

Recurrent obstructive prostatitis revealing granulomatosis with polyangiitis

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ABSTRACT

Granulomatosis with polyangiitis (GPA) is an antineutrophil cytoplasmic antibody (ANCA) associated; vasculitis affecting small vessels and mainly cause upper and lower respiratory tract and renal involvement. Urogenital involvement is extremely rare and poorly described in the literature.

We report herein a case of a 46-year old immunocompetent patient presenting with recurrent urinary tract infections and bladder retention with incidental findings of sinusitis, and pulmonary mass revealing GPA.

1. Introduction

Granulomatosis with polyangiitis (GPA), formerly known as Wegener's granulomatosis, is an antineutrophil cytoplasmic antibody (ANCA) mediated; necrotizing vasculitis of small vessels characterized by the development of autoantibodies to the neutrophil proteins leukocyte proteinase 3 (PR3-ANCA) or myeloperoxidase (MPO-ANCA). It is defined according to clinical features mainly with ear nose throat, lungs and kidneys involvement. The diagnosis is retained according to the ACR/European League Against Rheumatism (EULAR) 2017 provisional classification criteria for GPA, which is based on clinical, pathological and immunological features leading to the diagnosis. In contrast, genitourinary disease is rare in GPA patients, reported in <1% of cases in large cohorts. Manifestations at this level include prostatitis, destructive urethritis, genital ulcers, orchitis and renal masses.¹ We report herein the case of a 46-old immunocompetent patient presenting for recurrent urinary tract infections (UTI) revealing GPA.

2. Observation

A 46-old male patient, working as welder and previously as painter, with a recent past medical history of recurrent urinary tract infection (UTI) treated with antimicrobial drugs, presented for acute urinary

retention. He sought care for a three-month intermittent urinary symptom such as microscopic hematuria and dysuria, associated to right side pain. Abdominal examination was normal, except bladder globe. A catheter associated UTI was performed. Moreover, he complained of shortness of breath, dry cough and fever (38.5 °C). Pulmonary auscultation showed bilateral crackling sounds. Routine laboratory findings showed an increased white cell count of 15 G/L, with lymphopenia of 920/mm³. C reactive protein (CRP) was high at 88 mg/L. Serum electrolytes, kidney and liver functions were normal. Serum electrophoresis showed a normal plot. Urinalysis showed an aseptic leukocyturia (350 cells/μL), microscopic hematuria and negative urinary sediment cast and culture. Peripheral blood cultures were also negative. Further investigations including QuantiFERON-TB Gold test and HIV serology were negative. Antimicrobial empiric treatment was started (simultaneous intravenous (IV) administration of Cefotaxime 2gx3/d and one IV dose of Amikacine 15mg/kg), with no clinical response; the patient developed fever at 39 °C, chills respiratory symptoms such as worsening dyspnea and macroscopic hematuria.

Abdominal and pelvic computed tomography (CT) showed heterogeneous prostatic collection in the transition zone suggesting abscess formation (Fig. 1A) with a minor peritoneal effusion (Fig. 1A). Chest CT showed a large anterolateral right upper lobe pulmonary mass (Fig. 1B). 18-Fluorodeoxyglucose (DFG) positron emission tomography/CT (PET/

Abbreviations: Urinary tract infections, (UTI); Granulomatosis with polyangitis, (GPA); Anti-neutrophil cytoplasmic antibodies, (ANCA); Proteinase 3 (PR-3), (PR-3); (IV), Intravenous; (CT), Computered tomography; (PET/CT), Positron emission tomography/computed tomography; (FDG), 18F-fluorodeoxyglucose; (BAL), Broncho-alveolar lavage; (AFB), Acid-fast-bacilli; (ELISA), Enzyme-linked immunosorbent assay.

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CT) demonstrated a diffuse, moderated to high 18-DFG uptake locus in nasal, pulmonary, bladder and prostatic lesions (Fig. 2). Macroscopic examination during bronchoscopy was normal. The broncho-alveolar lavage (BAL) microscopic examination for acid-fast-bacilli (AFB) was negative, as well as culture. BAL cytology did not show malignant cells. A CT-guided transparietal pulmonary biopsy revealed a necrotizing granulomatous inflammation. Light microscopy showed granulomas composed of aggregates of epithelioid histiocytes, with central necrosis and negative Ziehl-Neelsen staining. Biopsy results were also negative for *Mycobacterium tuberculosis* in culture and rt-PCR. Prostatic biopsy concluded to the same histological examination results. Immunological investigations revealed negative antinuclear antibodies (1/80), and positive ANCA by immunofluorescence assay with a cytoplasmic staining pattern. Anti-PR3 antibodies measured by enzyme-linked immunosorbent assay (ELISA) were elevated (6.8 IU/mL). According to the EULAR/ACR classification criteria, the diagnosis of GPA was retained with the rare involvement of the urogenital tract. The patient was on full dose oral corticosteroids with progressive tapering associated to 6-month-IV monthly pulses of cyclophosphamide dosing schedule according to the NIH protocol (0.7 g/m²) relayed by oral azathioprine (150 mg/d). The global outcome was favorable with rapid improvement of general condition and respiratory symptoms, as well as disappearance of dysuria and urinary retention.

Thoracic and abdominal CT showed a mass pulmonary regression, with a total disappearance of prostatic abscess. The current decline is 24 months and the patient is free of symptoms.

3. Discussion

Urogenital and prostatic involvement in GPA is exceptional and mostly unknown. It can be the first clinical manifestation of GPA in 18% of cases.² The total urogenital tract can be affected, causing different clinical features. It currently affects men with a median age of 53 years.²

IUT were the most prevalent described manifestations in GPA, with only some cases reporting prostatic abscess,² and more rarely orchid-epididymitis.² Urethro-penile manifestations have been described. Abdominal and pelvic imaging may show ureteral stenosis with some cases of bilateral hydronephrosis.³ Finally, cutaneous and urogenital mucosa lesions as ulcerative lesions of the glans penis were also reported.² GPA is associated with increased uptake on PET/CT, which has the advantage of detecting atypical forms such as GPA with prostatic, or orbital localizations. Currently, Prostate-Specific Membrane Antigen-PET (PSMA-PET) and choline-PET have a higher sensitivity than 18-FDG PET/CT, regarding prostatic involvement.⁴ This technique can also help the management and the response assessment, by showing a decreased uptake in the course of GPA treated patients,⁴ and may be used to identify the more appropriate biopsy site.

We present a case of recurrent prostatitis as inaugural manifestation

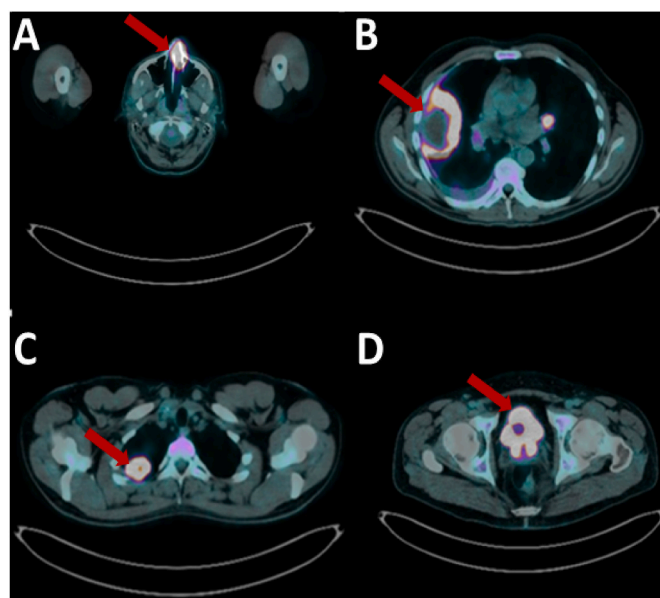


Fig. 2. Positron emission tomography/computed tomography with intravenous injection of 18F-fluorodeoxyglucose (axial window) showed: (A) elevated metabolic uptake in anterior of nasal cavity (SUV max. 16,52) (arrow); (B): elevated uptake in enlarged right upper lobe pulmonary mass (SUV max. 19,23) with no-intake central necrosis (arrow), associated to multiple uptakes in bilateral mediastinal lymphadenopathy; (C) elevated uptake in right lower lobe pulmonary nodule (arrow); (D) intense and diffuse bladder wall and prostatic 18-DFG uptake.

of GPA in a young man successfully treated with cyclophosphamide and prednisone. There are few published data on the management of urogenital involvement in GPA. Retrospective case series showed that combination therapy lead to at least partial remission of urinary symptoms.²

Thusly, authors suggest recently the use of rituximab, anti CD20 monoclonal antibody, and shift surgery as late as possible. In our case, we used classical treatment with cyclophosphamide infusions according to the NIH protocol. The patient did not develop side effects due to cyclophosphamide such hemorrhagic cystitis, which may be confused with urological GPA relapse.⁵ Some presentations of GPA relapse with clinical manifestations as dysuria or hematuria, must be distinguishable of from cyclophosphamide long-terms side effects.² Careful follow-up and monitoring of basic laboratory tests (regularly complete blood cell counts and urinalysis with urinary sediment testing) may prevent adverse effects of this treatment and minimize their impact.

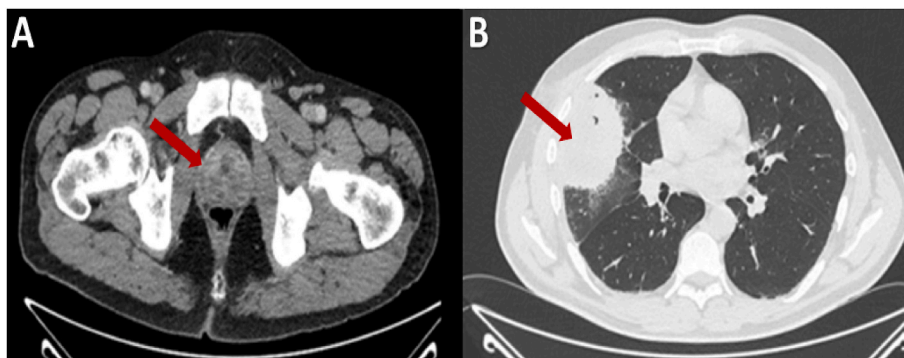


Fig. 1. (A) Abdominal and pelvic computed tomography (A) showed enlarged and heterogeneous prostatic collection of 36mm in the transition zone suggesting a prostatic abscess (arrow). Chest computed tomography imaging (axial lung window (B)) showed a large anterolateral mass of 88 × 55 mm projecting over the right upper and medium lobe pulmonary (arrow) with central excavation, without pleural effusion.

4. Conclusion

To conclude, this early and effective medical approach could improve the patient condition without surgery. But GPA involving the prostate is a real challenge because of its rarity. We suggest that GPA must be considered a potential diagnosis in patients with unexplained prostatitis and non-specific systemic signs of systemic involvement.

Author contributions

MC and SZ were the major contributors in writing the manuscript and performing the literature review. YBA performed in establishing the pictures and the legend. NB and VG revised the manuscript. Both authors have read and agreed to the published version of the manuscript.

Patient consent

The patient provided written informed consent for the publication of this case report.

Ethical statement

This manuscript has not been published or presented elsewhere in part or in entirety and is not under consideration by another journal. This study was approved by our hospital ethics review board and was conducted according to the principles of the Declaration of Helsinki.

Data availability statement

Data available on request due to privacy restrictions. The data

presented in this case study are available on request from the corresponding author.

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Declaration of competing interest

The authors declare no conflicts of interest.

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