Case Report

Prostatic Abscess Presenting as Pulmonary Embolism: A Rare Complication

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Abstract

Prostatitis is one of the causes of pyrexia of unknown origin, due to anatomical location and some unique features of the prostate gland. These peculiarities also result in varied and far-reaching complications of prostatic abscess. A 55-year-old healthy male presented with episodes of high-grade fever and chills accompanied by dyspnea. Investigations revealed prostatic abscess with pulmonary embolism which is a rare complication of prostatic abscess. Prostatic abscess is an accumulation of infected, purulent materials within the prostatic gland. It is unilobar or spread across various septa of the gland. This case adds to very limited literature available regarding pulmonary embolism with prostatic abscess, especially where most of the cases documented have been on postmortem basis. Atypical presentation, diagnostic challenge, and multidisciplinary treatment modality make this case distinct.

Keywords: Computed tomography pulmonary angiogram, prostatic abscess, pulmonary embolism, pyrexia

Introduction

Prostatic abscess is a direct complication of acute or chronic prostatitis. The pathogenesis of prostatitis is due to the reflux of the infected urine into the prostatic ducts. Patients who have diabetes, immunocompromised status, renal diseases, liver cirrhosis, undergoing hemodialysis, BPH (benign prostatic hyperplasia) are more prone to prostatitis.[1] Literature has shown that about 50% of prostatic abscess cases are diabetics.[2] Symptoms include increased urinary urgency, frequency, dysuria, hematuria and urethral burning, difficulty in urination, acute urinary retention, fever, chills, myalgia, and low back pain. A mere sore prostate cannot help clinicians to distinguish between prostatitis and prostatic abscess. If untreated, it can lead to the spread of the infective material to the bladder, urethra, penis, rectum, thromboembolic episodes, and even mortality.[3]

Prostatic abscess tends to constitute 0.5% of all urology diseases and 6% of all acute cases of bacterial prostatitis. The mortality rate associated with prostatic abscess is between 1% and 16%.[4] Due to the emergence of antibiotics, these cases are scarce and so are the complications. Pulmonary embolism from prostatic abscess is very rare, so we have represented this case.

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Case Report

A 55-year-old male patient with no comorbidities presented in urgent care the complaints of the episodes of high-grade fever and dry cough on and off for 3 weeks accompanied by dyspnea and tachycardia.

He had received antivirals and antibacterials in view of the lower respiratory tract infection symptoms from another healthcare facility, but there was no relief. The investigations for infective etiology of the fever including high-resonance computed tomography (CT) of the chest were inconclusive. Total leukocyte count was normal, but erythrocyte sedimentation rate and C-reactive protein (CRP) were raised. Chikungunya antibody testing, typhoid immunoglobulin (Ig) G and IgM, and *Plasmodium falciparum* were negative.

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On admission, clinical examination revealed no localization. Chest auscultation showed no abnormality. Laboratory investigations revealed raised levels of CRP (106 mg/L), procalcitonin (2.27 ng/ml), Pro-Bnp (878 pg/ml), and hyponatremia (128 mEq/L). Complete Blood count revealed 12.7 g/dl of Hemoglobin, total leucocyte count of 4370 cells per microliter and 168,000 per microliter of platelet count. ANA blot (antinuclear antibodies) and anticyclic citrullinated peptides were negative.

A urinary tract infection (UTI) was detected by pyuria (100-120 pus cells) and mild hematuria (10-15 red blood cells). Ultrasound (USG) of the abdomen and pelvis was unremarkable apart from mild prostatomegaly measuring 45 mm × 34 mm × 45 mm. CT of the abdomen and pelvis showed no evidence of pyelonephritis, but mild prostatic enlargement and postvoid residue of 34 cc were observed. The patient had an episode of breathlessness accompanied by fever and hypoxia in ward, which necessitated shift to the intensive care unit (ICU) for monitoring. Two-dimensional echocardiogram was significant of mild concentric left ventricular hypertrophy, EF – 60%, mild pulmonary hypertension.

In view of the episode of severe breathlessness and right bundle branch block on electrocardiogram, CT pulmonary angiogram was advised, which revealed partial filling defects in few of the segmental and subsegmental branches of both the pulmonary arteries in both the lower lobes suggestive of pulmonary thromboembolism [Figure 1]. Bilateral lower limb Doppler (arterial and venous) was within normal limits. The patient was started on therapeutic dose of low-molecular weight heparin. MRI (magnetic resonance imaging) prostate showed enlarged prostate with attenuated zonal differentiation, with peripherally enhancing areas of restricted diffusion with larger appearing bright on T2-weighted images would represent abscess formation; no extra prostatic extension is noted – PI-RADS 2 (Prostate Imaging Reporting and Data System) [Figure 2]. Prostate specific antigen (PSA) was found to be raised (17.77 ng/ml). Thus, the final diagnosis of the prostatic abscess with pulmonary embolism was arrived at.

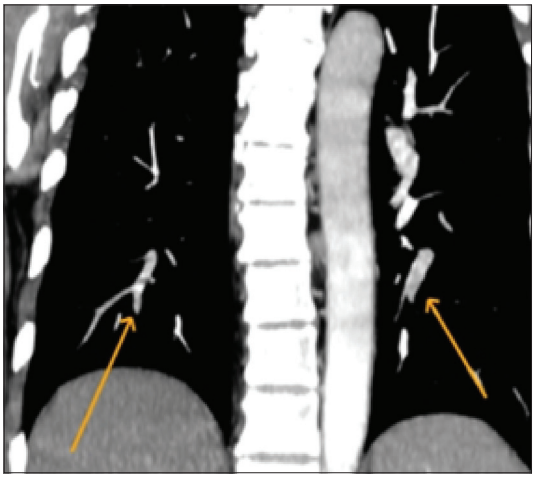

Figure 1: Computed tomography pulmonary angiography. Partial filling defects (arrows) seen in few of the segmental and subsegmental branches of both the pulmonary arteries in both the lower lobes suggestive of pulmonary thromboembolism

Blood and urine cultures were negative as the patient had already received multiple antibiotics outside. The patient was managed conservatively with antibiotics piperacillin–tazobactam and enoxaparin and was shifted back from the ICU to the wards after 3 days. The patient responded well to the treatment and was discharged on oral doxycycline and apixaban.

Discussion

Prostatic abscess occurs mainly in the 5th–6th decade in immunocompromised cases.[5] Differentials for prostatic abscess are perineal abscess, perirectal abscess, BPH (benign prostatic hyperplasia), and UTI.[6]

Pulmonary embolism from prostatic abscess has been rarely reported in the literature. In 2003, Prakash VR *et al*, have reported a case of mortality of young male from periprostatic venous thrombi masking as ARDS (acute respiratory distress syndrome).[7] In 2011, Elhammady *et al*. reported three cases of pulmonary embolism from periprostatic venous thrombi observed on autopsy. They also described in detail the mechanism by which periprostatic venous thrombi can cause pulmonary embolism via Batson's plexus.[8] In 2016, Liu *et al*. described a case of septic pulmonary emboli from prostatic abscess with fatal outcome.[5] *Escherichia coli* (70%), *Klebsiella* (26%) are the leading causes of prostatic abscess,

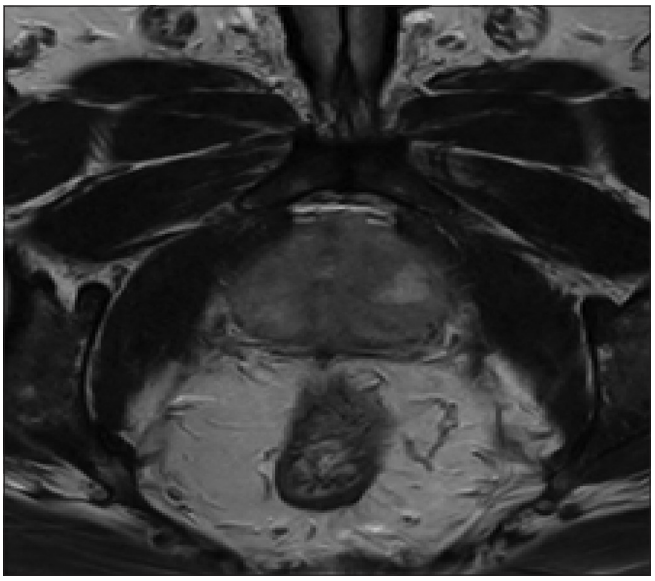

Figure 2: Magnetic resonance imaging of the prostate. Focal areas of restricted diffusion with larger appearing bright on T2-weighted images are seen involving the prostate gland extending from the apex to the base predominantly on the left side. They show peripheral enhancement on postcontrast imaging and represent areas of abscess formation

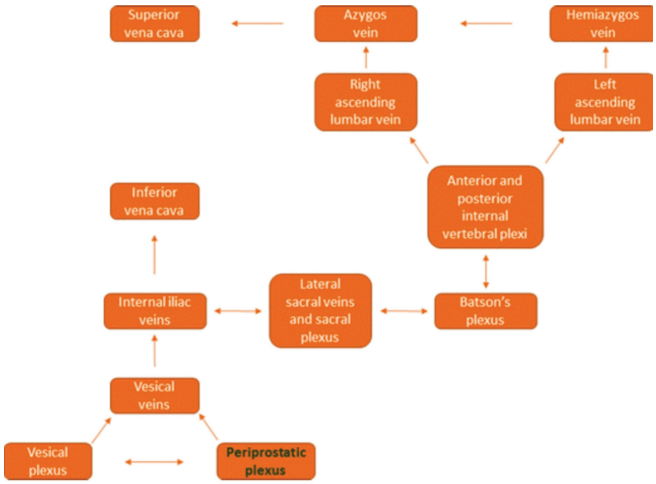

Figure 3: Pathways for embolus migration from the periprostatic venous plexus[9]

with latter being the most common cause in diabetics.[1,5] Foschi *et al*. reported death due to pulmonary embolism during corporoplasty [Figure 3].[9] A systematic review by Khudhur *et al*. recommended treatment based on abscess size, clinical situation, and age of the patient.[10]

The treatment is a combination of antimicrobial therapy and surgery, which includes USG-guided drainage, transurethral, or open drainage.[10] In our case, MRI of the prostate confirmed the diagnosis. The patient responded well to antimicrobial treatment; hence, the case was managed nonsurgically.

Prostatic infections often masquerade as pyrexia of unknown origin and should be considered in differential diagnosis in males presenting with unlocalized fever in their second half of life. Due to the unique anatomical features of the prostate gland and its venous system, remote complications such as pulmonary embolism can occur, which can be life-threatening signifying early recognition and prompt treatment.

Conclusion

Prostatic abscess cases are atypical, challenging to diagnose and rarely have led to fatal complication. This case presents rare and potentially life-threatening sequelae of prostatic abscess, which, if detected and treated well in time, can prevent fatal outcomes.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given his consent for his images and other clinical information to be reported in the journal. The patient understands that his name and initials will not be published and due efforts will be made to conceal his identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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