Prostatitis: Diagnosis and Treatment

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Prostatitis ranges from a straightforward clinical entity in its acute form to a complex, debilitating condition when chronic. It is often a source of frustration for the treating physician and patient. There are four classifications of prostatitis: acute bacterial, chronic bacterial, chronic prostatitis/chronic pelvic pain syndrome, and asymptomatic. Diagnosis of acute and chronic bacterial prostatitis is primarily based on history, physical examination, urine culture, and urine specimen testing pre- and post-prostatic massage. The differential diagnosis of prostatitis includes acute cystitis, benign prostatic hyperplasia, urinary tract stones, bladder cancer, prostatic abscess, enterovesical fistula, and foreign body within the urinary tract. The mainstay of therapy is an antimicrobial regimen. Chronic pelvic pain syndrome is a more challenging entity, in part because its pathology is poorly understood. Diagnosis is often based on exclusion of other urologic conditions (e.g., voiding dysfunction, bladder cancer) in association with its presentation. Commonly used medications include antimicrobials, alpha blockers, and anti-inflammatory agents, but the effectiveness of these agents has not been supported in clinical trials. Small studies provide limited support for the use of nonpharmacologic modalities. Asymptomatic prostatitis is an incidental finding in a patient being evaluated for other urologic problems. (*Am Fam Physician*. 2010;82(4):397-406. Copyright © 2010 American Academy of Family Physicians.)

▶ **Patient information:** A handout on prostatitis is available at http://familydoctor.org/581.xml.

The prevalence of prostatitis is approximately 8.2 percent (range: 2.2 to 9.7 percent).[1] It accounts for 8 percent of visits to urologists, and up to 1 percent of visits to primary care physicians.[2] In 2000, the estimated cost to diagnose and treat prostatitis was $84 million, not including pharmaceutical spending.[3] Men with chronic prostatitis experience impairment in mental and physical domains of health-related quality of life as measured through validated questionnaires.[4] In 2002, approximately 14 percent of men with a medical claim for prostatitis missed work.[3] These statistics clearly underscore the broad and far-reaching effect of prostatitis on patient quality of life and the economic impact of the condition.

Prostatitis is a broad diagnosis that encompasses four clinical entities, including acute illness requiring immediate attention (acute bacterial prostatitis), two chronic conditions (chronic bacterial prostatitis, chronic pelvic pain syndrome), and an incidental finding (asymptomatic prostatitis) noted during the evaluation and treatment of other urologic conditions. This article will familiarize primary care physicians with the categories of prostatitis as defined by the National Institutes of Health (NIH; *Table 1*[5]) and elucidate the epidemiology, clinical presentation, diagnosis, and treatment of each.[6]

Diagnostic Testing

A number of diagnostic tests are available to differentiate and categorize the four types of prostatitis. These include localization tests and expressed prostatic secretions, using the 2-glass pre- and post-prostatic massage and Meares-Stamey 4-glass tests *(Table 2*[7,8] *and Figure 1),* and urine Gram stain and culture. Measurement of postvoid residual urine is recommended when obstruction is suspected.

Semen analysis, prostate-specific antigen (PSA) level, and transrectal ultrasonography–guided biopsy are not specifically recommended in the evaluation of patients with prostatitis; however, these tests may already have been obtained in patients being evaluated for other urologic problems. Similarly, imaging has a role only in the exclusion of other urologic diagnoses,[9] and when a patient with acute bacterial prostatitis does not respond appropriately to initial

antimicrobial therapy. Other laboratory testing (e.g., complete blood count [CBC], electrolyte levels, blood culture) is not routine but may be performed as necessary in a patient who appears systemically ill or who may have impaired renal function and in whom antimicrobial therapy is being contemplated.

The role of individual tests for the diagnosis and management of prostatitis is further discussed in the setting of each NIH classification *(Table 3)*.[10]

SORT: KEY RECOMMENDATIONS FOR PRACTICE

Clinical recommendation	*Evidence rating*	*References*
The 2-glass pre- and post-prostatic massage test is a reasonable alternative to the preferred Meares-Stamey 4-glass test for diagnosing prostatitis.	C	7
Optimal duration of antibiotic treatment for acute bacterial prostatitis is six weeks.	B	16, 17
In acute bacterial prostatitis, patients should be evaluated with imaging for abscess if fevers persist more than 36 hours after appropriate antibiotic coverage.	C	9, 17
To prevent symptom flare-up, suppressive low-dose antibiotics should be considered in men with chronic bacterial prostatitis whose cultures remain positive.	C	15, 16

A = consistent, good-quality patient-oriented evidence; B = inconsistent or limited-quality patient-oriented evidence; C = consensus, disease-oriented evidence, usual practice, expert opinion, or case series. For information about the SORT evidence rating system, go to http://www.aafp.org/afpsort.xml.

Acute Bacterial Prostatitis

EPIDEMIOLOGY AND PATHOGENESIS

Acute bacterial prostatitis, NIH type I, is an acute bacterial infection of the prostate; patients are typically seen in the outpatient setting or emergency department. Left untreated, it can lead to overwhelming sepsis or the development of prostatic abscess. The prevalence and incidence of acute bacterial prostatitis are not fully known.[11] By definition, an organism must be identified on culture. *Escherichia coli* is the most commonly isolated organism, but other gram-negative organisms, such as *Klebsiella*, *Proteus*, and *Pseudomonas,* and gram-positive *Enterococcus* species are often isolated as well. Other gram-positive organisms, many of which comprise normal skin flora, have also been isolated from patients with suspected bacterial prostatitis and should be treated accordingly.[12,13] Sexually active men younger than 35 years and older men who engage in high-risk sexual behaviors should be tested for *Neisseria gonorrhoeae* and *Chlamydia trachomatis*.

CLINICAL PRESENTATION

The diagnosis of acute bacterial prostatitis is often based on symptoms alone. Urinary symptoms may be irritative

Table 1. National Institutes of Health Consensus Classification of Prostatitis

Type of syndrome	*Description*	*WBC count per HPF (400x)*	*Bacteria cultures*			
			*VB1**	*VB2†*	*EPS*	*VB3‡*
I. Acute bacterial prostatitis	Acute infection of the prostate gland	> 10	+	+	§	+
II. Chronic bacterial prostatitis	Chronic infection of the prostate gland	> 10	—	—	+	+
III. Chronic pelvic pain syndrome	Chronic pelvic pain in the absence of bacteria localized to the prostate	> 10	—	—	—	—
A. Inflammatory	Significant WBC count in the EPS, VB3, or semen					
B. Noninflammatory	Insignificant WBC count in the EPS, VB3, or semen	< 10	—	—	—	—
IV. Asymptomatic prostatitis	WBC count and/or bacteria in the EPS, VB3, semen, or histologic specimens of prostate gland in asymptomatic patients	> 10	—	—	—	—

EPS = expressed prostatic secretions; HPF = high-power field; VB = voided bladder; WBC = white blood cell; + = positive culture.

**—First 10 mL of voided urine (urethral specimen).*

†—Midstream urine specimen (bladder specimen).

‡—First 10 mL of voided urine after EPS (prostatic specimen).

§—EPS would be positive, but is contraindicated in acute bacterial prostatitis.

Adapted with permission from Nadler RB, Schaeffer AJ. Lower urinary tract cultures. In: Nickel JC, ed. Textbook of Prostatitis. *Oxford, England: Isis Medical Media; 1999:204.*

Table 2. Summary of Localization Tests and EPS*

Test	*VB1*†	*VB2*‡	*EPS*§	*VB3*‖	*Semen analysis*	*Comment*
Meares-Stamey 4-glass	X	X	X	X		Preferred test; lack of validating evidence
2-glass pre- and post-prostatic massage		X		X		Good concordance with Meares-Stamey 4-glass test; reasonable alternative
Alternative (2 glasses)[7]	X				X	Higher sensitivity than EPS for gram-negative organisms (97 vs. 84 percent) and higher sensitivity for gram-positive organisms (100 vs. 16 percent) Semen cultures recommended only if high index of suspicion for chronic bacterial infection despite negative urine cultures

EPS = expressed prostatic secretions; VB = voided bladder; WBC = white blood cell.

**—See Figure 1.*

†—*First 10 mL of voided urine (urethral specimen); culture if WBC count > 10 per high-power field.*

‡—*Midstream urine specimen (bladder specimen); culture if WBC count > 10 per high-power field.*

§—*EPS (prostatic specimen) contraindicated in acute bacterial prostatitis; WBC count and differential, Gram stain, and culture should be performed.*

‖—*First 10 mL of voided urine after EPS (prostatic specimen); always requires culture given the small colony counts.*

Information from references 7 and 8.

(e.g., urinary frequency, urgency, dysuria) or obstructive (e.g., hesitancy, poor or interrupted stream, straining to void, incomplete emptying). Pain may be present in the suprapubic or perineal region, or in the external genitalia. Systemic symptoms of fever, chills, malaise, nausea, emesis, and signs of sepsis (tachycardia and hypotension) may be present as well. On physical examination, the prostate should be gently palpated. Prostatic massage should not be performed and may be harmful[14]; the prostate is tender, enlarged, and boggy. On abdominal examination, a palpable, distended bladder indicates urinary retention.

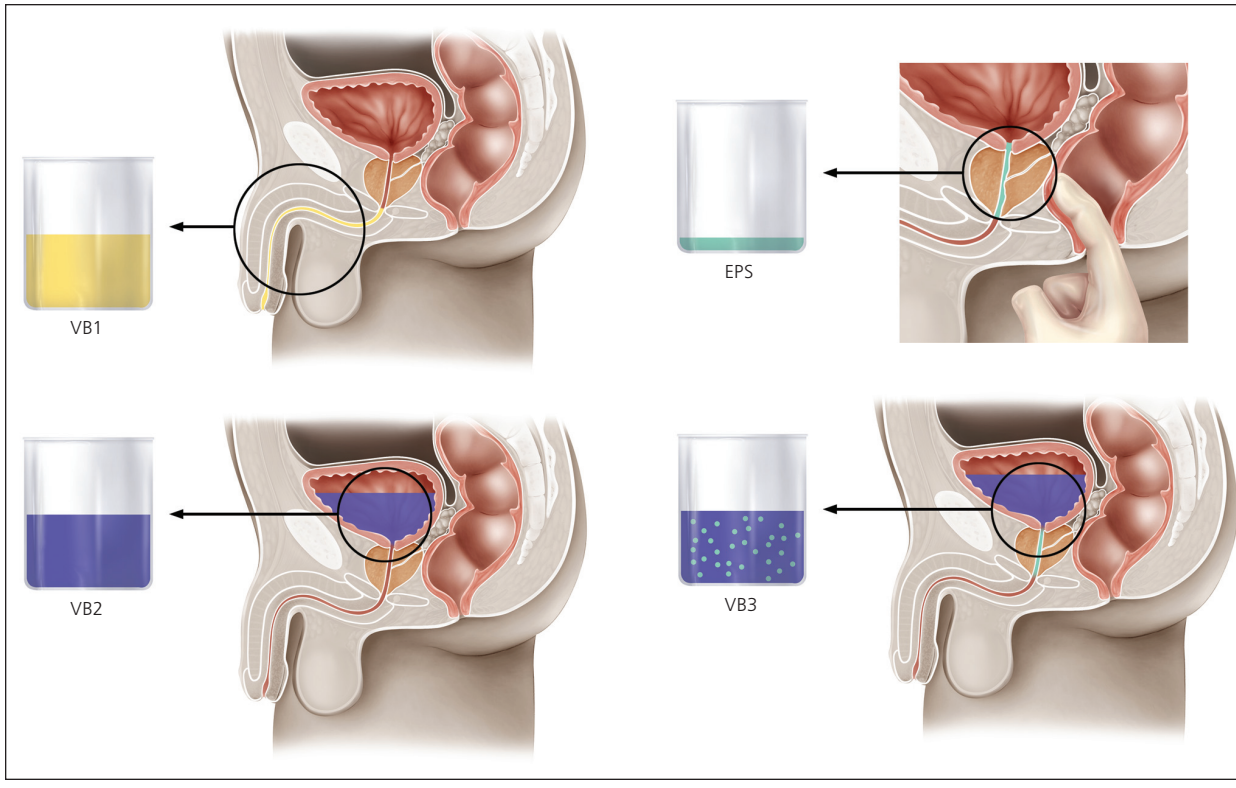


ILLUSTRATION BY RENEE L. CANNON

Figure 1. The Meares-Stamey 4-glass test. (EPS = expressed prostatic secretions; VB = voided bladder.)

DIAGNOSIS

Midstream urine culture should be obtained. The presence of more than 10 white blood cells per high-power field suggests a positive diagnosis. Other laboratory testing (e.g., CBC, electrolyte levels, blood culture) is determined by the severity of the presentation. Residual urine should be documented if a patient has a palpable bladder or symptoms consistent with incomplete emptying.

TREATMENT

Empiric therapy should be started at the time of evaluation *(Figure 2)*; coverage can be tailored to the isolated organisms once urine culture results are available. Mildly to moderately ill patients may be treated in the outpatient setting; severely ill patients or those with possible urosepsis require hospitalization and parenteral antibiotics. Once patients have become afebrile, they may be transitioned to oral antibiotics based on the culture results. Minimal duration of treatment is four weeks[15]; however, the optimal period has been shown to be six weeks, because of the possible persistence of bacteria, with repeat evaluation recommended at that time.[16,17]

If fever persists or the maximal temperature fails to show a downward trend after 36 hours, prostatic abscess should be suspected.[9] Urology consultation should be obtained; if it is not immediately available, imaging may be performed with computed tomography, magnetic resonance imaging, or transrectal ultrasonography. Prostatic abscess requires urology consultation for drainage.[17]

SPECIAL CONSIDERATIONS

No specific guideline exists for the treatment of gram-positive organisms, but the fluoroquinolones have adequate gram-positive coverage, as well as excellent gram-negative coverage, and they penetrate the prostate well. *C. trachomatis* and *N. gonorrhoeae* are best treated with azithromycin (Zithromax) or doxycycline.[18]

Immunocompromised patients, especially those who have uncontrolled diabetes mellitus, among other immunodeficiencies, seem to be more susceptible to the development of acute bacterial prostatitis and prostatic abscess.[19] Treatment is as outlined previously, including drainage with broad-spectrum antibiotic coverage.

Rarely, transrectal ultrasonography–guided biopsy

Table 3. Summary of the Clinical Presentation, Diagnostic Tests, and Therapy for Prostatitis

Type of syndrome	*Differential diagnosis*	*Symptoms*	*Physical examination*
I. Acute bacterial prostatitis	Acute cystitis, prostatic abscess	Urinary: straining, urgency, dysuria, hesitancy, frequency, obstruction, irritation Systemic: fever, malaise, arthralgia, myalgia, intense suprapubic pain, mildly to acutely ill appearance, chills, nausea, emesis, and signs of sepsis (tachycardia and hypotension)	Tender, boggy, enlarged prostate on digital rectal examination; distended bladder; prostatic massage contraindicated
II. Chronic bacterial prostatitis	Benign prostatic hyperplasia, stones or foreign body within the urinary tract, bladder cancer, prostatic abscess, enterovesical fistula	Irritative voiding symptoms; testicular, low back, or perineal pain; recurrent urinary tract infection; urethritis; epididymitis; distal penile pain	Prostatic massage; prostate can be normal, tender, or boggy on digital rectal examination
III. Chronic pelvic pain syndrome A. Inflammatory B. Noninflammatory	Benign prostatic hyperplasia, voiding dysfunction, bladder or prostate cancer, prostatic or müllerian duct remnants, interstitial cystitis, radiation cystitis, eosinophilic cystitis, chronic proliferative cystitis, neuropathic pain, ejaculatory duct obstruction	Symptoms of chronic pelvic pain and possible voiding symptoms	Abdominal and digital rectal examination to exclude underlying pathology; no tenderness to diffuse tenderness; findings variable
IV. Asymptomatic prostatitis	—	No symptoms; incidental finding during evaluation for other conditions (i.e., infertility or elevated prostate-specific antigen level)	No disease-specific abnormalities

**—Used to establish diagnosis and determine treatment effect. See http://www.prostatitis.org/symptomindex.html.*

Information from reference 10.

of the prostate results in acute bacterial prostatitis and septicemia. These patients are often ill enough to warrant hospital admission and the initiation of parenteral therapy.[20]

Chronic Bacterial Prostatitis

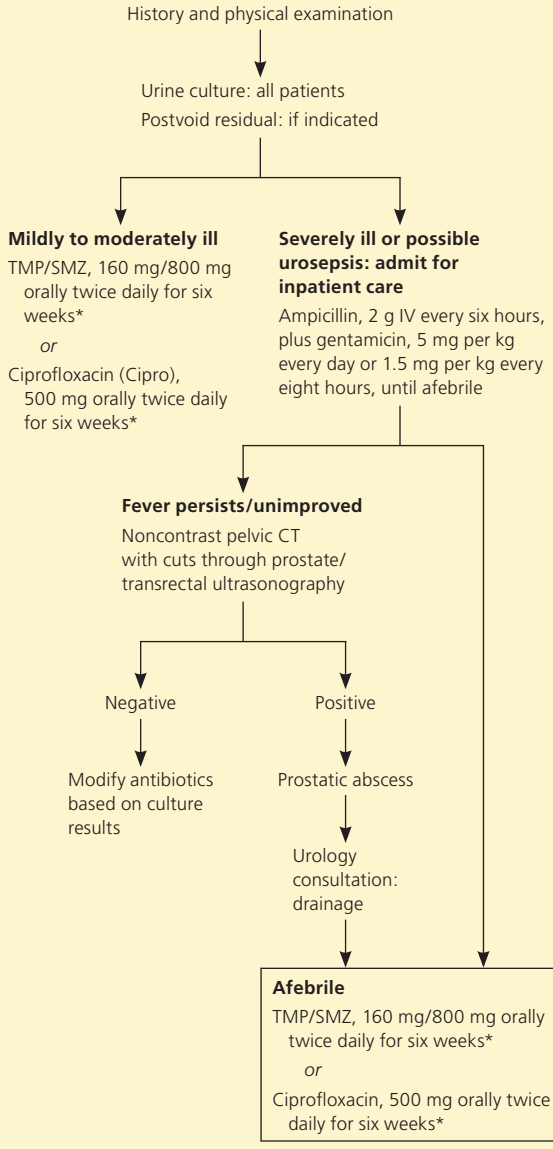
Chronic bacterial prostatitis, NIH type II, is a persistent bacterial infection of the prostate lasting more than three months. Urine cultures obtained over the course of illness repeatedly grow the same bacterial strain. The NIH Chronic Prostatitis Symptom Index from the Chronic Prostatitis Collaborative Research Network (CPCRN) is a validated questionnaire available at http://www.prostatitis.org/symptomindex.html.

EPIDEMIOLOGY AND PATHOGENESIS

E. coli is the most commonly isolated organism, but other gram-negative organisms such as *Klebsiella*, *Proteus*, and *Pseudomonas* are also common.[12,13] After *E. coli*, gram-positive *Enterococcus* is the next most commonly isolated pathogen.[21] Research suggests that the *E. coli* strains often seen in chronic bacterial prostatitis have a higher virulence factor and greater degree of biofilm formation than the strains seen in uncomplicated urinary tract infections, which could explain why bacterial prostatitis is so difficult to treat.[22] The pathogenesis of

Diagnostic tests	*Therapy*
Urine culture, postvoid residual	Antimicrobial therapy Hospitalization for severe cases of prostate infection
2-glass pre- and post-prostatic massage test, postvoid residual	Antimicrobial therapy
National Institutes of Health Chronic Prostatitis Symptom Index,* 2-glass pre- and post-prostatic massage test	Multimodal: combination pharmacologic and nonpharmacologic
Semen analysis, prostate biopsy	No specific therapy required; treatment depends on underlying conditions and reasons for initial evaluation

Diagnosis and Treatment of Acute Bacterial Prostatitis



*—Depending on regional bacterial resistance patterns.

Figure 2. Diagnosis and treatment algorithm for acute bacterial prostatitis. (CT = computed tomography; IV = intravenously; TMP/SMZ = trimethoprim/sulfamethoxazole [Bactrim, Septra].)

chronic bacterial prostatitis has not been scientifically proven, but it is assumed that the infection moves from the distal urethra to the prostate. Other possibilities include seeding from the bladder, bowel, blood, or lymphatic system.[23] Suggested associations include presence of foreskin, sexual activity, benign prostatic hyperplasia, urethral stricture, bladder neck hypertrophy, previous instrumentation or catheterization, and anatomic predisposition for retrograde spread from intraprostatic ducts.[24,25]

CLINICAL PRESENTATION

In contrast to men with acute bacterial prostatitis, those with chronic bacterial prostatitis do not appear to be ill. They present with recurrent or relapsing urinary tract infections, urethritis, or epididymitis with the same bacterial strain. Between symptomatic episodes, detectable pathogens persist on localization tests. Patients may have irritative voiding symptoms and testicular, perineal, low back, and occasionally distal penile pain. On physical examination, patients are usually afebrile, and on digital rectal examination the prostate may feel normal, tender, or boggy.

DIAGNOSIS

The diagnosis is based on history and physical examination, a voiding test such as the 2-glass pre- and post-prostatic massage test *(Table 2[7,8])*, and a positive urine culture.

TREATMENT

Because chronic bacterial prostatitis is a bacterial infection, an appropriate antibiotic with good tissue penetration in the prostate should be selected *(Table 4)*. Fluoroquinolones have demonstrated the best tissue concentration and are recommended as first-line agents.[26,27] Although trimethoprim/sulfamethoxazole (Bactrim, Septra) may be considered, the tissue penetration may not be as effective, and in many areas of the United States there is evidence of increasing uropathogenic resistance.[27] Penicillin derivatives, commonly used to treat acute bacterial prostatitis, have not been shown to provide good symptom relief for chronic bacterial prostatitis.[17] Second-line drugs include doxycycline, azithromycin, and clarithromycin (Biaxin). A four- to six-week course of therapy is usually recommended; however, a six- to 12-week course is often needed to eradicate the causative organism and to prevent recurrence, especially if symptoms persist after completion of the initial therapy. No guideline exists for treating gram-positive organisms, but ciprofloxacin (Cipro) and levofloxacin (Levaquin) have adequate gram-positive coverage, as well as excellent gram-negative coverage, and both medications penetrate the prostate tissue well.

In men whose cultures remain positive, suppressive therapy with low-dose antibiotics, such as fluoroquinolones, should be considered in an effort to prevent symptom flare-up.[16,17]

SPECIAL CONSIDERATIONS

Patients who test positive for human immunodeficiency virus (HIV) infection deserve special mention because they are susceptible to additional pathogens, such as *Serratia marcescens*, *Salmonella typhi*, *Mycobacterium tuberculosis*, and *Mycobacterium avium*. Nonbacterial organisms (e.g., *Candida*, *Cryptococcus*, *Histoplasma*, and *Aspergillus* species) should also be considered.[28]

Recommended treatment for patients who are HIV positive is a four- to six-week course of antibiotics followed by suppressive antibiotics for an unspecified time.[28]

Table 4. Common Oral Antimicrobial Agents for the Treatment of Chronic Bacterial Prostatitis

Drug	*Dosage*	*Cost of generic (brand)**	*In retail discount programs†*
First-line antibiotics			
Fluoroquinolones			
Ciprofloxacin (Cipro)	500 mg twice daily	$28 ($354)	✓
Levofloxacin (Levaquin)	500 mg once daily	NA ($416)	
Norfloxacin (Noroxin)	400 mg twice daily	NA ($235)	
Trimethoprim/sulfamethoxazole (Bactrim DS, Septra DS)	160 mg/800 mg twice daily	$40 ($146)	✓
Second-line antibiotics			
Doxycycline	100 mg twice daily	$20 to 40 ($392)	✓
Azithromycin (Zithromax)	500 mg once daily	$438 ($611)	
Clarithromycin (Biaxin)	500 mg twice daily	$219 ($324)	

NA = not available.

**—Estimated retail price of one month's treatment based on information obtained at http://www.drugstore.com (accessed March 8, 2010).*

†—May be available at discounted prices ($10 or less for one month's treatment) at one or more national retail chains.

Chronic Prostatitis/Chronic Pelvic Pain Syndrome

EPIDEMIOLOGY

Chronic prostatitis/chronic pelvic pain syndrome is subdivided into two categories: NIH type IIIA (inflammatory) and IIIB (noninflammatory; *Table 1*[5]). Differentiation between these groups has been made based on the presence of leukocytes in expressed and postmassage prostatic secretions, urine, or semen. One of the greatest challenges with the treatment of chronic prostatitis/chronic pelvic pain syndrome is that there is no clear understanding of the etiology; however, suggested explanations include infection, autoimmunity, and neuromuscular spasm.[29]

In 2006, the CPCRN published a prospective analysis of NIH type III prostatitis symptoms over two years.[30] This group concluded that symptoms vary widely among patients, there is no evidence that the disease worsens, and approximately one third of patients will improve with or without treatment.

CLINICAL PRESENTATION

The hallmark symptom of chronic prostatitis/chronic pelvic pain syndrome is pain attributed to the prostate with no demonstrable evidence of infection. On examination, tenderness of the prostate, or less commonly the pelvis, is present in about one half of patients.[31]

DIAGNOSIS

Evaluation and diagnosis of chronic prostatitis/chronic pelvic pain syndrome can be confusing and challenging for the treating physician. Many of the diagnostic tests performed in affected patients are geared toward excluding other treatable pathology (e.g., benign prostatic hyperplasia, bladder cancer), and urology referral is often necessary.

In a series of two studies, the CPCRN evaluated the usefulness of leukocytes and bacterial counts to subcategorize patients with chronic prostatitis/chronic pelvic pain syndrome. The group found that leukocytes and bacterial counts did not correlate with symptoms,[32] and positive findings were often present in asymptomatic control patients.[33] The utility and importance of such tests on the treatment and outcome of patients with chronic prostatitis/chronic pelvic pain syndrome remain unclear.

Table 5[34-36] identifies testing as recommended by a North American consensus panel[34] and an international

Table 5. Recommendations for the Diagnosis of Chronic Pelvic Pain Syndrome

Type of testing	*North American consensus*[34]	*International consensus*[35]
Mandatory/basic evaluation		
Clinical	History, physical examination (digital rectal examination)	History, physical examination (digital rectal examination)
Imaging	None	None
Laboratory	Urinalysis and midstream culture	Urinalysis and midstream culture
Urologic testing	None	None
Recommended/further testing		
Clinical	NIH Chronic Prostatitis Symptom Index[36]	NIH Chronic Prostatitis Symptom Index[36]
Imaging	None	None
Laboratory	Lower urinary tract localization tests, urine cytology	Lower urinary tract localization tests
Urologic testing	Postvoid residual, flow rate	Postvoid residual, flow rate
Optional/selected patient populations		
Clinical	None	International Prostate Symptom Score (http://www.usrf.org/questionnaires/AUA_SymptomScore.html)
Imaging	Transrectal ultrasonography–guided biopsy, abdominal/pelvic imaging (CT, MRI, ultrasonography)	Transrectal ultrasonography–guided biopsy, abdominal/pelvic imaging (CT, MRI, ultrasonography)
Laboratory	Semen analysis and culture, urethral swab, prostate-specific antigen level	Semen analysis and culture, urethral evaluation with first 10 mL of voided urine or swab for culture, urine cytology, prostate-specific antigen level
Urologic testing	Pressure flow study, video urodynamics (flow-electromyography), cystoscopy	Pressure flow study, video urodynamics (flow-electromyography), cystoscopy

CT = computed tomography; MRI = magnetic resonance imaging; NIH = National Institutes of Health.

Information from references 34 through 36.

Table 6. Treatment Recommendations for Chronic Pelvic Pain Syndrome

Type of therapy	*Dosage/treatment plan*	*Comments*
Pharmacologic		
First-line		
Antimicrobials	Ciprofloxacin (Cipro), 500 mg orally twice daily for four to six weeks	No difference between ciprofloxacin and no ciprofloxacin ($P = .15$)[38,39]
	Trimethoprim/sulfamethoxazole (Bactrim, Septra), 160 mg/800 mg orally twice daily for four to six weeks[38]	
Second-line		
Alpha blockers	Tamsulosin (Flomax), 0.4 mg daily	No difference compared with placebo[39]
	Alfuzosin (Uroxatral), 10 mg daily for 12 weeks	Decline of National Institutes of Health Chronic Prostatitis Symptom Index score ≥ 4 showed no difference compared with placebo[40]
Third-line		
Anti-inflammatory agents	Pentosan (Elmiron), 900 mg daily for 16 weeks	Clinical global improvement: 36.7 vs.17.8 percent with placebo[41]
	Finasteride (Proscar), 5 mg daily for six months	Global assessment improvement: 44 vs. 27 percent with placebo[42]
	Quercetin (a bioflavonoid supplement), 500 mg twice daily for 30 days	67 percent quercetin vs. 20 percent placebo showed > 25 percent improvement in symptoms[43]
Other		
Anticonvulsants	Pregabalin (Lyrica)	No specific data[44]
	Gabapentin (Neurontin)	
Tricyclic antidepressants	Nortriptyline (Pamelor), 10 mg daily at bedtime with titration up to 75 to 100 mg	No specific data[45]
Nonpharmacologic		
Biofeedback	—	Small study, statistically significant improvement in American Urological Association symptom score, decrease in bother score, decrease in pain score[46]
Cognitive behavior therapy	—	No published data[47]
Physical therapy	—	Small pilot study, no difference in improvement between global massage therapy vs. myofascial physical therapy[48]
Sacral neuromodulation	—	Two uncontrolled studies have shown some effectiveness[49,50]
Thermal therapy	Microwave and transurethral needle ablation	Little improvement, consider as last resort[51]

Information from references 38 through 51.

consensus panel.[35] In a patient thought to have chronic prostatitis/chronic pelvic pain syndrome, referral to a urologist for diagnosis is warranted.[36]

The NIH Chronic Prostatitis Symptom Index[36] explores symptoms to establish the diagnosis and determine treatment effect. A decline from baseline of six points in the total score is the threshold to predict treatment response.[37]

TREATMENT

There is no preferred first-line treatment for patients with chronic pelvic pain syndrome *(Table 6[38-51] and Figure 3[38])*. It is reasonable to try antimicrobials, alpha blockers, or anti-inflammatory medications first; however, if a patient does not respond to treatment, repeated trials are not warranted. In addition, it is important to consider multimodal therapy with a combination of medications or possible adjunctive therapy with nonpharmacologic modalities. Men with chronic pelvic pain syndrome represent a highly complex group of patients, and urology referral is often necessary.

Asymptomatic Prostatitis

Asymptomatic prostatitis, NIH type IV, is diagnosed when inflammatory cells are identified on prostate biopsy

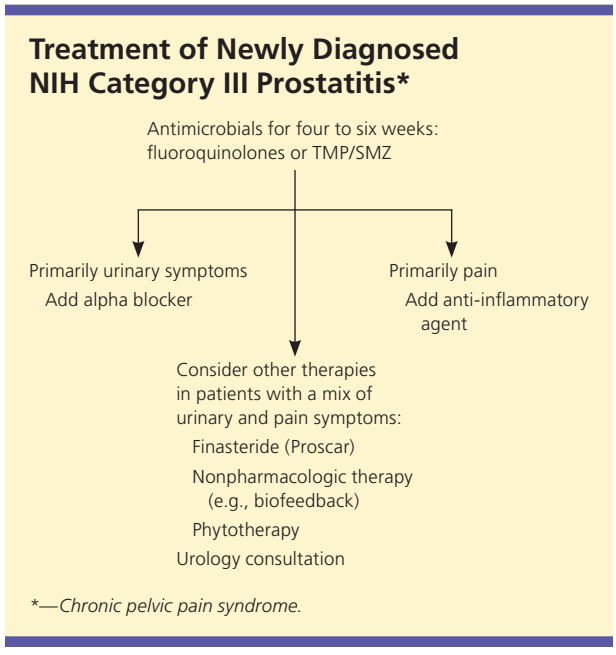


Figure 3. Treatment algorithm for a patient newly diagnosed with NIH type III prostatitis. (NIH = National Institutes of Health; TMP/SMZ = trimethoprim/sulfamethoxazole [Bactrim, Septra].)

Adapted with permission from Habermacher GM, Chason JT, Schaeffer AJ. Prostatitis/chronic pelvic pain syndrome. Annu Rev Med. *2006;57:203. http://www.annualreviews.org (subscription required). Accessed April 2010.*

or leukocytes are noted on semen analysis during urologic evaluation for other reasons. The clinical significance of this type of prostatitis is uncertain, and treatment is based on the primary reason for the urologic evaluation. When the indication for biopsy is an elevated PSA level, it is important to remember that normalization of the PSA value after antibiotic or 5-alpha reductase inhibitor therapy does not rule out the diagnosis of prostate cancer, and continued urologic evaluation is warranted.

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Author disclosure: Nothing to disclose.

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