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MAJOR ARTICLE

The Changing Epidemiology and Microbiology of Patients With Prostate Abscess: Increase in Staphylococcal Infection

David W. McCormick,[1,2] Julika Kaplan,[1,2] Cliff Whigham,[2,3] Michael Coburn,[4] and Stephen B. Greenberg[1,2]

[1]Department of Internal Medicine, Baylor College of Medicine, Houston, Texas, USA, [2]Ben Taub Hospital, Houston, Texas, USA, [3]Department of Radiology, Baylor College of Medicine, Houston, Texas, USA, and [4]Department of Urology, Baylor College of Medicine, Houston, Texas, USA

Background. Prostatic abscesses are rare and have been most commonly associated with gram-negative bacteria; however, *Staphylococcus aureus* has emerged as a leading cause, particularly in persons who are immunocompromised.

Methods. We conducted a retrospective chart review of all patients discharged from Ben Taub Hospital with a diagnosis of prostatic abscess during January 2011–January 2019. Demographic, clinical, microbiologic, and radiographic data were abstracted from the patients' charts and analyzed for comorbidities, causative organisms, clinical course, and outcomes.

Results. We identified 32 patients with a prostatic abscess during the study period. *S. aureus* was the most common causative organism (18/32, 56%). Most patients (24/32, 75%) were admitted to a general medicine service, and the median length of stay was 9 days. Twenty-one patients (66%) were treated with a combination of surgical drainage and antibiotic therapy; 11 (34%) were treated with antibiotics alone. All patients treated with antibiotics alone had full clinical recovery. Two patients (6.3%) died, both of whom had septic shock secondary to disseminated *S. aureus* infection.

Conclusions. Prostatic abscesses are rare and can be difficult to diagnose, leading to significant morbidity and mortality. *S. aureus* is a frequent causative organism especially in persons with diabetes mellitus or other immunocompromising conditions. Hematogenous spread of *S. aureus* infection to the prostate appears common. Prostatic abscesses can serve as the nidus of disseminated *S. aureus* infection.

Keywords. MRSA; prostatic abscess; *Staphylococcus aureus*.

Prostatic abscesses are rare but can cause substantial morbidity and mortality [1–3]. Following the widespread use of antibiotics in the 1950s and 1960s, the most common causative organisms were gram-negative *Enterobacteriaceae* such as *Escherichia coli* and *Klebsiella pneumoniae* [4]. The most common clinical presentation is a person in the fifth to sixth decade of life and as a complication of acute bacterial prostatitis [1, 5]. Risk factors for prostatic abscesses include urinary retention, presence of a chronic indwelling catheter, prostatic hyperplasia, and recent transurethral or transrectal prostatic instrumentation [4, 6–8]. Beginning in the early 2000s, *Staphylococcus aureus* emerged as an increasingly common pathogen, particularly in persons with diabetes mellitus or other immunocompromising conditions [9–11]. Occasionally, prostatic abscess due to *S. aureus* has been reported as the presenting symptom for a new diagnosis of diabetes mellitus [10].

To evaluate changes in the epidemiology, microbiology, and clinical course of prostatic abscesses, we conducted a retrospective chart review of patients diagnosed with prostatic abscesses during 2011–2018 at Ben Taub Hospital in Houston, Texas.

METHODS

Study Population

Ben Taub Hospital (BTH) is a publicly funded 450-bed acute care hospital located in Houston, Texas, affiliated with Baylor College of Medicine that serves residents of Harris County (population 4 713 325 in 2019) [12].

Patient Consent

This project was deemed exempt by the Baylor College of Medicine Human Subjects Review Board. This analysis uses data collected from routine clinical care only.

Inclusion Criteria

We identified all patients discharged from BTH with a diagnosis of prostate abscess during January 2011–January 2019 using the

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Correspondence: D. McCormick, MD, MPH, 1 Baylor Plaza BCM 620, Houston, TX 77030-3411 (da.mccormick@gmail.com).

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International Classification of Disease codes 601.2 (abscess of prostate, 9th Revision, Clinical Modification) and N41.2 (abscess of prostate, 10th Revision, Clinical Modification). Forty-nine potential cases were identified. Each chart was reviewed to ensure that the case met the case definition of prostatic abscess. A case of prostatic abscess was confirmed if the following criteria were met: (1) imaging studies (computed tomography or magnetic resonance imaging) with a discrete fluid collection within the prostate and (2) 1 positive blood, urine, or abscess culture or nucleic acid amplification test (NAAT) with a pathogenic organism. All radiographic images were reviewed by 2 separate radiologists who read the studies independently and without knowledge of the patient's clinical condition or microbiologic data.

After chart review and radiographic assessment, 32 cases of prostatic abscess were identified (Figure 1).

Exclusion Criteria

Cases were excluded from analysis if there was no clinical (n = 13) or radiographic (n = 3) evidence of prostate abscess after chart review or if no organism was grown on culture or identified by NAAT from blood, urine, or abscess fluid (n = 1) (Figure 1).

Medical Record Review

Demographic data (age, race/ethnicity), clinical data (vital signs, laboratory values, clinical outcome, underlying medical conditions, and length of stay), and hospital management information (antibiotic administration, surgical drainage, and imaging modalities) were collected for each patient. When multiple sets of vital signs or laboratory data were available, we used the first data that were reported in the medical record. The primary clinical outcome was patient survival to discharge from the hospital.

To calculate the volume of prostate abscesses, we approximated the shape of all abscesses as an ellipsoid using the following formula to calculate the volume (V):

$$V = \frac{4}{3}\pi * A * B * C$$

where A = 1/2 the longest axis, B = 1/2 the second-longest axis, and C = 1/2 the shortest axis. Only 2 axis measurements were available for 7/32 patients; for these patients, the shortest axis was included twice (as both B and C in the formula above). Only a single measurement was available for 6/32 patients; for these patients, the volume of the abscess was approximated as a sphere using the following formula to calculate the volume (V), where r is 1/2 the length of the measured axis:

$$V = \frac{4}{3}\pi r^3$$

Microbiology

Blood cultures were performed by routine methods. Anaerobic and aerobic blood culture bottles were incubated using the Bactec FX blood culture system (Becton Dickenson and Co., Franklin Lakes, NJ, USA). Gram stains were performed on instrument-positive bottles, and a portion was plated to sheep blood agar, chocolate agar, MacConkey agar, and thioglycolate broth. Tissue was ground in a small amount of thioglycolate broth. A gram stain was performed, along with plating to sheep blood agar, chocolate agar, and MacConkey agar, and an

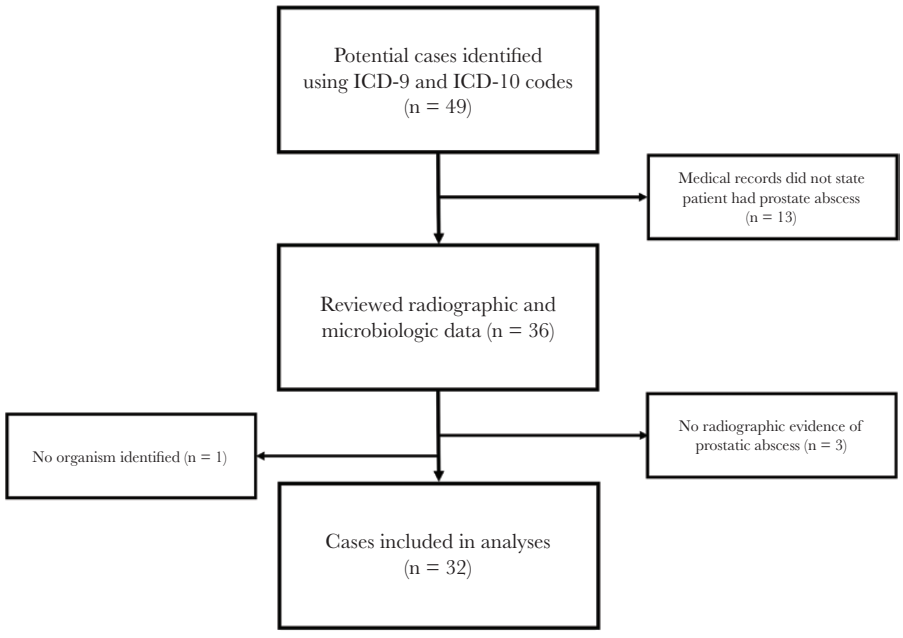

Figure 1. Flow diagram showing how cases were identified and included in the study. Abbreviation: ICD-9/10, *International Classification of Diseases, 9th Revision/10th Revision.*

additional portion was added to thioglycolate broth. Plates and broth were incubated under standard growth conditions and examined daily. Colonies were identified by matrix-assisted laser desorption ionization time of flight mass spectrometry, and antibiotic susceptibility testing was performed using the BD Phoenix system (Becton Dickenson and Co., Franklin Lakes, NJ, USA).

Data Analysis

Data were entered into Excel (Microsoft Corporation, Redmond, WA, USA). All statistical calculations were performed using R, version 4.0.3 (R Foundation for Statistical Computing) [13]. The Wilcoxon rank-sum test was used to compare the medians of continuous variables, the chi-square or Fisher exact test was used to compare categorical variables, and geometric mean was used to compare abscess volumes. All statistical tests were 2-sided, and an α value of <.05 was considered statistically significant. Missing data were not imputed.

RESULTS

Forty-nine potential cases of prostatic abscess were identified during January 2011–January 2019 using the *International Classification of Diseases, 9th Revision* (ICD-9) code 601.2 and the ICD-10 code N41.2. Of these cases, 32 (65.3%) met the case definition (Figure 1). The median age for patients with prostatic abscess (interquartile range [IQR]) was 52.5 (45–58) years, and most patients (18/32, 56%) were Hispanic (Table 1). The most common comorbid conditions were diabetes mellitus (23/32, 72%) and benign prostatic hyperplasia (5/32, 16) (Table 1). The median Charlson Comorbidity Score [14] (IQR) was 2 (2–4).

Three persons (3/32, 9%) reported prior intravenous drug use (IVDU), but none had used intravenous drugs in the

Table 1. Demographic and Clinical Characteristics of Patients Diagnosed With Prostatic Abscess During 2011–2019 (n = 32) and Comparison of Patients With Staphylococcal Infection With Patients Without Nonstaphylococcal Infection

	All Patients (n = 32)	*Staphylococcus aureus* Infection (n = 18)	Non–*Staphylococcus aureus* Infection (n = 14)	*P* Value[a]
Demographics				
Age, median (IQR),[a] y	53 (45–59)	51.5 (44–54)	57 (48–59)	.27
Race/ethnicity, No. (%)				
Black/African American	11 (34)	6 (33)	5 (36)	1.0
Hispanic/Latino	18 (56)	10 (56)	8 (57)	
White/Caucasian	2 (6)	1 (6)	1 (7)	
Other	1 (3)	1 (6)	0 (0)	
Clinical characteristics				
Charlson Comorbidity Index, median (IQR)[a]	2 (2–4)	2 (2–3)	2.5 (1.25–4)	.65
Fulfilled ≥2/4 SIRS criteria	20 (63)	12 (67)	8 (57)	.85
Comorbid conditions, No. (%)				
Diabetes mellitus (type 2)	23 (72)	15 (83)	8 (57)	.45
Benign prostatic hyperplasia	5 (16)	2 (11)	3 (21)	.63
HIV[b] infection	2 (6)	2 (11)	0 (0)	.49
Cirrhosis	2 (6)	2 (11)	0 (0)	.49
Congestive heart failure	2 (6)	0 (0)	2 (14)	.18
Active malignancy	1 (3)	1 (6)	0 (0)	1.00
End-stage renal disease	1 (3)	1 (6)	0 (0)	1.00
Length of stay, median (IQR), d	9 (6–16)	12.5 (9–18)	5.5 (5–9)	.01
Time from admission to diagnosis, median (IQR), d	0.5 (0–3)	1 (0–5)	0 (0–2)	.37
Admitted to internal medicine as primary service	26 (81)	15 (83)	10 (71)	.67
Surgical drainage	21 (66)	12 (67)	9 (64)	1.00
Died during hospitalization	2 (6)	2 (11)	0 (0)	.49
Abscess volume, geometric mean ± SD, cm^3	10.5 ± 7.9	7.3 ± 5.9	16.0 ± 10.6	.60
Medical history				
History of IVDU[b]	3 (9)	3 (17)	0 (0)	.24
Recent GU tract instrumentation	2 (6)	1 (6)	1 (7)	
Indwelling urinary catheter	5 (16)	2 (11)	3 (21)	
Intermittent urinary catheterization	3 (9)	0 (0)	3 (21)	
Prior prostatitis	4 (13)	1 (6)	3 (21)	.29

Abbreviations: GU, genitourinary; IQR, interquartile range; IVDU, intravenous drug use; SIRS, systemic inflammatory response syndrome [15].

[a] *P* value compares patients with staphylococcal infection with patients with nonstaphylococcal infection. Continuous variables were calculated using the Mann-Whitney *U* test, and categorical variables were compared using the Fisher exact test.

[b] All persons with a history of intravenous drug use reported that they had not injected drugs within the past 20 years.

past 20 years; all persons with a history of IVDU had infection with *S. aureus* (Table 1). Two cases (2/32, 6%) had genitourinary tract instrumentation within the 2 weeks preceding diagnosis of prostatic abscess; 1 case with *S. aureus* infection had an aborted transurethral resection of the prostate, and 1 case with *Prevotella/Clostridiodes* combined infection had a meatal dilation for hypospadias. Five cases (5/32, 16%) had an indwelling urinary catheter at the time of diagnosis; 2 of these had infection with *S. aureus,* and the other 3 had infection with *Prevotella/Clostridiodes* combined infection (1/3), *Pseudomonas aeruginosa* (1/3), and *K. pneumoniae* (1/3).

The median number of annual cases (range) was 3.5 (3–9). The year with the most cases was 2013 (9 cases); there was no clear trend toward an increase or decrease over time. There was a similar number of annual cases of disease due to *S. aureus* compared with other organisms (*S. aureus*: median [range], 2 [0–4] annual cases; other organisms: median [range], 1.5 [0–5] annual cases; $P = .37$).

Imaging

In 31/32 cases, computed tomography (CT) was used to confirm the presence of a prostatic abscess (magnetic resonance imaging [MRI] or transrectal ultrasound [TRUS] are not readily available at BTH). In the other case, MRI was used to confirm the presence of a prostatic abscess. The size of the prostatic abscess was not measured for 3/31 cases identified by CT. The geometric mean of CT-identified prostatic abscess volume (SD, range) was 10.5 (7.9, 0.2–257) cm^3), with a median longest axis (IQR) of 3.1 (1.9–6.1) cm. Multiple prostatic abscesses were identified in 3/32 patients (9%), all of whom had infection with *S. aureus*.

Microbiology

Staphylococcus aureus was the most common causative organism (18/32, 56%), followed by *K. pneumoniae* (4/32, 13%) and *Escherichia coli* (3/32, 9%) (Table 2). For patients with *S. aureus* infection, half of the isolates (9/18, 50%) were resistant to methicillin (MRSA). There were no cases in which discordant culture results were obtained from different anatomic sites. The highest yield was observed for cultures taken from the prostatic abscess; 19/19 (100%) of these were positive for the causative organism, including 5 cases in which the blood and urine cultures had no growth (1 MRSA, 1 *K. pneumoniae*, 1 *E. coli*, 1 *P. aeruginosa,* and 1 *Prevotella/Clostridiodes* combined). For patients with *S. aureus* infection, 15/16 (94%) had a positive blood culture, compared with 3/6 (50%) patients with *K. pneumoniae* or *E. coli* infection.

For patients with infections due to *S. aureus*, 13 (72%) had evidence of extraprostatic disease. Six patients had *S. aureus* bacteremia with no other identified source of infection, 1 had local extension of the prostatic abscess into the pelvis, and 7 had a distant focus of infection. Among the 8 patients with another site of infection, 2 had septic emboli or multiple foci concerning for endocarditis (none had vegetations seen on echocardiography but were treated as if they had endocarditis), 1 had septic emboli in the lungs with the prostate as the suspected source of infection, 2 had renal or perirenal abscesses, 1 had pyelonephritis, 1 had multiple abscesses and osteomyelitis of the lumbar vertebrae, and 1 had an incompletely treated perirectal abscess. One patient had a recent history of prostatitis treated with antibiotics as outpatients; this patient had a large abscess with local pelvic extension as described above. There were no cases of suspected hospital-acquired infection with *S. aureus* as determined by the treating clinicians.

Clinical Management and Patient Outcome

Most patients (25/32, 78%) were admitted to a general medicine/hospitalist service; the other 7 patients (22%) were admitted to a urology service. The median length of stay (IQR) was 9 (6–16) days. Twenty patients (63%) had at least 2 of 4 criteria for the systemic inflammatory response syndrome (SIRS) on admission [15]. Two patients (6.3%) died during their

Table 2. Causative Organisms in Patients Diagnosed With Prostatic Abscesses. Organisms Could Be Recovered From Blood, Urine, or Abscess Cultures; in Some Cases, the Same Organism Was Recovered From Multiple Different Culture Types

	Abscess Culture (n = 19)			Urine Culture (n = 28)			Blood Culture (n = 25)		
	Positive	Collected	%	Positive	Collected	%	Positive	Collected	%
Staphylococcus aureus (n = 18), 55%	11	11	100	11	14	79	15	16	94
MRSA (n = 9)	7	7	100	5	6	83	7	8	88
MSSA (n = 9)	4	4	100	6	8	75	8	8	100
Klebsiella pneumoniae (n = 4), 12%	3	3	100	3	4	75	3	4	75
Escherichia coli (n = 3), 9%	1	1	100	2	3	67	0	2	0
Pseudomonas aeruginosa (n = 2), 6%	1	1	100	1	2	50	0	0	–
Candida glabrata (n = 2), 6%	2	2	100	2	2	100	1	2	50
Morganella morganii (n = 1), 3%	0	0	–	0	1	0	1	1	100
Neisseria gonorrhoeae[a] (n = 1), 3%	0	0	–	0	1	0	0	0	–
Prevotella/Clostridium (n = 1), 3%	1	1	100	0	1	0	0	0	–

Abbreviations: MRSA, methicillin-resistant *Staphylococcus aureus*; MSSA, methicillin-sensitive *Staphylococcus aureus*.

[a]Identified using nucleic acid amplification testing from urine specimen.

hospitalizations; both had septic shock with disseminated infection due to *S. aureus* and were treated with a combination of surgical drainage and antibiotic therapy.

The median duration from hospital admission to diagnosis with a prostatic abscess (range) was 0 (0–14) days. Patients who met SIRS criteria on admission had a longer time to diagnosis of prostatic abscess compared with patients who did not meet SIRS criteria on admission (met SIRS criteria: median [IQR], 1 [0–6] day; did not meet SIRS criteria: median [IQR], 0 [0–1] days; $P = .11$). Four patients with *S. aureus* infection had a delay in diagnosis of ≥7 days (22%) compared with 1 patient with a non–*S. aureus* infection (7%); patients with *S. aureus* infection had a longer time to diagnosis than persons with other causative organisms (*S. aureus*: median [IQR], 1 [0–6] day; non–*S. aureus*: median [IQR], 0 [0–1] days; $P = .37$), but this difference was not statistically significant. Both of the patients who died during hospitalization were diagnosed with a prostate abscess on the day of admission. The most common admission diagnosis was prostate abscess (17/32, 53%), followed by genitourinary tract infection (5/32, 16%) and sepsis (5/32, 16%). Other admission diagnoses included diabetic foot infection (1/32, 3%) and lethargy and hypotension (1/32, 3%).

Patients with infection due to *S. aureus* were younger (median age [IQR], 51.5 [44.25–54] years; vs median age [IQR], 57 [48–59] years; $P = .22$), were more likely to have diabetes (15/18, 83%, vs 8/14, 57%; $P = .45$), had longer average lengths of stay (median [IQR], 12.5 [9–17.8] days; vs median [IQR], 5.5 [5–9] days; $P = .02$), and were more likely to die during hospitalization (2/18, 11%, vs 0/14, 0%; $P = .49$) compared with patients with infection due to other organisms; also, a similar proportion required surgical drainage of the abscess (12/18, 67%, vs 9/14, 64%; $P = 1.00$), compared with patients with infection due to other organisms. These differences were not statistically significant, with the exception of length of stay. The median Charlson comorbidity score was slightly higher, although not significantly so, in patients with infection due to *S. aureus* (median [IQR], 2.5 [2–3.8]; vs median [IQR], 2 [1.3–2.8]; $P = .27$). The geometric mean abscess volume was lower for patients with infection due to *S. aureus* compared with patients with infection due to other organisms, but this difference was not statistically significant (7.3 cm^3 ± 5.9 cm^3 vs 16.0 cm^3 ± 10.6 cm^3; $P = .60$).

Two patients had infection with *Candida glabrata.* Both patients had diabetes mellitus, and both were treated with a combination of surgical drainage and antibiotics. One patient had candidemia, and the prostatic abscess was the presumed source. For both patients, urine and intraoperatively obtained abscess cultures grew *C. glabrata*.

Twenty-one patients were treated with a combination of surgical drainage and antibiotic therapy; 11 were treated with antibiotics alone. All patients treated with antibiotics alone had full clinical recovery at the time of discharge; 2 patients who underwent surgical drainage died ($P = .53$). Patients who underwent surgical drainage were older (median age [IQR], 54 [49–58] years; vs median age [IQR], 44 [40–58] years; $P = .25$) but had a similar median (IQR) length of stay (9 [6–17] days vs 9 [4.5–12.5] days; $P = .30$) and Charlson comorbidity index score (2 [2–4] vs 2 [1.5–3]; $P = .51$) compared with those treated with antibiotics alone.

The geometric mean abscess size was larger for patients who underwent surgical drainage compared with those who were treated with antibiotics alone (32.7 cm^3 ± 5.9 cm^3 vs 1.8 cm^3 ± 2.7 cm^3). For both patients with *S. aureus* infection and patients with infection with a causative organism other than *S. aureus,* the geometric mean abscess size was larger for patients who underwent surgical drainage compared with those who were treated with antibiotics alone (*S. aureus*: 19.2 cm^3 ± 4.1 cm^3 vs 1.7 cm^3 ± 3.3 cm^3; non–*S. aureus*: 59.4 cm^3 ± 7.5 cm^3 vs 2.0 cm^3 ± 2.3 cm^3). Patients with *S. aureus* infection who underwent surgical drainage had a smaller geometric mean abscess size than patients with a causative organism other than *S. aureus* who underwent surgical drainage (19.2 cm^3 ± 4.1 cm^3 vs 59.4 cm^3 ± 7.5 cm^3).

DISCUSSION

Over a 10-year period, we identified 32 cases of prostatic abscess at a large county public hospital. More than half of these cases were caused by *S. aureus,* and gram-negative bacteria accounted for approximately one-third of cases. For patients with diabetes mellitus, approximately two-thirds of cases were due to *S. aureus,* and gram-negative pathogens accounted for less than a quarter of prostatic abscesses. Recent GU tract instrumentation was reported for only 1 patient with *S. aureus* disease, and none actively used intravenous drugs. The high proportion of abscesses due to *S. aureus* in this case series in patients without previously recognized risk factors suggests a third common population for patients with prostate abscesses: persons with staphylococcal infection, often with poorly controlled diabetes and in whom a prostatic abscess may only be 1 manifestation of disseminated disease.

In the pre-antibiotic era, younger patients with sexually transmitted infections were most commonly affected by prostatic abscesses, and as antibiotics became widespread, the epidemiology shifted, such that the most commonly affected persons were in their fifth and sixth decades of life with urinary retention secondary to benign prostatic hyperplasia or indwelling catheters infected with gram-negative bacteria [16]. While recent case reports and case series have described an increase in the proportion of *S. aureus* as the causative organism of prostatic abscesses [10, 11, 17–19], those studies did not examine all cases of prostatic abscesses admitted to a single hospital system. One large case series from a tertiary care hospital in Eastern Tennessee examined all cases of prostatic abscesses secondary to *S. aureus* over a 10-year period and found that many of these

individuals had disseminated staphylococcal disease and a high prevalence of diabetes and other immunocompromising conditions [11]. This study expands on these earlier findings with a larger number of cases and the ability to compare the proportion of causative organisms and examine risk factors for patients with *S. aureus* infection in greater detail.

Patients with *S. aureus* had a high rate of bacteremia, despite only 1 patient with bacteremia with recent GU instrumentation. Additionally, nearly three-quarters of patients with *S. aureus* had extraprostatic disease. These findings are strongly suggestive of hematogenous seeding of the prostate as an important route of *S. aureus* prostatic abscess development, as has been reported in previous studies [10, 11, 20]. Notably, there was a low prevalence of previously described risk factors for *S. aureus* prostatic abscesses, such as intravenous drug use or prior GU instrumentation [1, 10, 17], in this study, underscoring diabetes mellitus and hematogenous spread from other foci as important risk factors for *S. aureus* prostatic abscess development.

Although patients who met SIRS criteria had a longer time to diagnosis of their prostate abscess than persons who did not meet SIRS criteria, this delay was not clearly associated with increased risk of death.

Surgical drainage has been the mainstay of therapy, but there are limited data and no clinical trials comparing surgical drainage and antibiotic therapy with antibiotic therapy alone [1]. One case series suggested that patients with abscesses <1 cm in diameter may be safely managed with antibiotics alone [21], and a recent review of case reports found that antimicrobial therapy alone was successfully used to treat some cases of prostatic abscess caused by *Staphylococcus aureus* [10]. Although all patients who were treated with antibiotics alone had good clinical outcomes, this result may be biased by the fact that persons with larger abscesses were more likely to undergo surgical drainage, facilitating source control. Early consultation with urologists is recommended to discuss the need for surgical drainage [1]. Patients with *S. aureus* prostatic abscesses who underwent surgery had a smaller abscess size than patients with prostatic abscesses due to other organisms, but the mean size of *S. aureus* abscesses was also smaller, limiting our ability to conclude that *S. aureus* abscesses were more likely to be drained, even at a smaller size. These results suggest that for some patients with abscesses with a volume <2.0 cm^3, antibiotic therapy alone may be effective. In the absence of clear treatment guidelines, these findings may help to assist with clinical decision-making [1, 6, 8, 17].

While TRUS is the preferred imaging study for the identification of prostate abscesses [22], this modality is not readily available at BTH. It is therefore possible that some persons with prostatic abscesses who were admitted to BTH with a prostatic abscess were not appropriately diagnosed, as CT is insufficiently sensitive compared with TRUS [23, 24]. However, some studies suggest that CT should be used if TRUS is not available or if there is concern for abscesses that have extended beyond the prostate or other intrapelvic abscesses [22, 25].

This study has certain limitations. Due to low rates of outpatient follow-up visits within the Harris Health System, our follow-up data are incomplete, so we cannot accurately determine the rate of recurrence or full recovery for the patients included in this study. Additionally, there is no clear referral population specific to BTH within the Houston region, so we cannot calculate accurate incidence rates. The patient population at BTH is primarily underserved, and patients frequently delay seeking care, limiting our ability to generalize results to the overall US population. However, hospitals serving similar populations, such as county hospitals, are likely to observe similar findings. Although we used ICD-9 and ICD-10 codes to search for patients admitted with a diagnosis of prostate abscess, it is possible that these codes were not accurately entered for all patients with prostate abscesses and that some cases were missed. The overall number of patients with prostatic abscesses was small, which limited our ability to perform statistical inference testing and increased the likelihood of a type 2 error.

CONCLUSIONS

Prostatic abscesses are rare and can be difficult to diagnose, leading to significant morbidity and mortality. Hospitalists may encounter patients with prostate abscesses admitted to their service and should maintain a high degree of suspicion for this condition, especially in patients with sepsis and no clear source. *S. aureus* is a frequent causative organism, especially in persons with diabetes mellitus or other immunocompromising conditions, and clinicians should be aware of prostatic abscesses as a nidus of disseminated *S. aureus* infection and consider pelvic imaging in patients with *S. aureus* bacteremia due to the concern for hematogenous spread.

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