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CASE REPORT

Xanthogranulomatous Prostatitis - A Diagnostic Dilemma: A Case Report

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Abstract

Xanthogranulomatous prostatitis (XGP) is an unusual case that can only be diagnosed on histopathological Examination. This lesion is of varied presentation, and often mimics malignancy and prostatic abscess on different diagnostic modalities like biochemical and radiological examinations. We are presenting a case of XGP in a diabetic patient who was suffering from a urinary tract infection and was suspected to be a case of carcinoma prostate on clinical, biochemical and radiological examinations.

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Introduction

Xanthogranulomatous prostatitis (XGP) is a rare form of non-specific granulomatous prostatitis. Granulomatous prostatitis was first reported in 1943 by Tanner and Mc Donald.[1] whereas the first case of XGP was documented in 1986 by Miekos *et al.*[2] Epstein and Hutchin[1] classified it into five individual groups, based on etiology and histology, as idiopathic, infectious, malakoplakia, iatrogenic (post transurethral resection of the prostate), and cases associated with systematic diseases and allergy.[1,3] Infectious agents that have been associated with granulomatous prostatitis are Mycobacterium tuberculosis, Treponema pallidum, and few fungi and viruses.[3,4] It may also be due to intravesical injection of Bacillus Calmette Guerin (BCG) therapy as treatment of bladder cancer.[4]

Case report

A 62-years-old diabetic male patient presented with increased frequency of urine for 6 months, followed by acute retention of urine. On per-rectal examination a nodular enlargement of prostate was felt.

His laboratory investigations revealed total leucocytes count within the normal range. Blood glucose level was 258 mg/dL (normal 70–120 mg/dL) and Prostatic specific antigen (PSA) was 18.4 ng/mL (normal 4.0 ng/mL or lower). Other biochemical investigations like liver function tests and renal function tests were normal.

Routine urine examination showed glycosuria (++ 100 mg/dL) and on microscopic examination, few pus cells were seen in the centrifuged deposit of the urine. Urine culture showed no growth of pathogenic organisms after 48 hours of aerobic incubation at 37°C.

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On ultrasonography (USG), the prostate was enlarged (approximately 51 gm) with a heterogenous echo texture. Post-void residual urine was increased (290 cc.).

Magnetic Resonance Imaging (MRI) showed an enlarged prostate with multiple nodules in the transition zone and altered signal intensity in the peripheral zone, raising a high possibility of a malignant neoplastic lesion (PI–RADS 4). Transurethral resection of the prostate (TURP) was performed and the tissue was submitted for histopathological examination.

HISTOPATHOLOGICAL EXAMINATION

On gross examination, approximately 6 grams of soft tissue pieces were received and all were processed for microscopic examination.

Microscopic examination revealed a sparse glandular component with extensive granulomas in the inter-glandular stroma. The granulomas were composed of Xanthomatous histiocytes and were enclosed by rim of fibroblastic tissue which was infiltrated by lymphoplasmacytic cells (Figure 1a). Lumen of some of the glands was occupied by corpora amylacea (Figure 1b). On higher magnification, the Xanthomatous histiocytes were large, polygonal in shape having vesicular nuclei and abundant granular eosinophilic cytoplasm (Figure 1c). Immunohistochemistry was done. The xanthoma cells showed high expression with CD68 (Figure 1d) while Alpha Methylacyl-CoA racemase (AMACR) and Prostate Specific Membrane antigen (PSMA) were found to be negative (Figure 1e, g,f). Finally, a histopathological diagnosis of XPG was made.

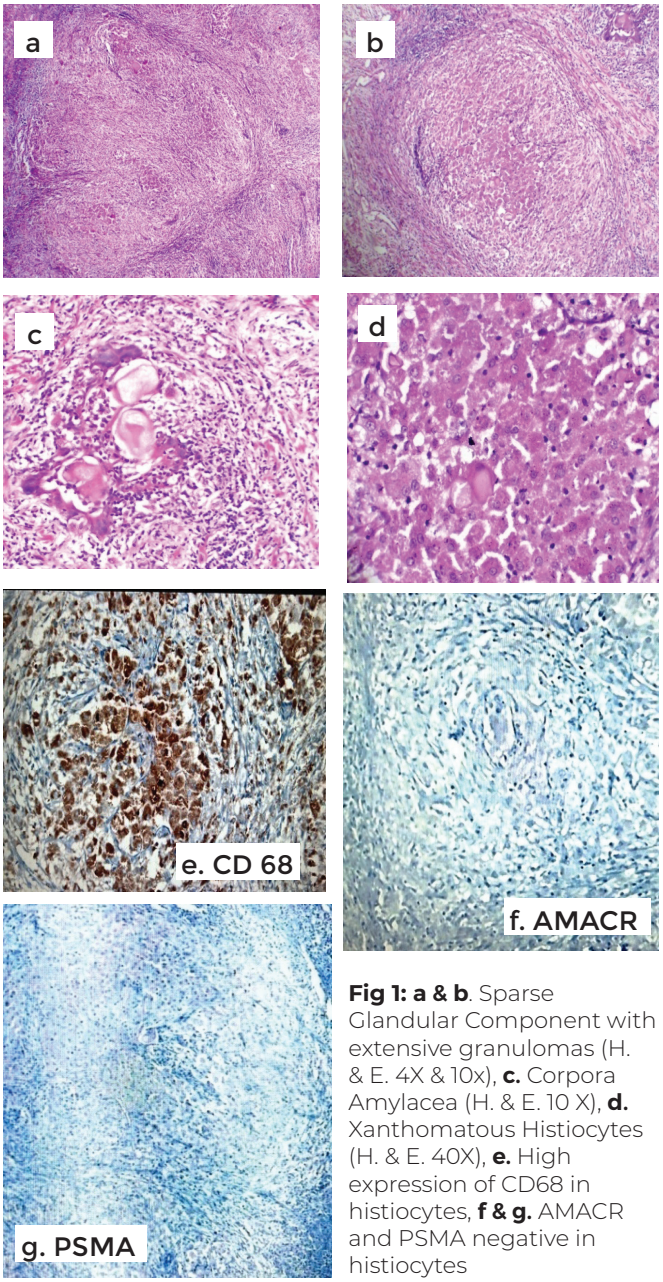

Fig 1: a & b. Sparse Glandular Component with extensive granulomas (H. & E. 4X & 10x), **c.** Corpora Amylacea (H. & E. 10 X), **d.** Xanthomatous Histiocytes (H. & E. 40X), **e.** High expression of CD68 in histiocytes, **f & g.** AMACR and PSMA negative in histiocytes

Discussion

XGP is a rare form of non-specific granulomatous prostatitis. Etiology is still unclear. Various theories have been proposed for the pathogenesis of XGP. Most of the cases are idiopathic in origin. In a few cases, an association is established with lower urinary tract infection, hyperlipidemia, systemic granulomatous disease, allergy and Iatrogenic (post-TURP).[5] In the present case probably the cause was an insidious low-grade urinary tract infection in the diabetic patient. Bostwick and Chang introduced the theory of ductal obstruction, stating that blockage of prostate ducts and stasis of secretions cause cellular debris, bacterial toxins, and prostatic secretions, to escape into the stroma through the destroyed epithelium, provoking a localized inflammatory response.[5] The incidence of XGP is increasing due to more usage of needle biopsy, TURP, and intravesical BCG therapy in the urinary bladder for urothelial malignancies.

A thorough clinical, pathological, and radiological workup is necessary to exclude the probable causes. In the present case, on radiological examination (USG and MRI) the findings were pointing towards a malignant lesion. Raised PSA also created doubts about neoplastic lesions.

XGP causes serious confusion with prostatic carcinoma, especially because it occurs in adults after the age of 60 years.[10] Usually USG and MRI raise doubts, whereas PSA is inconclusive. Only histopathology can make the final diagnosis of XGP. In XGP, histiocytes are observed in large numbers in an inflammatory infiltrate along with multiple lymphocytes and plasma cells. [8] This particular feature, the xanthoma cells cause confusion with the hypernephroid pattern of prostate adenocarcinoma.[4,9]

Immuno-histochemical markers for prostatic cells like cytokeratin, PSMA, PAP, AMACR etc. and for histiocytes like CD68 marker would help in resolving this diagnostic difficulty.[5] Leukocyte common antigen (LCA) and CD68 can be useful in differentiating between these two conditions.[4,5,7] It is a self-limiting condition, mostly treated with TURP. However, a follow-up with USG, PSA levels and MRI is necessary after TURP.

Conclusion

XPG is an unusual condition of inflammatory pathology due to various etiologies and may mimic prostatic adenocarcinoma clinically, biochemically and radiologically. Histopathological examination is essential for the concluding diagnosis. Conservative treatment is the must, with long-term follow-up, especially in patients with persisting elevated levels of serum PSA.

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