and gallbladder is common [1,2]. However, xanthogranulomatous prostatitis is rare, with no more than 10 to 15 cases reported to date [3-6]. The exact cause of xanthogranulomatous inflammation is unknown. However, an association with hyperlipidemia has been reported [3].

On pathology, xanthogranulomatous prostatitis typically appears as an accumulation of inflammatory cells, such as lymphocytes, plasma cells, polymorphs, and eosinophils with a large number of foamy macrophages or histiocytes blended with other inflammatory cells [3]. On multiparametric MRI (mpMRI), findings suggestive of xanthogranulomatous prostatitis can include diffuse changes involving 50% or more of the prostate with infiltration of periprostatic fat or extracapsular extension [1]. Patient age at presentation can range from the 20s onward; the average age is in the early 60s [3,7]. The presentation is

most often of lower urinary tract symptoms or symptoms of a lower UTI, including possible urethral discharge. Prostatic abscesses and rectovesical fistulas have been associated with xanthogranulomatous prostatitis [1,3]. On physical examination, the prostate is usually hard and nodular [5]. The PSA level is typically elevated, as high as 150 ng/mL [1-5,8]. Imaging such as transrectal ultrasound and MRI cannot distinguish between xanthogranulomatous prostatitis and primary prostatic malignancy [5]. The diagnosis of xanthogranulomatous prostatitis can only be made definitively by pathological examination [6]. Theorized potential infectious causes of xanthogranulomatous prostatitis include types of fungi, parasites, viruses, *Escherichia coli*, *Treponema pallidum*, and *Mycobacterium tuberculosis* [2,4,8]. Conservative management is recommended for xanthogranulomatous prostatitis, including use of alpha blockers and corticosteroids. The inflammation is thought to be self-limiting and to resolve gradually over time [6]. Surgical options such as transurethral or open prostatectomy are reserved for patients who have severe symptoms or in whom conservative management has failed.

Our patient's age approximates the average age at presentation of xanthogranulomatous prostatitis, and the mpMRI of his prostate gland included diffuse prostatic enhancement and extracapsular extension and neurovascular bundle invasion. He also had a history of mixed hyperlipidemia (high total cholesterol, high triglycerides, and high low-density lipoprotein), which was untreated after he reported diarrhea and lightheadedness with a brief trial of rosuvastatin (5 mg at bedtime). However, the present case is unique, in that the patient's initial symptoms were tenesmus, constipation, and rectal and perineal pain (symptoms of pelvic floor disorder), and they preceded the expected urinary symptoms (retention, reduced urinary stream) by at least 1 year. His PSA level also was within normal limits throughout, although there was a 5-fold increase (from 0.43 ng/mL to 2.4 ng/mL) within 1 year. Although tamsulosin was prescribed, the patient did not take it. After over 1 year of symptoms, the patient reported noticing improvement in tenesmus, constipation, and urinary retention after beginning the 6-week course of ciprofloxacin. In a case of xanthogranulomatous prostatitis in Morocco, a 4-week course of ciprofloxacin resulted in a significant reduction in a patient's PSA level (from 43.97 ng/mL to 7.27 ng/mL) and a reduction in his prostate volume (from 51 g to 31 g) [8]. Cymbalta was selected in this patient for its potential pain benefits. Separate from the ciprofloxacin therapy, it is likely that his rectal and perineal pain improved, in part, because of the treatment with Cymbalta, because it concurrently addressed his mood and anxiety problems. Our patient also partially attributed the remission of his symptoms to taking a daily tablet of over-the-counter Aleve. In the present case, Aleve also provided some temporarily relief of the patient's rectal and perineal pain at the onset of symptoms, likely due to its

anti-inflammatory properties. However, the role of NSAIDs in xanthogranulomatous prostatitis is undefined. No corticosteroids were prescribed to treat our patient.

During the year when the patient in the present case had symptoms, lumbosacral dysfunction was investigated and addressed surgically, with no improvement in somatic symptoms. An EMG-NCS 3 months after the surgery showed no electrophysiological abnormalities that would explain his tenesmus, constipation, rectal and perineal pain, or the urinary symptoms. Medical evaluation, including workup and treatments, did not identify any alternate cause or result in relief of the patient's symptoms, except the eventual diagnosis and treatment of xanthogranulomatous prostatitis. Before the onset of symptoms, the patient's bowel movements were regular and without straining, and he had not had any traumatic injury to his pelvis or pelvic surgery. Although it was believed that the patient's symptoms would be self-limiting over time, they were persistent and atypical, and beyond the capability of current technology for early detection.

A left-sided PI-RAD 5 lesion, such as was seen on the patient's MRI, often leads to xanthogranulomatous prostatitis being misdiagnosed as adenocarcinoma of the prostate. In the present case, the suspicious lymph nodes in the iliac area reinforced the suspicion of adenocarcinoma. Because imaging is unable to show features that definitively distinguish xanthogranulomatous prostatitis from prostatic adenocarcinoma, histopathological examination is crucial for diagnostic clarification. In the present case, the patient's enlarged lymph nodes were related to his history of CLL based on histopathology.

There are no documented cases of xanthogranulomatous prostatitis in individuals with a history of malignancy, including leukemia. The antibody testing of the patient's prostate gland specimens argued against any involvement of his CLL in relation to xanthogranulomatous prostatitis. Although the special stains ruled out any infectious contributions, the positive response from ciprofloxacin is likely a result of its action in reducing the inflammatory process.

Conclusions

Xanthogranulomatous inflammation is commonly seen in the kidney and gallbladder and rarely found in the prostate. The present case report was of an atypical presentation of xanthogranulomatous prostatitis, which started with symptoms of pelvic floor disorder (tenesmus, constipation, and rectal and perineal pain) that preceded urinary symptoms (retention, weak stream) by at least 1 year. In contrast to documented cases of xanthogranulomatous prostatitis, the patient's PSA level remained within normal limits, although it increased 5-fold

increase within 1 year. His pain symptoms appeared to have resolved as a result of the benefits of Cymbalta (30 mg daily), which was prescribed for management of his mood and anxiety disorders. The patient's tenesmus, constipation, reduced urinary stream, and urinary retention improved after a 6-week course of ciprofloxacin (500 mg twice daily) and without concurrent treatment with an alpha blocker, corticosteroids, or pelvic floor therapy. Treatment with a NSAID can provide pain relief for patients with xanthogranulomatous prostatitis, if needed, as well as anti-inflammatory benefits, but further studies of this approach are required.

References:

1. Mukendi AM, Doherty S, Mohanlal R. Xanthogranulomatous prostatitis: A rare mimicker of prostate adenocarcinoma. *Clin Case Rep.* 2002;8:203-5
2. Lee H-Y, Kuo Y-T, Tsai S-Y, et al. Xanthogranulomatous prostatitis: a rare entity resembling prostate adenocarcinoma with magnetic resonance image picture. *Clin Imaging.* 2012;36:858-60
3. Valsangkar RS, Singh DP, Gaur DD. Xanthogranulomatous prostatitis: Rare presentation of rare disease. *Indian J Urol.* 2012;28(2):204-5
4. Noyola A, Gil JF, Lujano H, et al. Xanthogranulomatous prostatitis: A rare prostatic entity. *Urol Case Rep.* 2016;10:4-5
5. Rafique M, Yaqoob N. Xanthogranulomatous prostatitis: A mimic of carcinoma of prostate. *World J Surg Oncol.* 2006;4:30
6. Grewal N, Tuli A, Sridhar FK, Mammen KJ. Xanthogranulomatous prostatitis with benign prostatic hyperplasia: A rare combination. *CHRISMED J Health Res.* 2017;4:214-15
7. Patil N, Kundargi VS, Patil SB, Biradar AK, Desai AS. Xanthogranulomatous prostatitis: A rare case report. *Med Surg Urol.* 2014;3:131
8. El Moussaoui R, El Moussaoui A, Dakir M, Benkirane A. Case report: Xanthogranulomatous prostatitis, a difficult differential diagnosis of prostate adenocarcinoma. *F1000 Research.* 2019;8:1783

Conflict of Interest

None declared.

Declaration of Figures Authenticity

All figures submitted have been created by the authors who confirm that the images are original with no duplication and have not been previously published in whole or in part.