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Original Article

Is Transurethral Drainage in Prostatic Abscess a Preferred Option in this Post-antibiotic Era?

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Abstract

Background: Prostatic abscess is one of the uncommon urological emergencies that mainly occurs in diabetes, renal insufficiency, or any immune-suppression. *Escherichia coli* and *Staphylococcus aureus* are the most common causative organisms. The prostate is intractably tender and fluctuates on a digital rectal examination. Open perineal drainage, transurethral de-roofing, trans-rectal needle aspiration, or tube drainage are treatment options.

Materials and Methods: This is a retrospective observational study of all patients with a confirmed diagnosis of prostatic abscess who had undergone trans-urethral drainage.

Results: A total of 42 patients were analyzed in 10 years of study duration, with a mean age of 56 years. The mean prostate was 56, and the abscess volume was 4. Multiple locations of abscesses were found in 35%. Three patients were re-admitted for a recurrence of the abscess.

Conclusion: The trans-urethral procedure is one of the most effective and safe methods for prostatic abscess.

Key words: Abscess, Complication, De-roofing, Immuno-suppression, Trans-urethral

INTRODUCTION

A prostatic abscess is an uncommon urological emergency that may lead to septicemia and multiorgan dysfunction syndrome unless properly treated.[1,2] Patients with diabetes mellitus, renal insufficiency, and any immune-suppressed state are particularly at risk. Urethral catheterization, lower urinary tract instrumentation, and a prostate biopsy are among the predisposing factors.[3] Several pathogens have been isolated from the abscess, with *Enterobacteriacae* (particularly *Escherichia coli*) and *Staphylococcus aureus* are the most common causative organisms.[4] Hematogenous spread from distant foci has also been reported with organisms like Mycobacterium tuberculosis and Candida species.[5]

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The clinical presentation varies depending on the severity of the infection. A prostatic abscess is usually diagnosed when a patient with acute prostatitis fails to respond to medical treatment. The patient commonly presents with perineal, genital, and suprapubic pain, exacerbating lower urinary tract symptoms, and acute urinary retention. Constitutional symptoms (fever, rigors, malaise, and anorexia) are frequently present. The prostate is intractably tender on a digital rectal examination. Fluctuation (a "boggy" sensation) of the prostate on a digital rectal examination can establish the diagnosis.[6] TRUS and other cross-sectional imaging methods (pelvic computed tomography [CT] or magnetic resonance imaging [MRI]) might be useful in the diagnosis, treatment, and monitoring of the response to treatment.[7] Once liquefaction and abscess formation are diagnosed, several approaches have been described for drainage. Open perineal drainage, transurethral de-roofing, trans-rectal needle aspiration or tube drainage[8,9] and percutaneous drainage[10] are the main therapeutic options. Trans-urethral holmium-laser de-roofing of a prostatic abscess has been reported.[11] To the best of our knowledge, the available data do not support some treatments over others in any particular situation.

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We here want to share our experience with transurethral drainage of a prostatic abscess diagnosed in our hospital.

MATERIALS AND METHODS

This is a retrospective observational study conducted at Patna Medical College and Hospital. In the study, the collection and analysis of all the patients with a confirmed diagnosis of prostatic abscess were done retrospectively from 2012 to 2022. Details of all the patients including clinical history, history of urethral instrumentation or intervention in the past, hematological and urinary data, radiological imaging features, interventional details, duration of hospital stay, data recorded on follow-up, readmissions for any medical treatment or any secondary surgical procedures for the prostate, were recorded. In clinical history, perineal, genital, and suprapubic pain, exacerbating lower urinary tract symptoms, and acute urinary retention were recorded. Constitutional symptoms (fever, rigors, malaise, and anorexia) are noted. A digital rectal examination finding was noted. TRUS and other cross-sectional imaging methods (pelvic CT or MRI) were recorded if these were prescribed [Figures 1 and 2].

The technique of drainage of the prostatic abscess was recorded in detail. In all patients after the diagnosis of prostatic abscess, broad-spectrum antimicrobial agents like third-generation cephalosporin with aminoglycoside were given, usually after sending the urinary sample for culture and sensitivity [Figures 1 and 2]. All patients in the study had gone for transurethral drainage, usually by de-roofing, which was performed under spinal anesthesia. For the drainage, a 26-Fr. resectoscope sheath was used. 1.5% glycine was an irrigating fluid. This procedure had been started at the 5–7 o'clock position, and de-roofing of the abscess was done [Figure 3]. The prostatic tissues and the pus were sent for HPE and C/S. Proper hemostasis was secured, and a urethral catheter was placed. Voiding trials were given on postoperative day three. All patients were discharged the next day after voiding trials.

RESULTS

This is a retrospective observational study conducted at Patna Medical College and Hospital. In the study, the collection and analysis of all the patients with a confirmed diagnosis of prostatic abscess were done retrospectively from 2012 to 2022. A total of 42 patients were analyzed in 10 years of study duration who underwent transurethral unroofing. All observed parameters are shown in Table 1. The mean age of the patients was 56 years. In co-morbidities, diabetes mellitus, hypertension, chronic kidney diseases, and a stricture urethra were noted. A history of recent urethral instrumentation and Foley's catheterization was noted in 43% of the patients. The mean prostate was 56, and the abscess volume was 4. Multiple locations of

Figure 1: Abdominal USG showing ill-defined inhomogeneous hypo-echoic area in enlarged prostate

Figure 2: TRUS showing hypo-echoic area in prostate

Figure 3: Endoscopic image of trans-urethral drainage of prostatic abscess

Table 1: Observed parameters of the study (*n*=42)

Mean age (years)	56 (32–70)
Comorbidities	
Nil/single	34 (81%)
Multiple	8 (19%)
Clinical features	
Burning micturition	36 (86%)
Increased frequency of micturition	29 (70%)
Pain or discomfort in the perineum	14 (35%)
Fever	18 (43%)
Bodyache and myalgia	8 (19%)
Tender fluctuated prostate (On DRE)	12 (28.5%)
Urinary retention	5 (12%)
Haematuria	3 (7%)
IPSS score (mean)	14
Urine culture and sensitivity	
No growth	10 (24%)
Escherichia coli	16 (38%)
Klebsiella	7 (16.6%)
Staphylyoccus	2 (4.7%)
Pseudomonas	3 (7%)
Other/Mixed	4 (9.5%)
Serum PSA	1.1–87 (mean-17)
Prostate size	32–110 (mean-56)
Abscess volume	2–6 (mean -4)
Abscess location	
Single	27 (65%)
Multiple	15 (35%)
Recurrence	3 (7%)

abscesses were found in 35% of the patients. Three patients were re-admitted for a recurrence of the abscess.

DISCUSSION

Treatment as drainage of a prostatic abscess is not only in the mind of genito-urinary surgeons; other objectives are to lessen the morbidity and mortality of the drainage procedure, preserve urinary and sexual function, and decrease recurrence. Most of the time, it has non-specific clinical features, resulting in difficulty in diagnosis. Immunosupression and diabetes are usual precipitating factors for the development of prostatic abscesses.[12] Clinical features are usually of short duration and mainly include increased frequency of micturation, discomfort in the perineum, and burning micturation. Fever, malaise, chills, body aches, and myalgia are the predominant constitutional symptoms. Most of the time, these symptoms do not respond to conservative treatment. Due to its infrequent presentation, it becomes a major diagnostic and treatment challenge for clinicians. Urethral discharge, which is purulent and tender, fluctuated prostate may be found in some patients on DRE.[13] In the present study, it was about one-third of the patients. Burning micturation was the most common complaint. Sometimes it may result in the formation of a fistula between the abscess and the urethra, urinary bladder, perineum, and rectum. Severe sepsis, septic shock, and death are also reported in patients with a diagnosis of prostatic abscess.[14] So proper diagnosis and management are necessary for the prevention of complications.

Blood investigations, ultrasonography (both trans-abdominal and trans-rectal), urinary culture and sensitivity, pus culture and sensitivity, computerized tomography of the pelvis, and MRI pelvis in selected cases are usual investigations. Sometimes a blood culture is also required for proper management.[15] In the present study, in urine culture, more than 50% of patients had *E. coli* and *Klebsiella* as microbial agents. On trans-rectal ultrasonography, single or multiple hypoechoic areas with thick purulent-type substances were found. These were mainly in the transition zone and central zone of the prostate. Prostatic anatomical distortions were also found. Peri-prostatic extensions were known by other radiological imaging.

Management includes starting antimicrobial therapy and removal of abscess. Abscess removal is done by various methods that involve trans-rectal, trans-perineal, or trans-urethral routes. It is done by needle aspiration, trans-urethral incision, trans-urethral de-roofing, or open incision and drainage. All these methods have satisfactory outcomes. There is no special guideline for abscess removal, but newer techniques have less adverse effects. According to El-Shazly *et al.*, trans-urethral drainage gives maximum success with less complications.[16] Collad *et al.* study was more in favor of first trans-rectal drainage before trans-urethral procedures due to the risks of complications.[17,18] Vyas *et al.* Oted observed that trans-urethral procedures are an alternative for abscess removal.[19] In our observational research, satisfactory outcomes resulted from the trans-urethral procedure for the abscess. Trans-urethral procedures also have many complications, like retrograde ejaculations, hemorrhage, and incontinence.

The limitations of the present study, that this is an observational and retrospective study. This has a short follow-up. It lacks a high sample size. Postoperative complications were not properly documented. This study recommends a proper prospective and comparative study with a large sample of populations.

CONCLUSION

The trans-urethral procedure is one of the most effective and safe methods for treating prostatic abscesses which quickly resolves symptoms, gives satisfactory outcomes, and decreases morbidity.

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