Prostatitis (Prostate Inflammation) — Diagnosis and Treatment

Prostatitis is a term that indicates inflammation of the prostate which can be infectious or non-infectious. Bacterial prostatitis is easier to identify clinically and their management is better established. The main diagnostic tools for prostatitis are clinical history and physical examination. Prostate massage by digital rectal examination is only recommended in patients with chronic prostatitis and not in acute bacterial prostatitis. Broad spectrum antibiotics are the mainstay therapy for bacterial prostatitis, while symptomatic treatment is indicated for chronic pelvic pain syndrome without evidence for uropathogens.

Definition and Epidemiology of Prostatitis

Different forms of prostatitis exist and they can be classified according to the symptoms’ duration. The table below summarizes the definitions of the different forms of prostatitis.

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
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<tbody>
<tr>
<td>Acute bacterial prostatitis</td>
<td>An acute bacterial infection of the prostate that is characterized by severe symptoms complicated by an acute bacterial urinary tract infection.</td>
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Chronic bacterial prostatitis

A more chronic form of bacterial infection of the prostate; these patients might have prostate-related symptoms but they are usually milder. Recurrent urinary tract infections are common.

Chronic pelvic pain

Patients with this syndrome complain of chronic pelvic pain, urinary symptoms and possibly voiding symptoms but they do not have bacterial urinary tract infections.

Asymptomatic inflammatory prostatitis

There is true inflammation of the prostate but the patient does not have any urinary symptoms.

<table>
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<th>Table 1: Definition of different forms of prostatitis</th>
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The current estimated incidence of prostatitis is 9%, making it a common condition among men. Only 3% of men have significant prostatitis-related symptoms and seek specific medical attention.

Acute and chronic bacterial prostatitis are the only forms of prostatitis that are well defined by clinical and microbiological features. **Bacterial prostatitis** is responsible for only 10% of all prostatitis cases. Most patients with prostatitis have either **chronic pelvic pain syndrome** or **asymptomatic inflammatory prostatitis**.

### Etiology of Prostatitis

**Ascending bacterial infection** is responsible for acute bacterial prostatitis. **Gram negative organisms**, such as *Escherichia coli*, Enterobacter and Serratia are responsible for 80% of the cases.

Patients with **voiding dysfunction**, for example, due to **prostate hypertrophy**, might develop a chronic bacterial infection. *Escherichia coli* is the most common implicated organism.

**Primary voiding dysfunction** because of **pseudodyssynergia, impaired detrusor contractility** or **acontractile detrusor muscle**, might also lead to chronic pelvic pain syndrome without bacterial infection. Additionally, patients might develop **non-specific prostatic inflammation**.

### Pathophysiology of Prostatitis

**Urinary tract infections** and **sexually transmitted diseases** with *chlamydia* or *gonorrhea* predispose the patient to ascend urinary tract infections which can affect the prostate. If a **biopsy** is taken from the prostate while inflamed, **acute inflammatory cells infiltrates** and **chronic inflammatory cells** might be identified. Additionally, **white blood cells** might also be present in the urine.

The presence and degree of inflammatory cells infiltrate on biopsy or in the urine do not correlate well with the severity of the prostatitis.

Other organisms, such as *cytomegalovirus*, have been implicated in prostatitis in **HIV-positive patients**.

### Clinical Presentation of Prostatitis

To summarize the different presentations of prostatitis, it is recommended to classify them into acute bacterial, chronic bacterial, chronic pelvic pain and asymptomatic inflammatory prostatitis.
Acute bacterial prostatitis

Patients usually have severe symptoms, which include **lower abdominal pain, dysuria, frequency, irritative voiding** and **fever**. Abdominal examination, examination of the external **genitalia** to exclude possible **penile discharge** as in gonorrhea, and prostate examination to elucidate **prostatic tenderness** should be performed. Prostate massage is not recommended because the pain might be very severe.

Chronic bacterial prostatitis

Patients might have **intermittent mild dysuria, intermittent voiding problems** due to **obstructive urinary tract disease** and a **history of recurrent urinary tract infections**.

Chronic prostatitis/chronic pelvic pain

The diagnosis and clinical picture of chronic pelvic pain is more difficult to appreciate. Patients are expected to complain of **pelvic, perineal, suprapubic** or **rectal pain** for at least 3 months of the last 6 months to fit the diagnosis of chronic pelvic pain.

Patients can also complain of **dysuria** and **incomplete voiding**. **Erectile dysfunction** is common in this group of patients. Patients should not have any episode of urinary tract infection for the last six months.

Asymptomatic inflammatory prostatitis

Patients with asymptomatic inflammatory prostatitis do not have any symptoms or signs of prostatitis.

Diagnostic Work-up for Prostatitis

Acute bacterial prostatitis

**Urinary analysis and culture** are mandatory in these patients. Urine analysis can show white blood cells. Culture studies usually show a single gram-negative organism.

**Transrectal prostatic ultrasonography** or **computerized tomography scan of the prostate** is recommended only when **initial antimicrobial therapy** fails. The goal of imaging is to exclude **prostate abscess**. Serum prostate specific antigen (PSA) should not be checked in these patients.

Chronic bacterial prostatitis
The **4-glass or 2-glass test** should be performed in these patients. The 4-glass test includes 10 ml of urine, followed by 10 ml of midstream urine, followed by a glass of prostate secretions after digital rectal massage of the prostate, finally followed by a post-massage urinary sample. This is considered as too complicated for most urologists; hence the two-glass test is usually preferred. The two glass test simply means a pre-massage and a post-massage urinary culture.

Transrectal prostate ultrasonography and semen cultures are not beneficial in diagnosing chronic bacterial prostatitis.

**Chronic prostatitis/chronic pelvic pain**

The diagnosis of chronic bacterial prostatitis needs to be excluded. Accordingly, a 4-glass or 2-glass test should be used. These patients might have **obstructive urinary symptoms** and can benefit from **urodynamic testing** to assess flow-rates, post-void residual and pressure flow studies. These tests also assess the **detrusor muscle function**.

**Asymptomatic inflammatory prostatitis**

This group of patients are usually not diagnosed because of the lack of the symptoms and because currently there are no recommended investigations to be performed.

**Treatment of Prostatitis**

**Acute bacterial prostatitis**

Patients with acute bacterial prostatitis should receive **broad-spectrum antibiotics**. Combination therapy might include **aminoglycosides plus ampicillin**, or a third-generation **cephalosporin plus a fluoroquinolone** for the ill patient. Patients who do not have **sepsis** can receive **oral trimethoprim-sulfamethoxazole** or a fluoroquinolone.
Patients with severe urinary obstructive symptoms might need a single catheterization. A prostatic abscess is a possible complication of acute bacterial prostatitis. A prostatic abscess needs surgical drainage.

Chronic bacterial prostatitis

These patients should receive a fluoroquinolone for approximately 6 weeks. Patients with chronic bacterial prostatitis and severe urinary obstructive symptoms might benefit from combining a fluoroquinolone with an alpha-blocker such as doxazosin. Patients with severe obstructive symptoms and recurrent bacterial prostatitis, that is not responsive to antimicrobials, might benefit from surgery to remove the prostate.

Chronic prostatitis/chronic pelvic pain

Management of chronic prostatitis or chronic pelvic pain without evidence for bacterial infection is challenging. Multimodal therapy is currently recommended for these patients instead of a monotherapy.

Patients with depression, anxiety or other psychiatric conditions might benefit from cognitive behavioral therapy, anti-depressants, and anti-anxiolytics.

Patients with confirmed prostatitis by biopsy or who have lower urinary tract obstruction can benefit from alpha-blockers, quercetin, or a prostatectomy.

Antibiotics should not be used unless there is evidence of a previous or a recent urinary tract infection.

Patients with chronic pelvic pain might have primary voiding dysfunction due to neuropathy or detrusor muscle dysfunction. Gabapentin, amitriptyline and neuromodulation therapy can help these patients.

Non-steroidal anti-inflammatory drugs can help alleviate the symptoms in few patients.

Asymptomatic inflammatory prostatitis

Currently, patients with asymptomatic inflammatory prostatitis do not receive any specific therapy.

References


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