

# Prostatic Abscess MRI Findings: Case Report

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## Abstract

Prostatic abscesses are a rare complication of acute prostatitis, and an uncommon clinical entity in the antibiotic era. Despite their rarity, untreated abscesses still remain potentially life-threatening, and require formal drainage to permit resolution.

Here in, we report the MRI findings in 73 – years old man who presented with severe dysuria of two weeks duration . He was found to have multiple prostatic abscesses which was surgically drained.

**Keywords:** Prostate abscess, Magnetic resonance imaging.

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## Introduction

Prostatic abscess (PA) is a rare but nevertheless serious disease.<sup>1</sup> MRI, because of its multiplanar capability and high soft tissue contrast, is ideally suited for evaluation of the prostate.<sup>3</sup> Prostatic abscess has some characteristic MRI findings, which makes easy to find even small abscess, and it can determine the trailing scope of abscess.<sup>2</sup>

PA is a localized process that usually begins in the peripheral zone of the gland but may spread to other areas. The majority of lesions result from urinary tract infection with *E. coli* and *Proteus*. Diabetic, immunocompromised patients (following chemotherapy or radiation) and AIDS patients particularly are likely to

develop PAs, which is rare in infants and children. PAs may rupture into the urethra, the rectum, the perineum and, less frequently into the peritoneum.

Here we report a case of multiple prostatic abscesses which was diagnosed by MRI and drained by transurethral incision. The literature concerning MRI use in the evaluation of PA has been reviewed

## Case Report

A 73 year-old male patient, non-smoker, diabetic on insulin therapy. Presented with two weeks history of severe dysuria, urgency, urge incontinence , generalized weakness, fatigue, but without chills, rigor or fever. Digital rectal examination revealed extremely

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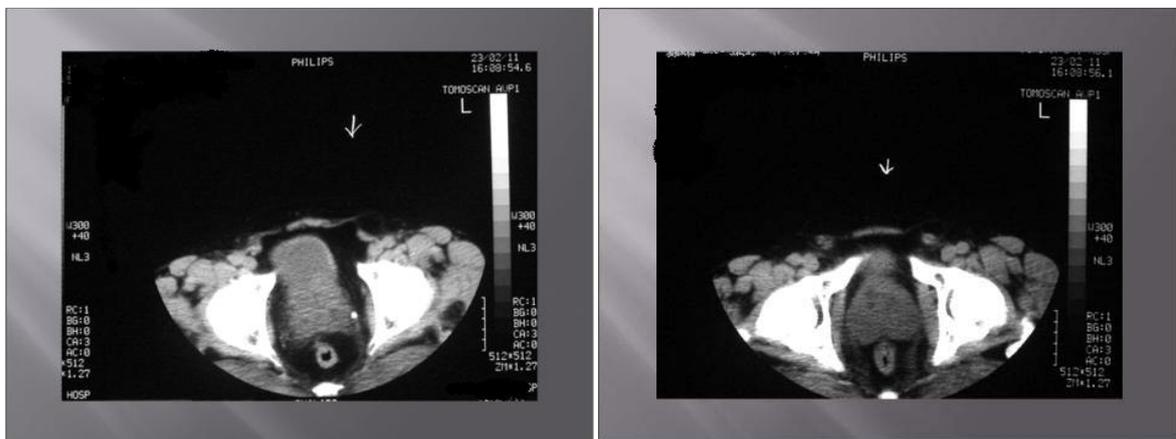
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tender and firm prostate causing painful defecation .Urine analysis showed numerous WBC. While Urine culture showed E.coli, the count was 100000/HPF, which was sensitive for trimethoprim, sulphamethazole and nitrofurantion. Kidney function test showed elevated ceratinine and Complete blood count was normal except for leukocytosis (WBC: 19.3). While Total and free PSA were 15.1 and 1.268 respectively. Abdominal ultrasound was normal while, non-contrasted urinary tract CT was performed because of renal impairment and showed huge heterogeneous prostate gland indenting the urinary bladder base (Figure 1). Pelvic MRI was performed using a 1.5 T MR system (Somatom vision plus, Siemens, Germany) with a pelvic phased-array coil. The endorectal coil was not used to minimize discomfort in this patient who had an inflammatory process. MRI protocol consisted of axial and coronal precontrast T1-weighted spin-echo (SE) images, followed by axial and coronal T2-weighted fast spin-echo (FSE) images. Subsequently, contrast-enhanced T1-weighted SE images with the same parameters

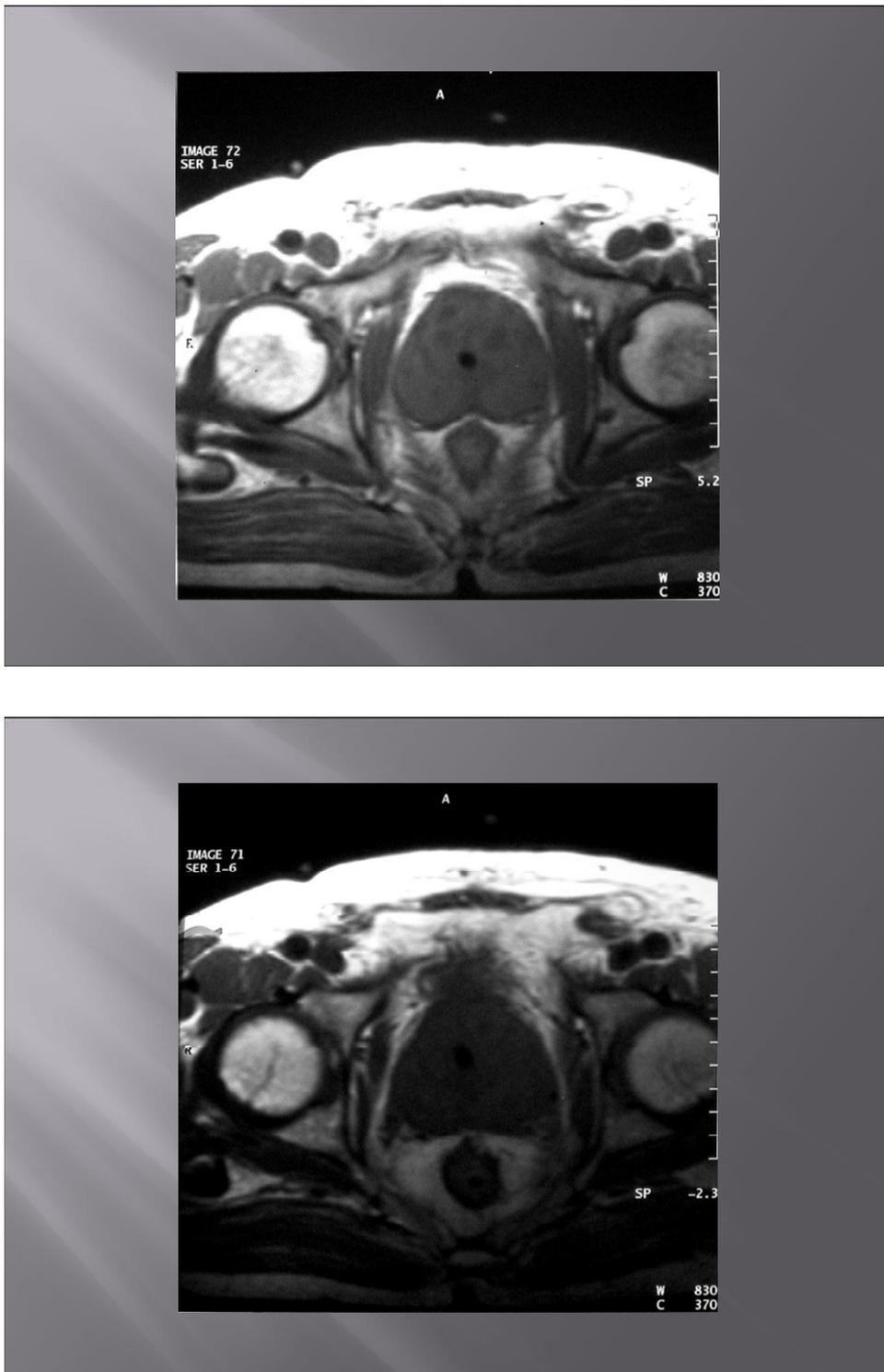
as the precontrast sequence were acquired after administration of 0.1 mmol/kg body Weight. Paramagnetic contrast agent (Magnevist, Schering, Germany).

MRI showed the prostate gland markedly enlarged on T1(Figure 2) and T2 weighted images with heterogeneous signal on T2 WI involving both peripheral and central zones with multiple rounded cystic lesions in its central zone (Figure 3). After contrast injection, T1 WI showed marked enhancement of the prostate gland with multiple variable size hypointense non-enhancing portions highly suggestive of multiple PAs with additional involvement of the of seminal vesicles (Figure 4).

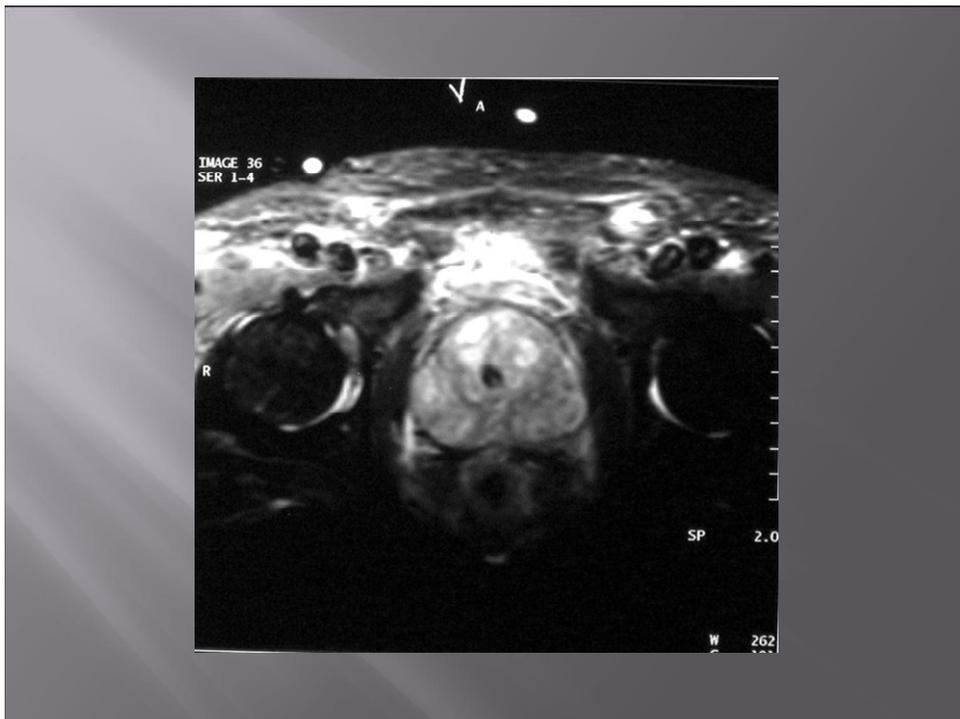
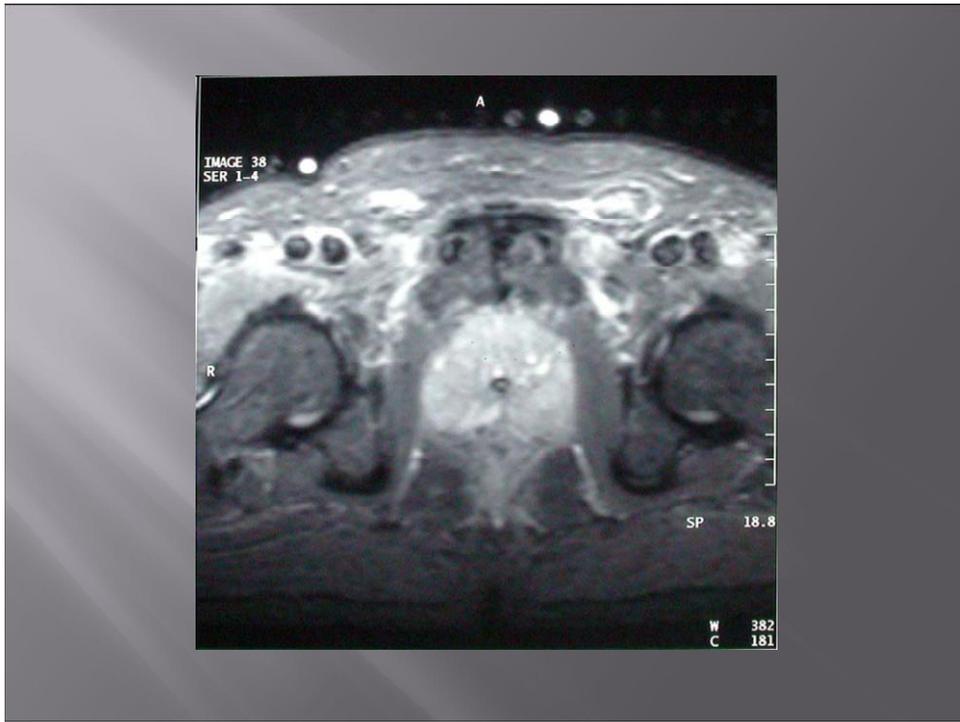
The patient was treated with broad-spectrum preoperative antibiotics for five days and transurethral drainage was performed using resectoscope and samples were sent for culture which confirmed growth of E.coli and evidence of prostatitis with no malignant cells seen.



**Figure 1: Non-contrasted Urinary Tract CT scan shows huge prostate gland**



**Figure 2 :Axial T1W MRI shows markedly enlarged prostate gland**



**Figure 3 :Axial T2W MRI shows enlarged hetrogenous signal prostate gland with multiple rounded cystic lesion in the Central and peripheral portions**



**Figure 4 : Coronal T1W MRI Post Contrast image, shows multiple ring enhancing lesions representing PA**

## DISCUSSION

The overall incidence of PA has declined over the past several decades because of the widespread use of antibiotics and the decreased incidence of gonococcal urethritis and its associated urethral strictures. PA as a complication of prostatitis, however, is still found in patients with predisposing factors such as immunocompromised states.<sup>4</sup>

The mortality of PA was 10–30% in the pre-antibiotic era. *Neisseria gonorrhoea* was the primary organism, responsible in 75% of the cases (mainly younger man)<sup>5</sup>. Regardless, a failure to diagnose and promptly treat can cause significant morbidity.<sup>10</sup> At present, PA has been reported primarily in an older age group due to gram-negative bacilli (chiefly *E. coli*) associated with bladder outlet obstruction and urinary tract infection.<sup>5</sup>

PA with spontaneous abscess drainage to the urethra, and peritoneum, is sporadic today. It is thought that the retrograde flow of contaminated urine within the prostate during micturition is the most prevalent pathogenic factor. Some authors suggest that PA is a complication of bacterial prostatitis, acute or chronic, but the actual incidence and frequency of these events is not known. Bacterial haematogenous spread from distant foci was also described, such as from respiratory (bronchitis, otitis), digestive (appendicitis, diverticulitis), and urinary tracts (perirenal abscess), and from the skin (furuncles, abrasions). In these cases, germs like *S. aureus*, *M. tuberculosis*, *E. coli* e *Candida sp.* may be found.<sup>6</sup>

Clinical diagnosis of PA is problematic because of overlapping symptoms and signs occurring with prostatitis. The distinction is

important because prostatitis is managed conservatively with antibiotics, whereas PA may require drainage. Furthermore, left untreated, a prostatic abscess carries a higher risk of complications, including rupture into the ischiorectal fossa, prevesical space, periprostatic space, and peritoneum.<sup>7</sup>

Common presenting features are dysuria, fever, suprapubic pain and/or urinary retention, while Urine examination usually reveals pus cells.<sup>8</sup>

Imaging techniques, i.e., TRUS or cross-sectional imaging modalities are particularly useful for early recognition of abscess formation and assessment of the extension of inflammation. The sonographic pattern of a PA is usually characteristic and can thus be easily differentiated from other glandular lesions. Tumors are most frequently found in the peripheral zone. Abscesses generally appear as wide hypoechoic zones; sometimes a hypoechoic perilesional halo can be identified around an abscess, which is absent in tumors. The differential diagnosis of smaller abscesses includes congenital prostate and seminal vesical cysts, prostate infarction, and prostate carcinoma.<sup>4</sup>

Computed tomography (CT) was found to be useful to assess the extent of suppurative material that had collected in the periprostatic tissue and to detect gas in the fluid.<sup>8</sup> However, MRI, due to its higher spatial resolution, better tissue contrast, and multiplanar imaging capabilities, is advantageous compared with CT for assessment of the infectious involvement of the prostate gland itself.<sup>4</sup> MRI shows a hypointense signal on T1W and a hyperintense signal on T2W images,<sup>2</sup> with peripheral contrast enhancement.<sup>8</sup> High-resolution MRI using an endorectal and/or pelvic phased-array coil is widely used in

patients with prostate carcinoma.<sup>4</sup>  
Transurethral drainage and proper antibiotic therapy is the treatment of choice when a PA is diagnosed. The transperineal approach is no longer used due to the risk of impotence as well as the hematogenic spread of infection associated with this procedure.<sup>4</sup>

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## الموجودات الشعاعية في تصوير الرنين المغناطيسي لخراج البروستاتا

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### الملخص

**الهدف:** إن خراج البروستاتا هو اختلاط نادر لالتهاب البروستاتا الحاد، وهو قليل المصادفة في عصر المضادات الحيوية. وبالرغم من ندرته، يبقى خراج البروستاتا من الحالات المرضية المهددة لحياة المصاب به. لذا؛ فإنه يحتاج إلى تصريف منهجي وبأسرع وقت ممكن من أجل التعجيل في بدء الشفاء.

في هذا التقرير، نستعرض الموجودات الشعاعية في تصوير الرنين المغناطيسي لدى مريض في الثالثة والسبعين من عمره، الذي حضر إلينا وهو يعاني من صعوبة في التبول لمدة أسبوعين.

بعد الفحص وإجراء الاستقصاءات اللازمة تبين أن لدى المريض العديد من الخراجات في البروستاتا التي تم تصريفها جراحيا.

**الكلمات الدالة:** خراج البروستاتا، تصوير الرنين المغناطيسي، المضادات الحيوية.