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Successive xanthogranulomatous prostatitis after complete remission of metastatic prostate adenocarcinoma: An extremely rare case report with review of literatures

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ABSTRACT

Xanthogranulomatous prostatitis is a rare occasion that mimics the prostate cancer in every aspect of clinical diagnosis. These two occasions require totally diverse therapeutics principles. Thus, emphasis should be exerted to distinguish them. The most precise tool to distinguish them is tissues' evidence. However, another possible overlooking occasion is successive xanthogranulomatous prostatitis after complete remission under androgen deprivation therapy. This case demonstrated one metastatic prostate cancer with initial treatment of androgen deprivation therapy. PSA was suppressed to the lowest and then radical prostatectomy was performed. Hints from the specimen gave complete remission of cancer cell and development of xanthogranulomatous prostatitis.

Introduction

Xanthogranulomatous prostatitis (XGP), a subtype out of granulomatous prostatitis (GP), is a rare occasion but imitate the prostate cancer in every aspect, spanning from clinical manifestations to laboratory evidence. It is an inflammatory disease originating from fungi, bacteria, virus, and even parasites. Obstructive prostatic secretion and subsequent pathogen thriving cause the inflammatory process end up with abscess formation in some cases furthermore. The most seen pathogens are Mycobacterium tuberculosis, blastomycosis, coccidioidomycosis, and cryptococcosis.[1] Some factors, such as diabetic mellitus and immunosuppressant status, can predispose to it. Various ways of classifications are applied, and it is roughly diverged to specific or non-specific type.[1]

First case report of granulomatous prostatitis can be traced back to 70 years ago[2] and estimation of only 3% among inflammatory causes.[1] Harsh Mohan et al.[1] had collected 1353 prostatic cases across 8 years. Among 1196 cases of benign specimen, only 20 of them were granulomatous prostatitis, that's 1.4%, and 2 out of 20 were XGP, which is 0.1%. Telling the difference between XGP and prostate cancer (PCa) is decisive in therapeutics purpose. For PCa, therapeutics strategies include active surveillances, radical prostatectomy, androgen deprivation therapy (ADT), radiotherapy, and chemotherapy. In contrary, XGP needs antimicrobial therapy and, even more, eradication of the infectious source in abscess cases are the major way.

Case presentation

The 70-year-old healthy man initially bothered by voiding lower urinary tract symptoms (LUTS) of weak stream and intermittency, asking medical consults at local hospital at first. Digital Rectal Exam (DRE) showed hard and immobile texture and Prostate Specific Antigen (PSA) was 200 ng/ml. Trans-Rectal Ultrasound Guided biopsy (TRUS-biopsy) said adenocarcinoma with Gleason score 4 + 5. Prostate volume was around 30 g. Computed tomography demonstrated several lymphadenopathy and metastatic bone lesions. ADT of Leuprorelin was administrated. PSA was suppressed to 11.25 ng/ml.

He visited our hospital due to deteriorating LUTS and elevation of PSA to 52.427 ng/ml. Testosterone was 9.270 ng/ml. Prostate volume of 37.3 cm^3 with protruding into the bladder was seen on ultrasound. Palliative Transurethral Resection of the Prostate (TURP) was performed (Fig. 1), yielding total resected 39 g of pour nodular hyperplasia. Triptorelin 11.25 mg every 12 weeks and Bicalutamide 50mg per day were given. Specimen from TURP showed nodular hyperplasia. Repeated contrast computed tomography and whole body bone scan, revealing still suspected metastatic lesions at L2 and left pubic bone, were depicted at Fig. 2. PSA further decreased to 0.015 ng/ml after ADT treatment.

After discussing with the patient and family, Robotics-Assisted Radical Prostatectomy (RARP) with neurovascular bundle

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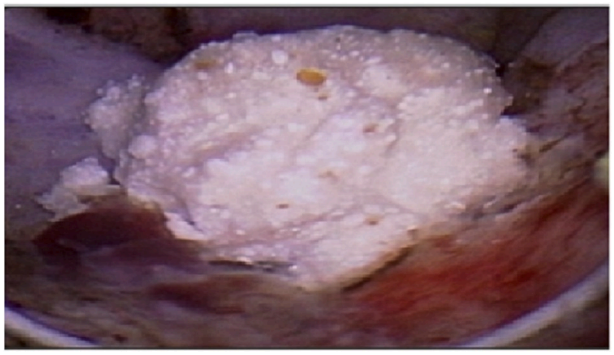

Fig. 1. Direct view when palliative TURP.

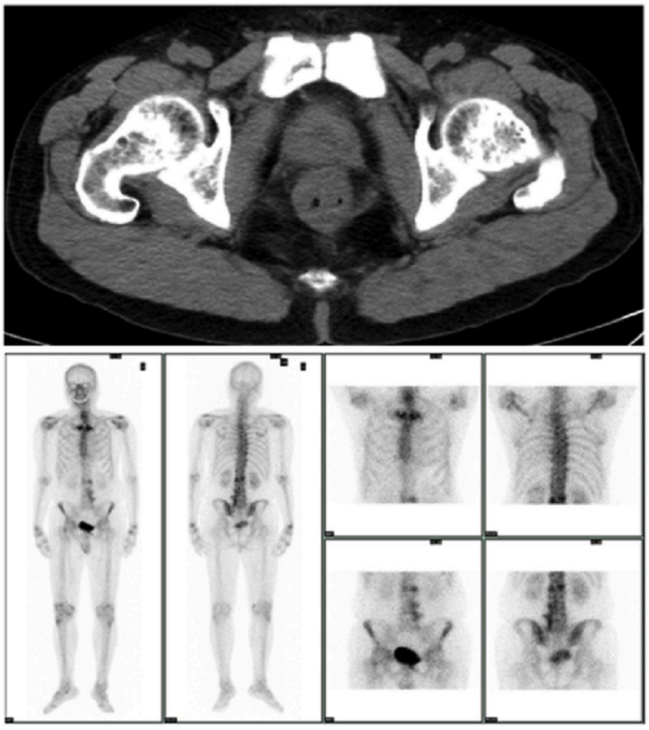

Fig. 2. (Up) Total of 4.4 × 3.3 cm prostate size was measured at axial view after TURP. No lymphadenopathy was seen. (Low) Active bone lesions were seen at L2 and left pubic bone, considered to be malignant from bony metastasis. Other active bone lesions at L4-5, and bilateral sternoclavicular joints, likely representing degenerative change.

preservation was performed. After 220 minutes' operative time and 100 ml blood loss, 30 g of prostate was resected. Grossly, it looked brown coloration and touched like rubbery with partly firm. Microscopically, it was constructed of nodular hyperplasia and xanthogranulomatous prostatitis. Immunohistochemical stains and other histological findings, featuring xanthoma foamy cells and strong CD68 expression, were pictured at Fig. 3. Total of 14 lymph nodes coming from pre-prostatic and bilateral obturator areas were all free of metastatic worries. Based on the pathological reports, XGP was diagnosed.

Discussion

Contemporary diagnosis of PCa relied on three major components that are DRE, PSA, and TRUS-biopsy. However, XGP can totally simulate these three and subsequently been included into diagnosis of cancer, in the end, impeding a urologist from correct thinking process.[3] Clinically speaking, patients with XGP usually are at their 5 to 6 decades, feeling

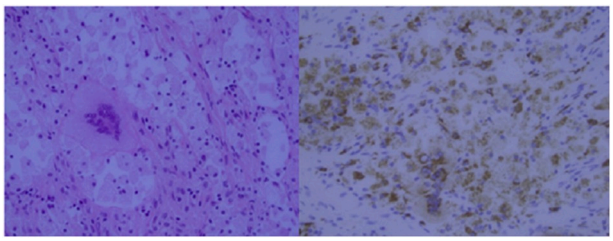

Fig. 3. (Left) Diffuse infiltration of xanthoma cells (foamy cells) with small round banded nuclei and amount clear cystoplasm. One foreign body multinucleated giant cell in the central area was found (H & E stain X 100). (Right) Diffuse strongly positive for CD68 of the xanthoma cells (foamy cells) including the multinucleated giant cell (IHC stain X 200).

nothing but LUTS.[1] Physical examination shows hard nodule just like a cancer in DRE, and of course the PSA commonly surges, which reported from 0.5 ng/ml to 200 ng/ml based on published literatures,[1] being one of the characteristics of an inflammatory process. Tissues' evidence in most cases makes XGP give way to a real PCa diagnosis.[1–3] Harsh Mohan et al.[1] reported 20 cases of GP, only 1 of them was prescribed with simultaneous PCa after prostatectomy, featuring irritative and obstructive voiding symptoms, fixed hard nodule on DRE and PSA of 50.9 ng/ml. When talking about diagnostic alternatives, case report from Hsiang-Ying Lee el al.[4] illustrated how a XGP mimics a PCa under a traditional Magnetic Resonance Imaging (MRI) modality. Most recently, Su-Min Lee et al.[5] concluded multi-parametric MRI findings, one of the most popular auxiliary diagnostic ways besides Prostate Health Index, from 16 patients and postulated that more than 50% of diffuse changes with extracapsular extension and rim-enhancing areas and taking past histories into consideration, GP can be suspected.

The importance of this case lies in complete regression of high grade metastatic PCa to XGP after ADT. To date, this is the first published case of XGP originated from hormone treated PCa. There was a dilemma of this malignant-to-benign change. The pathology report of TURP before RARP, slicing over half of prostate volume down, only discloses nodular hyperplasia. The result cannot rule out the possibility of residual prostate cancer. In addition, ADT treatment may further shade the PSA rising and RARP was the only method to confirm remission of PCa.

This rare case, on a practical basis teaches us that, from the past published literatures, the most precise tool to distinguish XGP or any other GP from cancer is tissues' evidence. Furthermore, there is still the possibility of remission of PCa after ADT and successive development of XGP.

Conclusion

XGP, one of variants of GP, can simulate PCa in every aspect of clinical diagnosis. Even with tissues' proof, we still need to keep in mind the possible remission of PCa and another serially successive transformation into XGP.

Declarations of interest

None.

Section headings

Inflammation and Infection.

Financial conflict of interest

None.

CRediT authorship contribution statement

Che-Hsueh Yang: Writing - original draft. **Chin-Heng Lu:** Writing - review & editing. **Li-Hua Huang:** Investigation. **Yen-Chuan Ou:** Conceptualization, Resources, Supervision. **Chao-Yu Hsu:** Visualization. **Min-Che Tung:** Project administration.

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