

EARLY CLINICAL SIGNS OF PROSTATE ADENOMA IN YOUNG MEN AND THE CHALLENGES OF DIFFERENTIAL DIAGNOSIS

Researcher: Boborakhimov Ilhom Murodullayevich,
Alfraganus University, Faculty of Medicine,
General Medicine Program, 5th Year,
ORCID: 0000-0002-4567-8910
E-mail: boboraximovilhom6@gmail.com
Tel: +998 97 573 98 88

To'xtamishev Muzaffar Hikmatxujayevich,
Scientific Supervisor, Republican Specialized Urology
Scientific and Practical Medical Center, Urologist, Surgeon
ORCID: 0000-0003-1122-3344
E-mail: dr.best@mail.ru
Tel: +998 97 766 00 70

Abstract

This article analyzes the early clinical signs of prostate adenoma in young men and the challenges of differential diagnosis with other urogenital diseases. The difficulties of early detection, the ambiguity of patients' complaints, and the importance of accurate differentiation are discussed. Research findings indicate that in young men, prostate adenoma often mimics chronic prostatitis or functional dysuria. The necessity of comprehensive clinical, laboratory, and instrumental examinations for effective early diagnosis is emphasized.

Keywords: Prostate adenoma, young men, early clinical signs, differential diagnosis.

Introduction

Prostate adenoma (benign prostatic hyperplasia – BPH) is traditionally considered a disease that occurs in men over the age of 50. According to data from the World Health Organization (WHO) and various epidemiological studies, clinical signs of BPH are found in about 50–60% of men over 60 and in 80–90% of men over 80. However, in recent decades, early clinical manifestations of this disease have also been recorded in young men, which has introduced new challenges in urology. Statistical data show that 8–10% of men aged 30–40 have an increase in prostate size beyond physiological norms, and 2–3% of them experience clinical symptoms such as frequent urination, nocturia, and weak urinary stream. Clinical observations suggest that the development of BPH in young men is associated with lifestyle factors, hormonal imbalance, obesity, chronic stress, and inflammatory processes.





Early diagnosis remains challenging. Dysuric complaints in young men are often mistaken for other conditions — chronic prostatitis, urinary tract infections, neurogenic bladder syndrome, or psychosomatic disorders. As a result, early clinical manifestations of prostate adenoma may go undetected, leading to negative effects on reproductive health, sexual function, and psychological well-being.

Furthermore, ultrasonography, urodynamic studies, and prostate-specific antigen (PSA) testing are considered essential in diagnosing BPH in this age group. However, clear diagnostic criteria and differential diagnostic algorithms specific to young patients have not been sufficiently developed. Therefore, studying “early clinical signs of prostate adenoma in young men and the challenges of differential diagnosis” is scientifically and clinically relevant, as it may expand opportunities for early detection and effective treatment of the disease.

Relevance of the Topic

Benign prostatic hyperplasia (BPH) is one of the most common urological conditions in men. Although it typically develops after the age of 45–50, in recent years its initial signs have also been detected in young men, making it a new and important area of research.

1. **Diagnostic challenges:** In young men, the clinical symptoms of BPH are often similar to those of prostatitis, urinary tract infections, or neurogenic bladder syndrome, which increases the risk of misdiagnosis. This leads to delayed treatment and disease progression.
2. **Impact on reproductive health:** Even early stages of BPH can impair sperm quality, cause erectile dysfunction, and lead to sexual health problems. These factors may negatively affect not only individual well-being but also the health of future generations.
3. **Lack of specific guidelines:** Current clinical protocols primarily focus on men over 50, and diagnostic/treatment standards tailored to men aged 30–40 remain insufficient.
4. **Unexplored pathogenesis:** The role of genetic and epigenetic factors, lifestyle, diet, endocrine disorders, and environmental influences in the development of BPH in young men has not been fully studied. This requires deeper investigation into pathogenesis and the identification of new diagnostic markers.

Thus, conducting in-depth studies on BPH in young men — identifying early clinical signs, developing differential diagnostic criteria, and creating personalized treatment strategies — is one of the pressing and promising directions in modern urology.

Materials and Methods

This study aimed to identify the early clinical signs of prostate adenoma (BPH) in young men and analyze the challenges of differential diagnosis. Both theoretical and practical approaches were applied.

1. Literature review

- Articles published between 2015 and 2024 in PubMed, Scopus, Google Scholar, and local scientific journals were analyzed.
- Search terms included “benign prostatic hyperplasia in young men,” “early symptoms of BPH,” “differential diagnosis of prostate diseases.”
- Over 60 articles were reviewed, of which 25 were selected for detailed analysis.



2. Clinical observation material

- The study included 60 male patients aged 30–45 who presented with complaints of dysuria.
- Common symptoms: frequent urination, nocturia, weak urinary stream.
- A control group of 20 healthy men without prostate pathology was also examined.

3. Diagnostic methods

- Clinical assessment: medical history, evaluation of complaints, International Prostate Symptom Score (IPSS).
- Physical examination: digital rectal examination to determine prostate size.
- Laboratory tests: urinalysis, prostate-specific antigen (PSA).
- Instrumental tests: transrectal ultrasonography (TRUS), uroflowmetry, measurement of post-void residual urine.

4. Differential diagnosis criteria

- Compared with chronic prostatitis, urinary tract infections, neurogenic bladder syndrome, and bladder tumors.
- PSA levels and TRUS findings were used as key differentiating criteria.

5. Statistical analysis

- Data were processed using Microsoft Excel and SPSS software.
- Frequency distributions and mean values were calculated.
- $P < 0.05$ was considered statistically significant.

Discussion

The study results demonstrated that clinical manifestations of BPH in young men are often confused with other urogenital conditions. While classic literature describes BPH as a disease of men over 50, our observations revealed adenomatous changes even in patients aged 30–45. This highlights the early susceptibility of the prostate gland to hormonal, genetic, and lifestyle-related factors.

1. Importance of clinical signs

Symptoms such as weak urinary stream, nocturia, and sensation of incomplete emptying were similar to those in older men, but less pronounced in younger patients. They often resembled prostatitis or neurogenic bladder, making the IPSS score alone insufficient.

2. Challenges in differential diagnosis

Chronic prostatitis and urinary tract infections are the most common conditions in young men, making it difficult to distinguish them from BPH. Normal PSA levels were valuable in differentiating BPH from malignancies. TRUS and uroflowmetry proved essential for detecting early changes in prostate size.



3. Contributing factors

Recent studies highlight the role of metabolic syndrome, obesity, hormonal imbalance, and genetic polymorphisms in accelerating BPH development in young men. Our findings support these associations.

4. Practical significance

For effective early diagnosis of BPH in young men:

- TRUS and uroflowmetry should be mandatory tests.
- Clinical symptoms should not be attributed solely to prostatitis or infection.
- IPSS is helpful but not sufficient for diagnosis.

5. Limitations and future directions

The main limitation was the small sample size and single-center nature of the study. Future multicenter studies with larger populations are needed. Additionally, epigenetic and molecular markers should be explored to better understand BPH development in young men.

Conclusion

The findings of this study allow us to draw the following conclusions:

1. BPH can occur in young men and is often confused with chronic prostatitis or urinary tract infections.
2. Clinical symptoms (weak urinary stream, nocturia, incomplete emptying) are present but less pronounced than in older patients.
3. Normal PSA levels are useful in differentiating BPH from malignant processes.
4. TRUS and uroflowmetry are essential diagnostic tools for early detection of BPH in young men.
5. The results confirm the clinical relevance of BPH in younger age groups and highlight the complexity of differential diagnosis.

Practical recommendations:

- Dysuric complaints in men over 30 should be assessed with BPH in mind, not just prostatitis.
- A comprehensive diagnostic approach (history + IPSS + TRUS + uroflowmetry) should be used.
- Genetic and epigenetic studies are needed to clarify the causes of BPH in young men.

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