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BENIGN PROSTATIC HYPERPLASIA AND PROSTATE CANCER: A COMPREHENSIVE COMPARATIVE REVIEW

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Abstract. Benign Prostatic Hyperplasia (BPH) and Prostate Cancer are highly prevalent prostate disorders in aging men. Although both conditions often present with similar lower urinary tract symptoms, they differ fundamentally in pathophysiology, biological behavior, prognosis, and treatment strategies. This article provides a comprehensive scientific comparison of clinical manifestations, diagnostic methods, and therapeutic approaches for BPH and prostate cancer.

Introduction

The prostate gland is a key organ of the male reproductive system, located inferior to the urinary bladder and surrounding the proximal urethra. Age-related hormonal and cellular changes predispose the prostate to various pathological conditions, the most common being benign prostatic hyperplasia and prostate cancer. Differentiation between these two conditions is essential for clinical decision-making and patient prognosis.

Etiology and Pathophysiology

BPH is characterized by non-malignant hyperplasia of stromal and epithelial cells, primarily in the transitional zone of the prostate, driven by dihydrotestosterone-mediated hormonal changes. In contrast, prostate cancer arises mainly from the peripheral zone and results from malignant transformation due to genetic mutations, abnormal androgen receptor signaling, and environmental influences. Unlike BPH, prostate cancer has invasive and metastatic potential.

Clinical Manifestations

BPH typically presents with lower urinary tract symptoms including urinary hesitancy, weak stream, intermittency, nocturia, urgency, and incomplete bladder emptying. Prostate cancer is often asymptomatic in early stages and may later present with hematuria, hematospermia, erectile dysfunction, bone pain, and systemic symptoms in advanced disease.

Diagnostic Evaluation

Diagnostic assessment includes digital rectal examination, prostate-specific antigen testing, imaging modalities such as transrectal ultrasound and multiparametric MRI, and histopathological confirmation via prostate biopsy. PSA elevation may be observed in both conditions, but biopsy remains the gold standard for prostate cancer diagnosis.

Treatment Strategies

Management of BPH ranges from conservative observation and lifestyle modification to pharmacological therapy (alpha-blockers and 5-alpha reductase inhibitors) and surgical interventions such as TURP. Prostate cancer treatment is stage-dependent and includes active surveillance, radical prostatectomy, radiation therapy, androgen deprivation therapy, chemotherapy, and targeted therapies.

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Prognosis

BPH is a benign condition with excellent prognosis, though it may significantly affect quality of life. Prostate cancer prognosis varies widely depending on stage and grade, with localized disease having high survival rates and advanced metastatic disease associated with poorer outcomes.

Conclusion

Although benign prostatic hyperplasia and prostate cancer share overlapping clinical features, they represent distinct pathological entities. Accurate diagnosis and appropriate management are critical to improving patient outcomes and minimizing complications.

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