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Benign Prostatic Hyperplasia and Ayurveda: An Evidence-Based Review of Classical Concepts, Ayurvedic Therapeutics, and Contemporary Clinical Evidence

Dr. Jayakrishnan v[1], Prof.(Dr) Remani KK[2]

[1]**Ph.D. Scholar, Department of Kayachikitsa,** Glocal University, Mirzapur Pole, Saharanpur, Uttar Pradesh, India.

[2]**Research Supervisor and HOD, Department of Kayachikitsa,** Glocal University, Mirzapur Pole, Saharanpur, Uttar Pradesh, India.

Abstract

Benign prostatic hyperplasia (BPH) is one of the most frequent aging diseases and one of the main reasons for lower urinary tract symptoms (LUTS) in elderly men. In Ayurveda, there is a unique view regarding the comprehension of BPH-related urination disorders, especially taking into account the classical Ayurvedic concepts of *Mutraghata* and *Vatashthila*, where the roles of Vata-Kapha disorders and disturbances in *Apana Vayu* and *Mutravaha Srotas* are predominant. This review aimed to evaluate the correlation of BPH with Ayurveda and assess medicinal herbs and classical Ayurvedic preparations used to treat BPH, such as *Gokshura, Varuna, Punarnava, Kanchanara, Gokshuradi Guggulu* and *Kanchanara Guggulu.* Despite some evidence that could support potential improvements in the urinary symptom complex and certain objective parameters, the number of patients, the duration of the treatment period and the research methodology used were not satisfactory. The possible mechanisms include anti-inflammatory, anti-oxidative, anti-androgenic and antiproliferative activities, as well as the influence on urination process.

Keywords: Benign prostatic hyperplasia, Ayurveda, *Mutraghata*, *Vatashthila*, Gokshura.

Introduction

Benign prostatic hyperplasia (BPH) is one of the most common age-associated disorders of the male genitourinary system and represents a major cause of lower urinary tract symptoms (LUTS) in older men. Benign prostatic hyperplasia is defined histologically by non-cancerous prostatic stromal and glandular epithelial proliferation mostly in the transitional and periurethral parts of the prostate. Prostatic hyperplasia can lead to the formation of the bladder outlet obstruction (BOO).[1] However, histological BPH, benign prostatic enlargement, BOO, and LUTS are independent clinical entities that do not co-occur always. Severity of LUTS is not necessarily linked to prostate size. Prevalence of BPH grows significantly with aging. Studies based on autopsy data have found the presence of histological BPH in about 8% of men aged 40s, in 50% of men aged 60s, and in up to 80% of men aged 90s.[2] Volume of the prostate grows progressively with age with annual average growth of 2–2.5%. Systematic review and meta-analysis have shown age-dependent prevalence of LUTS associated with BPH with prevalence estimates growing from 14.8% in men aged 40–49 to 38.4% in men aged ≥80 years. The growing prevalence of BPH is especially significant in relation to the world trend of ageing, since several global

studies have found an evident increase in the prevalence of BPH in the period between 2000 and 2019.[3] Symptoms of BPH-induced LUTS can be categorized into two groups – storage symptoms that include increased urinary frequency, urgency and nocturia and voiding symptoms such as hesitancy, decreased urinary flow rate, urinary intermittency, straining and prolonged micturition. Post-micturition symptoms such as incomplete voiding and post-void dribbling are also possible.[4] Obstructive changes in the lower urinary tract can lead to urinary retention, frequent infections, bladder dysfunction and even upper urinary tract complications in severe cases. Pathogenesis of BPH is complicated and includes the interaction of ageing, androgenic signaling, stromal-epithelial cross-talk, inflammation, metabolism and smooth muscle contraction.[5] Dihydrotestosterone (DHT), which is a product of testosterone converted by the enzyme 5α-reductase, plays an important role in the prostatic development and growth. Higher DHT levels are associated with BPH risk while 5α-reductase inhibitors such as finasteride and dutasteride decrease DHT and thus slow down disease progression. Androgenic signaling is not sufficient to cause BPH development and expression.[6] As far as management is concerned, current BPH management involves lifestyle changes and pharmacotherapy (α1-blockers and 5α-reductase inhibitors etc.), as well as minimally invasive and surgical therapy. While these options have proved to be effective, side effects, uncontrolled symptoms, and the chronic nature of the disease have led to exploration of additional ways of treatment. From this perspective, the ancient system of Ayurveda provides a specific framework for understanding urinary obstruction and disturbed micturition in older individuals via the concepts of Mutraghata and *Vatashthila*.[7] Yet, it should be stressed that the connection between these conditions and the BPH is more clinical and conceptual than literal. This review analyzes BPH from the perspectives of modern medicine and Ayurveda, critically appraises herbs and formulations used in Ayurveda, reviews pharmacological mechanisms, as well as scientific evidence.

2. Ayurvedic Correlation with Benign Prostatic Hyperplasia

2.1 BPH and *Mutraghata*

Under the general term of Mutraghata in Ayurveda, all kinds of diseases in which urinary passage is obstructed are included. According to Sushruta Samhita, Mutraghata means various disorders of the urinary system; and according to Charaka Samhita, various kinds of obstructive urination disorders are also described. Out of these, the disease called Vatashthila (or Vatastheela) deserves special mention as far as recent Ayurvedic literature is concerned because of anatomical localization, obstructive urinary symptoms and age-group involved, which correspond to BPH.[8] *Mutraghata* is a syndrome-based Ayurvedic classification and not the exact counterpart of BPH as diagnosed through biopsy. The reason behind the recent correlation is based mainly on the presence of similar clinical presentations such as difficulty in initiating micturition, poor or intermittent flow, inability to empty bladder completely, obstruction, frequency, dribbling, and nocturia.[9] Thus the connection between BPH and Mutraghata can be seen only as a conceptual and clinical correlation and not as the description of the modern-day BPH through ancient Ayurvedic texts.

2.2 *Vatashthila* and BPH

Among the classical entities, *Vatashthila* is considered particularly relevant to BPH. *Sushruta Samhita* describes *Vatashthila* as a firm, elevated or mass-like lesion situated in the pelvic region between the *Guda* and *Basti*, associated with disturbance of urinary and bowel functions. Contemporary Ayurvedic researchers have correlated this description with BPH because the prostate is anatomically situated in the pelvic region below the urinary bladder and surrounding the proximal urethra.[10] Clinical manifestations such as urinary obstruction, retention,

suprapubic discomfort, hesitancy, weak urinary flow and incomplete evacuation show considerable overlap between the two conditions.

The age-related nature of both conditions further supports the correlation. *Vatashthila* and *Mutraghata* are discussed in relation to aggravated *Vata*, while modern BPH is predominantly an age-associated disorder. Contemporary clinical studies of *Mutraghata*, with special reference to BPH, have therefore used parameters such as IPSS, prostate size, urinary flow rate, and post-void residual urine to evaluate Ayurvedic interventions.[11]

2.3 Role of *Mutravaha Srotas*

From an Ayurvedic perspective, urinary function is considered through the framework of *Mutravaha Srotas*, the channels responsible for the formation, transportation, and elimination of urine. Disturbance of these channels, particularly through *Sanga* (obstruction) or impaired movement, provides a conceptual basis for understanding obstructive urinary symptoms.[12] Contemporary Ayurvedic research on *Mutraghata* describes the involvement of *Mutravaha Srotodushti* in association with vitiated *Vata* and *Kapha*. In this interpretation, obstruction within the urinary pathway can manifest as reduced urinary flow, hesitancy, incomplete emptying, dribbling, and retention.[13] This model provides a useful bridge between the Ayurvedic concept of urinary-channel dysfunction and the modern concept of bladder outlet obstruction, although the two frameworks are not anatomically or pathophysiologically identical.

2.4 Role of *Apana Vayu*

Apana Vayu, one of the five subdivisions of *Vata Dosha*, is traditionally associated with downward movement and elimination of urine, feces and reproductive products. Consequently, disturbance of *Apana Vayu* is considered important in disorders involving impaired micturition. Contemporary Ayurvedic clinical studies have specifically interpreted *Mutraghata* as a condition associated with derangement of *Apana Vayu*. Because BPH may produce difficulty initiating urination, weak urinary stream, incomplete bladder emptying and urinary retention, these symptoms have been interpreted within Ayurveda as manifestations of impaired *Apana Vayu* function.[14] This concept also provides the rationale for the Ayurvedic use of *Basti*, particularly *Matra Basti*, in *Vata*-dominant urinary disorders. Clinical studies have proposed that *Matra Basti* may support the regulation of *Apana Vayu* and, consequently, improve urinary symptoms; however, these proposed mechanisms remain primarily based on Ayurvedic theory and preliminary clinical observations and require validation through well-designed mechanistic studies.

2.5 *Dosha* Involvement

The Ayurvedic interpretation of BPH-like urinary obstruction can be understood primarily through *Vata-Kapha* involvement, with the relative contribution of individual *Doshas* varying according to the patient's clinical presentation.

Vata: Predominantly *Apana Vayu* is considered important because of its role in urinary elimination. Vitiated *Vata* may produce abnormal movement, obstruction, difficulty in micturition, intermittent urinary flow and retention.

Kapha: *Kapha* may be interpreted in relation to structural changes, heaviness, stability and obstructive characteristics. Contemporary Ayurvedic studies of *Mutraghata* have specifically described *Vata-Kapha* involvement and recommended *Vata-Kapha Shamaka* interventions.

***Pitta*:** *Pitta* is not necessarily dominant in every BPH presentation but may be considered when symptoms such as burning micturition, irritation or inflammatory manifestations are present. Therefore, Pitta involvement should be considered clinically rather than universally attributed to BPH.

Accordingly, an Ayurvedic working model can be expressed as:

Vata → impaired movement and obstruction of urine
Kapha → structural/heavy/obstructive component
Pitta → burning, irritation and inflammatory manifestations when present

Overall, *Vata-Kapha* predominance with involvement of *Apana Vayu* and *Mutravaha Srotas* provides a plausible Ayurvedic framework for interpreting BPH-associated LUTS. However, this should remain a conceptual correlation and should not be interpreted as evidence that Ayurvedic *Dosha* classifications correspond directly to modern molecular mechanisms.

Figure 1: *Samprapti* Flow Chart of BPH from an Ayurvedic Perspective



3. Ayurvedic Herbs and Classical Formulations Used in the Management of BPH

Ayurvedic management of BPH is primarily based on the clinical interpretation of *Mutraghata* and *Vatashthila*, with emphasis on correcting *Vata-Kapha* imbalance, supporting *Apana Vayu*, improving urinary flow, and

reducing *Srotodushti* and *Sanga*. Several medicinal plants and classical formulations have traditionally been used for urinary disorders and have subsequently been investigated for their potential role in BPH.[15] Important drugs include *Gokshura* (*Tribulus terrestris*), *Varuna* (*Crataeva nurvala*), *Punarnava* (*Boerhaavia diffusa*), *Kanchanara* (*Bauhinia variegata*), *Pashanabheda* (*Bergenia ligulata*) and *Shatavari* (*Asparagus racemosus*). Classical formulations such as *Gokshuradi Guggulu, Kanchanara Guggulu, Chandraprabha Vati, Varunadi Kwatha* and *Dhanyaka-Gokshura Ghrita* incorporate several of these botanicals and are traditionally selected according to the patient's *Dosha*, urinary symptoms and disease presentation.[16] Contemporary research suggests potential anti-inflammatory, antioxidant, diuretic, smooth-muscle-modulating and anti-proliferative activities for some of these interventions; however, the strength of evidence varies considerably among individual herbs and formulations. The following table summarizes their Ayurvedic rationale, major constituents, proposed pharmacological mechanisms and available clinical evidence.

Table 1. Ayurvedic herbs and classical formulations investigated or traditionally used in the management of BPH

Herb / Classical formulation	Major constituents / components	Ayurvedic relevance and proposed action	Proposed contemporary mechanism	Clinical evidence in BPH / *Mutraghata*
Gokshura (*Tribulus terrestris*)	Steroidal saponins, including protodioscin; flavonoids and other polyphenols	*Mutrala*, *Vata-pacifying* and traditionally used in *Mutravaha Srotas* disorders; relevant to impaired urinary flow	Potential effects on urinary function, inflammation and smooth-muscle/androgen-related pathways; evidence remains mechanistic/preclinical rather than definitive	Gokshura-containing formulations have been evaluated clinically. In a randomized Ayurvedic study of 32 patients with *Mutraghata* comparable to BPH, Gokshuradi Vati produced improvement in symptoms and objective parameters; combined therapy with Dhanyaka-Gokshura Ghrita Matra Basti produced the greatest overall improvement.

Varuna (*Crataeva nurvala*)	Lupeol, β-sitosterol, flavonoids and other phytochemicals	Traditionally associated with urinary disorders, *Mutrala* activity and removal of urinary obstruction; commonly used in *Varunadi* preparations	Anti-inflammatory, antioxidant and possible smooth-muscle/urinary-flow effects have been proposed	Varuna is frequently included in Ayurvedic/polyherbal preparations for LUTS/BPH, but robust controlled clinical evidence for Varuna alone remains limited.
Punarnava (*Boerhaavia diffusa*)	Punarnavine, flavonoids, rotenoids and other phenolics	*Mutrala*, *Shothahara* and traditionally useful in disorders involving fluid accumulation and urinary dysfunction	Proposed anti-inflammatory, antioxidant and diuretic effects	Traditional and experimental evidence supports urinary and anti-inflammatory activity; however, direct high-quality clinical evidence for isolated Punarnava in BPH is insufficient.
Kanchanara (*Bauhinia variegata*)	Flavonoids, tannins, sterols and other polyphenolic constituents	Traditionally used in conditions involving *Granthi* and *Kapha* predominance; incorporated into Kanchanara Guggulu	Possible anti-inflammatory and antiproliferative activity; specific BPH mechanisms require further validation	Kanchanara Guggulu has been clinically studied in *Mutraghata*. In a 30-patient three-group study, Kanchanara Guggulu alone improved IPSS, while combination with Dhanyaka-Gokshura Ghrita showed better objective outcomes.
Pashanabheda (*Bergenia ligulata*)	Bergenin, gallic acid derivatives and flavonoids	Traditionally *Mutrala* and used in urinary tract disorders, particularly obstruction/calculi-related conditions	Diuretic, antioxidant and anti-inflammatory activities have been investigated	Its relevance to urinary disorders is well recognized traditionally, but direct clinical evidence specifically for BPH remains limited.

Shatavari (*Asparagus racemosus*)	Steroidal saponins, mainly shatavarins; flavonoids	*Vata-Pitta* balancing and *Rasayana*; may be considered supportive in age-associated disorders	Antioxidant and anti-inflammatory effects have been proposed; direct anti-BPH mechanisms are not well established	Frequently included in polyherbal prostate-support preparations, but isolated clinical evidence in BPH is currently inadequate.
Ikshuraka (*Asteracantha longifolia*)	Sterols, alkaloids, flavonoids and other phytochemicals	Traditionally *Mutrala* and used in urinary disorders	Diuretic and antioxidant effects have been proposed	Traditional use supports urinary applications, but controlled clinical evidence specifically for BPH is limited.
Yavakshara	Alkaline mineral salts derived from barley ash	Traditionally used for *Mutraghata*, *Mutrakrichra* and obstruction-related urinary disorders; considered *Mutrala* and *Bhedana*	May facilitate urinary flow through alkalinizing/urinary effects; modern pharmacological evidence for BPH is limited	Used traditionally and in classical formulations, but high-quality clinical evidence in BPH is lacking.
Dhanyaka-Gokshura Ghrita	*Coriandrum sativum*, *Tribulus terrestris* processed in ghrita	Combines *Mutrala* and *Vata-pacifying* principles; used as *Matra Basti*	Proposed local/supportive effects on urinary function and *Apana Vayu*; mechanism remains hypothetical	In a randomized study of 30 evaluable patients, Dhanyaka-Gokshura Ghrita Matra Basti produced substantial symptomatic improvement; combination with Kanchanara Guggulu showed better objective outcomes.

Gokshuradi Guggulu	Gokshura with other classical ingredients including Guggulu-based components	*Mutrala*, *Vata-Kapha Shamaka*, *Shothahara* and traditionally indicated for urinary disorders	Proposed anti-inflammatory, antioxidant and urinary-supportive effects; specific molecular actions require further study	A randomized clinical study of 30 patients with *Mutraghata* found 45.67% overall improvement with Gokshuradi Vati, 47.99% with Dhanyaka-Gokshura Ghrita Matra Basti and 54.09% with combined therapy over 21 days.
Kanchanara Guggulu	Kanchanara, Guggulu and other classical ingredients	Used for *Granthi*, *Kapha-Meda* disorders and obstructive conditions; relevant to the Ayurvedic interpretation of BPH	Anti-inflammatory and potentially antiproliferative effects have been proposed	In a 30-patient study, Kanchanara Guggulu produced 72.68% improvement in IPSS; objective parameters improved more with combined Kanchanara Guggulu + Dhanyaka-Gokshura Ghrita therapy.
Chandraprabha Vati	Multi-herbal/mineral classical formulation containing Guggulu and several urinary-supportive ingredients	Traditionally indicated in *Prameha*, *Mutrakrichra* and urinary disorders; *Tridosha*-modulating depending on formulation and context	Potential diuretic, anti-inflammatory and urinary-supportive effects from multiple constituents	Commonly discussed in Ayurvedic management of urinary disorders, but direct high-quality clinical evidence specifically for BPH is insufficient.
Varunadi Kwatha / Varunadi formulations	Primarily Varuna with other classical herbs	Traditionally used for *Mutravaha Srotas* disorders and obstruction; *Kapha-Vata Shamaka* rationale	Anti-inflammatory, antioxidant and possible urinary-flow effects	Varuna-containing formulations have been investigated in urinary/prostatic disorders, but evidence remains substantially weaker than conventional BPH pharmacotherapy.

Trikatvadi Gudika + Gokshura Kwatha	Polyherbal formulation with Gokshura and digestive/urinary-supportive ingredients	Intended to address *Vata-Kapha* imbalance, *Agni* and urinary obstruction	Proposed combined digestive, anti-inflammatory, antioxidant and urinary effects	A recent pre-post clinical study reported reductions in IPSS, prostate volume and PVRU; however, the single-arm design and small sample limit causal inference.
Gokshuradi Guggulu + Shuddha Shilajit + Dashamoola Ghrita/Vasti	Gokshura, Guggulu, purified Shilajit and Dashamoola-based preparation	Combines *Mutrala*, *Vata-Kapha Shamaka*, *Rasayana* and *Shothahara* principles	Potential anti-inflammatory, antioxidant and urinary-flow effects	An open, non-controlled 40-patient observational study reported improvement in maximum flow rate and PVR, while prostate-weight reduction was not statistically significant; therefore, findings require controlled confirmation

4. Mechanisms of Ayurvedic Interventions

Ayurvedic herbs and polyherbal formulations may influence BPH through multiple complementary pathways rather than a single molecular target. Experimental evidence suggests potential anti-inflammatory and antioxidant effects, modulation of androgen signaling and 5α-reductase/DHT pathways, inhibition of prostatic cellular proliferation, and possible effects on smooth-muscle tone and urinary function.[16] Chronic inflammation and oxidative stress are increasingly recognized contributors to prostatic remodeling and BPH progression, while several phytochemicals have demonstrated anti-inflammatory, antioxidant and anti-proliferative activities in experimental models. Some natural compounds have also shown effects on 5α-reductase and androgen-receptor signaling, suggesting a possible anti-androgenic mechanism. From an Ayurvedic perspective, these pharmacological effects may complement traditional actions such as *Mutrala*, *Shothahara* and *Vata-Kapha Shamaka*. However, most mechanistic evidence remains preclinical, and the clinical relevance of these pathways for specific Ayurvedic formulations remains uncertain because formulation composition, bioavailability and standardization vary considerably.[17]

5. Contemporary Clinical Evidence

Table 2. Clinical studies evaluating Ayurvedic interventions in benign prostatic hyperplasia (BPH)/Mutraghata

Study / Intervention	Study design and participants	Treatment duration / follow-up	Assessment parameters	Major findings	Critical interpretation / limitations
Gokshuradi Vati* + *Dhanyaka-Gokshura Ghrita Matra Basti[19]	Randomized clinical study; 32 patients enrolled, 30 completed treatment; three groups: *Gokshuradi Vati*, *Dhanyaka-Gokshura Ghrita Matra Basti*, and combined therapy	21 days treatment; 1-month follow-up	IPSS, urinary flow rate, prostate size and post-void residual urine (PVR)	Overall improvement was 45.67% with Gokshuradi Vati, 47.99% with Matra Basti and 54.09% with combined therapy. The combined group showed the greatest reduction in prostate size.	Suggests a possible additive effect of oral and Basti therapy. However, the sample was small, treatment was short, and the study was conducted in a single Ayurvedic clinical setting, limiting generalizability.

Kanchanara Guggulu + Dhanyaka-Gokshura Ghrita Matra Basti[20]	Comparative clinical study; 30 patients enrolled, divided into three groups of 10; 27 completed treatment and follow-up	21 days treatment; follow-up after treatment	IPSS and objective parameters including prostate-related measurements and PVR	Symptomatic improvement based on IPSS was 72.68% with Kanchanara Guggulu, 84.27% with Dhanyaka-Gokshura Ghrita Matra Basti and 82.10% with combined therapy. However, the combined group showed the best improvement in objective parameters (23.60%).	The results indicate possible symptomatic and objective benefits, but the very small sample, short treatment period and lack of a conventional-treatment control group restrict interpretation.

Kanchanara Guggulu + Bala Taila Matra Basti[21]	Clinical comparative study; 32 patients, divided into two groups: Bala Taila Matra Basti alone and Bala Taila Matra Basti + Kanchanara Guggulu	21 days treatment; 1-month follow-up	IPSS, urinary symptoms, PVR and prostate size	The combined group showed greater overall symptomatic improvement: 55.56% maximum improvement compared with 25% in the Basti-only group. Significant reductions in PVR and prostate size were reported in both groups. No patient achieved complete remission.	Provides preliminary support for combination therapy, but the small sample and short duration prevent conclusions regarding long-term prostate-volume reduction or prevention of BPH progression.
Gokshura Kwatha[22]	Clinical study evaluating Gokshura Kwatha in patients with BPH/Mutraghata	60 days	Mainly urinary symptoms/IPSS and objective prostate-related parameters	Significant improvement in urinary symptoms was reported, whereas changes in objective prostate parameters were comparatively limited. This suggests that symptomatic improvement may occur without substantial reduction in prostate size.	Supports a possible symptomatic role of Gokshura, but limited objective changes and the study design reduce certainty regarding disease-modifying effects.

Trikatvadi Gudika + Gokshura Kwatha[23]	Single-arm pre-post clinical study; 25 participants	Treatment period reported in the study; pre- and post-treatment assessment	IPSS, prostate volume and PVRU	Significant reductions in IPSS, prostate volume and PVRU were reported, with no adverse effects reported during the study.	The findings are encouraging but should be considered preliminary because there was no control group, the sample size was small, and placebo effects/regression to the mean cannot be excluded.

6. Safety of Ayurvedic Interventions in BPH

The safety of Ayurvedic interventions for BPH requires careful consideration because traditional use does not by itself establish safety, efficacy, or product quality. Herbal medicines may vary in botanical identity, extraction or processing methods, dose, chemical composition, and batch-to-batch consistency. The World Health Organization recommends appropriate quality-control procedures for herbal materials, including authentication and assessment of contaminants such as microbial agents, pesticides, aflatoxins, arsenic and other toxic heavy metals.[24] This is particularly relevant for Ayurvedic preparations containing mineral or metal-derived ingredients, for which inappropriate manufacturing, adulteration or contamination may result in clinically important heavy-metal exposure. Therefore, standardized raw materials, validated manufacturing processes, appropriate dosage, quality testing and pharmacovigilance are essential for safe clinical use.[25] In addition, potential herb–drug interactions should be considered, particularly in older men with BPH who may receive multiple medications for cardiovascular, metabolic or other chronic conditions. Basti-based interventions should likewise be administered only after appropriate patient assessment by trained practitioners, with attention to contraindications and procedural safety. Importantly, Ayurvedic treatment should not delay urological evaluation when acute or recurrent urinary retention, recurrent urinary tract infection, hematuria, renal impairment, bladder stones, upper urinary tract dilatation, or suspected malignancy is present. Current European Association of Urology guidance identifies recurrent/refractory urinary retention, recurrent UTI, bladder stones, treatment-resistant macroscopic hematuria and upper urinary tract dilatation with or without renal insufficiency as situations requiring consideration of surgical management rather than continued conservative treatment alone.[26] Thus, Ayurveda may be explored as a complementary approach in appropriately selected patients, but patient safety, diagnostic evaluation, quality assurance and timely referral should remain central to integrative BPH management.

Conclusion

BPH is an age-related urinary disorder that can be conceptually correlated with *Mutraghata* and *Vatashthila* in Ayurveda. Ayurvedic herbs and formulations, particularly Gokshura- and Kanchanara-based therapies, show promising preliminary benefits for urinary symptoms. However, limited sample sizes and short-term studies restrict the strength of current evidence. Ayurveda may have potential as a complementary approach, but further standardized, well-designed clinical trials are required to establish its efficacy, safety, and long-term benefits.

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