

BENIGN PROSTATIC HYPERPLASIA (BPH)

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Abstract:

Benign Prostatic Hyperplasia (BPH) is a prevalent non-cancerous condition affecting aging men, commonly leading to urinary tract symptoms (LUTS). As men age, hormonal imbalances, particularly the elevation of dihydrotestosterone (DHT) in prostate tissues, contribute to the enlargement of the prostate. This enlargement causes obstruction of the urethra, resulting in symptoms ranging from difficulty in initiating urination to urinary retention and renal insufficiency. Diagnosis is based on clinical examination and diagnostic procedures such as digital rectal examination (DRE), ultrasound, and PSA testing. Treatment options include conservative management with alpha-adrenergic blockers and 5-alpha-reductase inhibitors, as well as surgical approaches like transurethral resection of the prostate (TURP). Early intervention can prevent complications, improve symptoms, and enhance the quality of life for patients. This article discusses the etiology, clinical manifestations, diagnostic procedures, treatment options, and preventive measures for BPH.

Keywords:

Benign Prostatic Hyperplasia, Prostate Enlargement, Urinary Tract Symptoms, Dihydrotestosterone, Diagnosis, Treatment, Surgery, Alpha-Adrenergic Blockers, 5-alpha-Reductase Inhibitors, Urological Health.

Introduction

Benign Prostatic Hyperplasia (BPH) is a non-cancerous enlargement of the prostate gland that commonly affects aging men, particularly after the age of 40. The enlargement results from hyperplasia of both stromal and epithelial cells of the prostate, leading to compression of the urethra and subsequent urinary obstruction. This condition is one of the most common causes of lower urinary tract symptoms (LUTS) in elderly men.

Etiology:

The exact cause of BPH is multifactorial and primarily related to hormonal imbalance associated with aging. As men age, testosterone levels gradually decline, while dihydrotestosterone (DHT) remains elevated in prostate tissues. DHT stimulates cellular proliferation and leads to glandular enlargement.

Main risk factors include:

- Advanced age (especially over 50 years);
- Hormonal imbalance (testosterone/DHT ratio changes);
- Genetic predisposition;
- Obesity and physical inactivity;
- Chronic stress and metabolic disorders.

Pathogenesis:

BPH is characterized by an increase in the number of epithelial and stromal cells within the prostate. Dihydrotestosterone binds to androgen receptors in the prostate and activates gene expression responsible for cell proliferation. The result is an enlarged gland that compresses the urethral lumen, causing resistance to urinary flow and incomplete bladder emptying. Over time, this may lead to hypertrophy of the bladder wall and renal impairment.

Clinical Manifestations

The symptoms of BPH are typically divided into three stages:

1. Compensated Stage:

Difficulty initiating urination;

Increased frequency, especially at night (nocturia);

Weak urinary stream.

2. Subcompensated Stage:

Residual urine in the bladder;

Interrupted urinary stream;

Incomplete bladder emptying.

3. Decompensated Stage:

Urinary retention (ischuria);

Renal insufficiency (azotemia, fatigue, vomiting);

Urinary tract infections (cystitis, pyelonephritis).

Diagnosis:

Diagnosis of BPH includes a combination of clinical assessment and diagnostic procedures:

Digital rectal examination (DRE) — to assess prostate size and consistency;

Ultrasound (USG) — to measure prostate volume and post-void residual urine;

PSA (Prostate-Specific Antigen) test — to exclude malignancy;

Uroflowmetry — to evaluate urinary flow rate;

Cystoscopy — to inspect the urethra and bladder if indicated.

Treatment:

1. Medical (Conservative) Management

Alpha-adrenergic blockers (Tamsulosin, Doxazosin) — relax smooth muscles of the bladder neck and prostate, improving urine flow;

5-alpha-reductase inhibitors (Finasteride, Dutasteride) — reduce DHT production and prostate volume;

Phytotherapy (Saw palmetto extract) — used for mild symptoms.

2. Surgical Management

Transurethral resection of the prostate (TURP) — the gold standard for surgical treatment;

Laser vaporization or enucleation — modern, minimally invasive methods;

Open prostatectomy — for very large prostates or complicated cases.

Complications:

Acute urinary retention;

Recurrent urinary tract infections;

Renal failure due to back pressure;

Bladder diverticula and wall hypertrophy;

Hematuria (blood in urine).

Prevention:

Maintain a healthy lifestyle and balanced diet;

Regular urological check-ups after the age of 40;
Avoid prolonged urinary retention;
Prevent exposure to cold;
Maintain physical activity and control body weight.

Conclusion:

Benign Prostatic Hyperplasia is a common, age-related condition that can significantly affect the quality of life in men. Early diagnosis and appropriate treatment—whether medical or surgical—can prevent complications and ensure effective symptom control. With the advancement of minimally invasive techniques, management of BPH has become safer and more efficient, allowing patients to maintain normal urinary function and well-being.

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