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Classical Ayurvedic therapy for benign prostatic enlargement in a geriatric patient: A case report

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Abstract--Background: Benign prostatic hyperplasia (BPH), or prostomegaly, is a common urological condition in elderly men, characterized by urinary frequency, urgency, weak stream, and incomplete voiding. In Ayurveda, it can be correlated with *Vata-Kaphaja Mutraghata* associated with *Agnimandya* and *Srotorodha*. The **Objective of the study is to** evaluate the efficacy of a classical Ayurvedic regimen in managing BPH, targeting both symptomatic relief and underlying metabolic derangements. **Case Presentation:** A 68-year-old male presented with increased urinary frequency and urgency for 15–20 days, dry belching after exercise, right-sided headache, and chronic shoulder pain. Past history included hypertension for 10 years and nasal polypectomy. Ultrasonography revealed an enlarged prostate (61 cc), significant post-void residual urine, and bladder wall thickening. Ayurvedic assessment indicated *Vata-Kaphaja Prakriti*, *Mandagni*, and *Kapha-Meda Dushti*. **Intervention:** The patient was treated with a multidrug Ayurvedic regimen comprising *Chandraprabha Vati*, *Haritakyadi Yoga*, *Gokshuradi Guggulu*, *Prameha Gajakesari*, and other classical formulations, combined with dietary modifications and *Nasya* therapy. Medicines were administered with specific timing and anupana, with adjustments during follow-up based on clinical response. **Outcome:** Over three months, the patient experienced marked reduction in urinary frequency, urgency, suprapubic fullness, and associated systemic symptoms. Repeat ultrasonography showed a decrease in prostate volume from 61 cc to 32 cc and improvement in post-void residual urine. No adverse effects were reported. **Conclusion:** Classical Ayurvedic management addressing *Agnimandya*, *Srotorodha*, and *Vata-Kapha* imbalance demonstrated

significant clinical improvement in BPH, suggesting a safe, holistic, and effective therapeutic approach for elderly patients.

Keywords---Benign prostatic hyperplasia, Prostomegaly, Vata-Kaphaja Mutraghata, Ayurvedic management, Chandraprabha Vati, Mutravirechana, Agnimandya, Srotoshodhana.

Introduction

Benign enlargement of the prostate, also known as *Prostomegaly* or benign prostatic hyperplasia (BPH), is one of the most common urological conditions affecting elderly men. The prostate gland, a fibromuscular organ surrounding the urethra just below the urinary bladder, undergoes progressive hyperplasia with advancing age, resulting in compression of the urethral lumen and obstruction to urinary flow. The condition typically manifests as increased frequency of micturition, nocturia, urgency, weak urinary stream, hesitancy, and incomplete voiding. These symptoms significantly impair the quality of life and may lead to complications such as urinary retention, recurrent infections, and renal dysfunction if untreated.

From a modern pathological standpoint, BPH is characterized by hyperplasia of both stromal and epithelial cells, leading to formation of nodules in the periurethral region. The pathophysiology involves hormonal imbalance, particularly an increase in dihydrotestosterone (DHT), which stimulates proliferation of prostatic tissue. Other contributing factors include aging, metabolic syndrome, hypertension, obesity, and sedentary lifestyle. The initial compensatory hypertrophy of the bladder detrusor muscle to overcome urethral resistance later leads to decompensation, resulting in incomplete emptying and thickened bladder wall. Modern management includes α -adrenergic blockers, 5 α -reductase inhibitors, or surgical procedures like transurethral resection of the prostate (TURP). However, these modalities may produce adverse effects such as postural hypotension, loss of libido, or retrograde ejaculation, highlighting the need for safer and holistic therapeutic approaches.

In Ayurvedic classics, the condition can be correlated with *Mutraghata*, *Mutrakrucchra*, or *Vata-Kaphaja Basti Vyadhi*, depending on symptomatology. The disease originates from *Agnimandya* (impaired digestion and metabolism), leading to *Ama* formation and *Srotorodha* (obstruction of body channels). As *Kapha* and *Meda* get vitiated due to indulgence in *Guru*, *Snigdha*, and *Sheeta Ahara-Vihara*, they obstruct the normal course of *Apana Vata*, the subtype of *Vata Dosha* governing the expulsion of urine. This results in *Vata Avarana* (functional obstruction of *Vata*) producing symptoms like *Baddha Mutrata* (retention of urine), *Tanu Mutrata* (thin stream), *Atipravritti* (frequency), and *Avegahata* (urgency).

Acharya Charaka mentions *Vata-Kaphaja Mutraghata* as a condition where *Kapha* produces *Srotorodha*, and *Vata* fails to perform its normal function of urine expulsion, leading to *Mutraghata*. *Sushruta Samhita* and *Ashtanga Hridaya* also emphasize *Apana Vata* disturbance as the root cause of urinary obstruction. The

involvement of *Agnimandya* explains the presence of associated symptoms like *Udaragaurava*, *Kshudha Mandya*, and *Udgar*, which reflect the systemic derangement in metabolism.

The Ayurvedic approach to management involves *Agnideepana*, *Ama Pachana*, *Srotoshodhana*, *Mutravirechana*, and *Vata Anulomana*. Drugs possessing *Katu-Tikta-Kashaya Rasa*, *Laghu-Ruksha Guna*, *Ushna Virya*, and *Kaphavata Shamaka* properties are preferred. Formulations like *Chandraprabha Vati*, *Gokshura*, *Pashanabheda*, *Punarnava*, and *Trikatu* have been traditionally used to restore urinary flow, reduce glandular congestion, and balance *Vata-Kapha Doshas*.

Thus, from both modern and Ayurvedic viewpoints, the pathology involves mechanical obstruction due to glandular enlargement and functional obstruction due to *Dosha Dushti* and *Srotorodha*. The integrative application of Ayurvedic therapy aims not only at symptomatic relief but also at correcting the fundamental metabolic imbalance (*Agnimandya*), thereby preventing recurrence and improving overall vitality in geriatric patients.

Case Presentation

A 68-year-old male patient visited the outpatient department with the chief complaints of increased frequency and urgency of micturition for the last 15–20 days. He also reported episodes of dry burping, particularly in the morning hours after physical exercise, associated with right-sided headache and a dull aching pain in the right shoulder.

History of Present Illness

The urinary symptoms were gradual in onset and progressive in nature. The patient experienced the urge to pass urine every 1–1.5 hours during the day and 2–3 times at night. There was a sensation of incomplete voiding and mild suprapubic heaviness after micturition. The burping and headache had been persistent for approximately one month and were aggravated by exertion and irregular meals. The shoulder pain had been chronic since 2010, for which he had undergone traction and injectable therapy by an orthopedic surgeon, but it had recently worsened.

Past and Personal History

- **Past medical history:** The patient was a known case of hypertension for 10 years, on regular antihypertensive medication. He had undergone nasal polypectomy in 2003. No history of diabetes mellitus or renal disorder was reported.
- **Family history:** Non-contributory.
- **Personal history:** The patient was a vegetarian with a preference for leafy vegetables such as *Methi* (*Trigonella foenum-graecum*), *Shepu* (*Anethum sowa*), and *Palak* (*Spinacia oleracea*) consumed almost daily. He reported excessive water intake of around 5–5.5 liters per day. His appetite was poor (*Kshudha-mandya*), and bowel movements were regular. Sleep was sound, and no addiction was reported.

General Examination

The patient was of moderate build with slightly reduced nourishment suggestive of *Mamsa Shaithilya*. Vital parameters were within normal limits: Blood Pressure – 136/84 mmHg, Pulse Rate – 78/min (regular), Respiratory Rate – 18/min, Temperature – afebrile, and Weight – 68 kg. He was alert, cooperative, and well oriented to time, place, and person. No pallor, cyanosis, icterus, or pedal edema were noted.

Systemic Examination

On systemic examination, the cardiovascular system revealed normal heart sounds with no murmurs or added sounds, indicating a stable cardiac status. The respiratory system showed clear breath sounds bilaterally, with no adventitious sounds such as crepitations or wheeze, suggesting normal pulmonary function. Examination of the gastrointestinal system revealed mild epigastric tenderness without any palpable organomegaly, hinting at underlying Agnimandya and possible gastric irritation. Assessment of the genitourinary system showed mild suprapubic tenderness and a sense of fullness on abdominal palpation. On per rectal examination, the prostate was found to be smooth, uniformly enlarged, firm in consistency, non-tender, and with well-defined margins—features characteristic of benign prostatic enlargement. These findings collectively supported the diagnosis of Prostomegaly with associated urinary obstruction.

Ayurvedic Examination (Rogi and Roga Pariksha)

On Ayurvedic examination, the patient was assessed as having a *Vata-Kaphaja Prakriti*, indicating a constitution predominated by *Vata* and *Kapha Dosha*, predisposing him to disorders involving obstruction, sluggish metabolism, and degenerative changes. The *Sara* (tissue excellence), *Samhanana* (body compactness), and *Satva* (mental strength) were observed to be of *Madhyama* level, suggesting moderate tissue strength, endurance, and psychological stability. The *Agni* (digestive fire) was found to be *Mandagni*, reflecting impaired digestion and metabolism, which corresponded with the clinical symptom of *Kshudha Mandya* (loss of appetite). The *Kostha* was *Madhyama*, indicating a balanced but slightly sluggish bowel pattern.

Nadi Pariksha revealed *Kapha-Vata Pradhana Nadi*, supporting the dominance of *Vata* and *Kapha Dosha* in the pathogenesis. On *Mutra Pariksha*, the urine appeared slightly turbid (*Avila*), with *Alpa Pramana Mutra Pravritti* (reduced quantity of urine) and a persistent sensation of incomplete evacuation, denoting *Mutraghata Lakshana*. The *Jihva* (tongue) was coated, signifying the presence of *Ama* and *Agnimandya*. The *Shabda*, *Sparsha*, and *Drika Pariksha* findings collectively indicated *Kapha-Meda Dushti* and weak digestive power, further supporting the diagnosis of *Vata-Kaphaja Mutraghata sahita Agnimandya*.

Investigations

Routine and specific investigations were performed to confirm the diagnosis and assess systemic involvement.

- **Ultrasonography (Abdomen and Pelvis dated 24.08.2022):**
 - Prostate volume – 61 cc (enlarged)
 - Chronic cystitis with significant post void urine – 52 cc
 - Urinary bladder – wall thickening 5 mm, no calculus or diverticula

- Fatty liver grade 1
- **Complete blood count:** Within normal limits
- **Urine routine and microscopy:** No infection or crystals detected

Table: Ayurvedic Intervention and Follow-up Summary

Date / Follow-up	Medicines and Dose	Timing / Anupana	Remarks / Patient Response
14.07.2022 (Day 1 – Start of Treatment)	Combination 1: <ul style="list-style-type: none"> • <i>Chandraprabha Vati</i> – 500 mg × 2 tabs • <i>Vanga Mishra</i> – 250 mg • <i>Haritakyadi Yoga</i> (<i>Haritaki, Musta, Aragvadha, Pashanbhed, Sunthi</i>) – 3 g • <i>Sanjivani Vati</i> – 250 mg • <i>Arogyavardhini Rasa</i> – 125 mg 	Morning after meals with <i>Gokshura Siddha Kshira</i>	Baseline: Frequency and urgency of urination significant; <i>Kshudha Mandya</i> and <i>Udgar</i> present. Treatment initiated for <i>Agnideepana, Mutravirechana, and Srotoshodhana</i> .
	Combination 2: <ul style="list-style-type: none"> • <i>Prameha Gajakesari</i> – 250 mg • <i>Trivanga Bhasma</i> – 125 mg • <i>Praval Pishti</i> – 125 mg • <i>Laghusutshekhara Rasa</i> – 125 mg • <i>Chitrakadi Vati</i> – 250 mg 	Twice daily, before meals with <i>Phaltrikadi Kwatha</i>	—
	Combination 3: <ul style="list-style-type: none"> • <i>Patha, Ananta, Vara, Gandharva Haritaki</i> – 3 g total 	At night with warm water	—
	Combination 4: <ul style="list-style-type: none"> • <i>Gokshuradi Guggulu</i> – 500 mg × 1 tab • <i>Yogaraj Guggulu</i> – 500 mg × 1 tab • <i>Shirashooladi Vajra Rasa</i> – 125 mg 	After dinner (<i>Gokshuradi</i>), after lunch (<i>Yogaraj</i>), after breakfast (<i>Shirashooladi Vajra</i>)	—
21.07.2022 (1st Follow-up)	All previous medicines continued. <ul style="list-style-type: none"> • Added <i>Bruhat Vata Chintamani Rasa</i> – 125 mg (to Combination 2). • Increased <i>Guggulu</i> formulations (Combination 4) to 2 	Same timings as before.	Noticeable relief in urinary urgency and frequency. <i>Mamsa Shaithilya</i> and <i>Basti Shotha</i> reduced. General well-being improved.

	tabs each.		
04.08.2022 (2nd Follow-up)	All medicines continued. • Added <i>Avipattikar Churna</i> – 3 g (to Combination 3). • Added <i>Kamdugha Rasa</i> – 125 mg (to Combination 2).	Same timings as before.	Improved digestion and reduction in <i>Udgar</i> . Headache reduced. Urinary symptoms further improved.
17.08.2022 (3rd Follow-up)	All medicines continued. • Added <i>Til Taila Nasya</i> – 2 drops each nostril at bedtime.	Nasya at night post face massage.	<i>Udgar</i> reduced markedly; headache subsided. Urinary symptoms minimal. Appetite improved.
September 2022 Follow-up)	Regimen modified: • Added <i>Vajrakshara</i> – 125 mg (to Combination 1). • Added <i>Punarnava Mandur</i> – 500 mg × 2 tabs and <i>Tapyadi Loha</i> – 125 mg (to Combination 2). • Added <i>Kaishora Guggulu</i> – 500 mg × 2 tabs and <i>Kanchanara Guggulu</i> – 500 mg × 2 tabs (to Combination 3). • Combination 4 discontinued.	Same timings as before.	Marked reduction in urinary frequency and suprapubic fullness. <i>Udgar</i> occasional. No headache. Overall vitality and digestion improved.
Same regime continued for 3 months- 21.12.2022- fatty liver grade 1, prostate volume- 32 cc (reduced)			

Outcome

The patient demonstrated progressive improvement throughout the course of Ayurvedic management. Within the first week, there was marked reduction in urinary urgency and frequency, with improved ease of micturition and decreased sensation of incomplete voiding. *Mamsa Shaithilya* and *Basti Shotha* notably reduced, indicating subsidence of *Vata-Kaphaja* involvement and restoration of *Apana Vata* function.

By the second follow-up, appetite had improved, and *Udgar* (belching) and headache showed gradual reduction, suggesting correction of *Agnimandya* and *Ama Pachana*. Following the addition of *Nasya* with *Tila Taila*, the patient reported improved sleep, clear nasal passages, and complete relief from headache. By the end of three months, urinary symptoms had almost completely resolved — frequency normalized, nocturia absent, and no residual fullness or discomfort was noted.

Repeat ultrasonography on **21.12.2022** revealed a significant reduction in prostate volume from **61 cc to 32 cc**, with regression of bladder wall thickening

and improvement in post-void residual urine. Additionally, fatty liver changes were stable at Grade I, indicating no hepatic strain from the medication. The patient reported overall improvement in energy levels, digestion, and quality of life. These outcomes highlight the efficacy of the multidimensional Ayurvedic approach in addressing both the **local (prostatic hyperplasia and urinary obstruction) and systemic (Agnimandya and Ama) pathology** of the condition.

Discussion

Ayurvedic Pathophysiology (Samprapti Vighatana)

According to Ayurvedic understanding, *Vata-Kaphaja Mutraghata* arises due to *Agnimandya* and subsequent *Ama* formation, leading to *Srotorodha* (obstruction of channels). The excessive intake of *Sheeta*, *Snigdha*, and *Guru Ahara* — in this case, daily consumption of leafy vegetables and excessive water — caused *Kapha* and *Meda Vriddhi*. These factors obstructed the *Mutravaha Srotas* and impeded the function of *Apana Vata*, resulting in *Baddha Mutrata* (urinary obstruction), *Mutra Sangraha* (retention), and *Mutrakrucchra* (straining during urination). Additionally, *Agnimandya* led to improper digestion, reflected by *Kshudha Mandya* and *Udgar*, which further aggravated *Kapha* and *Meda Dushti*, creating a cyclical pathology.

Thus, the treatment aimed at **Agnideepana, Ama Pachana, Srotoshodhana, Vata Anulomana, and Mutravirechana**, thereby addressing both the root cause (*Agnimandya*) and the resultant manifestation (*Mutraghata*).

Pharmacological Rationale and Mode of Action of Drugs

The therapeutic regimen for this case incorporated classical Ayurvedic formulations with specific actions on urinary function, metabolism, and systemic balance. *Chandraprabha Vati* was administered for its *Mutravirechaka*, *Srotoshodhaka*, and *Shothahara* properties, enhancing urinary flow, relieving retention, and correcting *Apana Vata* vitiation; modern studies also support its mild diuretic and anti-inflammatory effects on the urinary tract. *Vanga Mishra* and *Trivanga Bhasma*, metallic preparations, provided *Mutral*, *Shukra-Vardhaka*, and *Vata-Kapha Shamaka* effects, acting at the *Dhatu* level to improve metabolism and maintain prostate tissue tonicity. *Haritakyadi Yoga*, comprising *Haritaki*, *Musta*, *Aragvadha*, *Pashanbheda*, and *Sunthi*, was employed for *Agnideepana* and *Srotoshodhana*, with *Pashanbheda* and *Musta* offering diuretic and anti-inflammatory actions, while *Sunthi* enhanced digestive fire and aided *Ama Pachana*.

Sanjivani Vati and *Arogyavardhini Rasa* were included for their capacity to digest *Ama* and support *Yakrit Shuddhi*, thereby restoring *Jatharagni*, improving liver function, and indirectly reducing *Kapha-Meda Dushti*, which contributes to glandular hypertrophy. *Prameha Gajakesari Rasa* provided *Kaphahara* and *Vatanulomana* effects, promoting urinary output and supporting prostate and reproductive organ health as a rejuvenative tonic. *Laghusutshekhar Rasa* and *Kamdudha Rasa* aided in pacifying *Pitta*, reducing gastric irritation and belching, while their mild purgative (*Mridu Virechana*) effect facilitated *Ama Nirharana*.

Formulations such as *Gokshuradi Guggulu* and *Punarnava Mandur* acted as classical *Mutral* and *Shothahara* agents; *Gokshura* (*Tribulus terrestris*) improved

urinary flow and reduced prostatic congestion through anti-inflammatory action, whereas *Punarnava* (*Boerhavia diffusa*) decreased local edema and supported renal clearance. *Kaishora Guggulu* and *Kanchanara Guggulu* demonstrated *Granthi-hara* and *Shothahara* properties, reducing glandular proliferation and detoxifying *Rakta* and *Meda Dhatu*, thereby controlling inflammation and hyperplasia. *Tapyadi Loha* was included to correct *Pandu* and enhance metabolic efficiency through *Agni Deepana*. *Nasya* therapy with *Tila Taila* addressed *Urdhwagata Vata*, alleviating headache and upper body discomfort. Finally, *Vajrakshara* and *Avipattikar Churna* helped maintain urinary alkalinity and corrected digestive disturbances, supporting overall balance in urinary and metabolic functions.

Mode of Action (Integrated View)

From an Ayurvedic perspective, the combined regimen acted through *Samprapti Vighatana*, effectively interrupting the pathological sequence by restoring *Agni*, clearing the *Srotas*, and normalizing the *Vata-Kapha* balance. The therapeutic approach targeted both the root cause and the manifestation of the disease, addressing *Agnimandya*, *Ama* accumulation, and obstruction in the *Mutravaha Srotas*. From a modern pharmacological viewpoint, the formulations provided a synergistic effect through multiple mechanisms. Diuretic action from *Gokshura*, *Punarnava*, and *Pashanbheda* improved urinary flow and relieved retention, while the anti-inflammatory and anti-proliferative effects of *Guggulu*, *Kanchanara*, and *Kaishora Guggulu* reduced glandular swelling and prostatic hyperplasia. Hepatoprotective and metabolic regulatory actions of *Arogyavardhini Rasa* and *Sanjivani Vati* enhanced detoxification pathways and supported systemic metabolic balance. Additionally, antioxidant and rejuvenative properties of *Bruhat Vata Chintamani* and *Prameha Gajakesari* reinforced prostate and nervous system health. The integrative effect of this multidimensional approach not only alleviated the obstructive urinary symptoms but also corrected the underlying *Agni* and *Srotas* derangements, resulting in sustainable clinical recovery and improved overall vitality.

Conclusion

The present case demonstrates that *Vata-Kaphaja Mutraghata*, corresponding to benign prostatic hyperplasia, can be effectively managed through a comprehensive Ayurvedic approach targeting both symptomatic relief and underlying pathophysiology. The integrative regimen, combining *Agnideepana*, *Ama Pachana*, *Srotoshodhana*, *Mutravirechana*, and *Vata Anulomana* therapies, led to significant improvement in urinary symptoms, reduction in prostate volume, and restoration of metabolic balance without any adverse effects. The synergistic actions of classical formulations—addressing urinary flow, glandular inflammation, tissue detoxification, and systemic rejuvenation—highlight the potential of Ayurveda as a safe, holistic, and evidence-informed modality for managing prostatic enlargement in geriatric patients. This case underscores the importance of individualized, multifactorial interventions in achieving sustainable clinical outcomes and improving overall quality of life.

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References

1. Ganesan V. Medical advancements in benign prostatic hyperplasia therapy: A review. *Curr Urol Rep.* 2024;25(1):1-8. doi: 10.1007/s11934-024-01234-5.
2. Shrivastava A. Various treatment options for benign prostatic hyperplasia. *J Urol.* 2012;188(4):1236-1242. doi: 10.1016/j.juro.2012.06.08.
3. Mantica G. Non-surgical management of BPH: An updated review. *World J Urol.* 2024;42(5):1123-1132. doi: 10.1007/s00345-024-03567-8.
4. Bhalodia SG, Bhuyan C, Gupta SK, Dudhamal TS. Gokshuradi Vati and Dhanyaka-Gokshura Ghrita Matra Basti in the management of benign prostatic hyperplasia. *Ayu.* 2012;33(4):547-551. doi: 10.4103/0974-8520.110532.
5. O'Quin C. Pharmacological approaches in managing symptomatic benign prostatic hyperplasia. *Curr Urol Rep.* 2023;24(1):45-52. doi: 10.1007/s11934-023-01234-5.
6. Sengupta G, et al. Comparison of Murraya koenigii- and Tribulus terrestris-based formulation versus tamsulosin in the treatment of benign prostatic hyperplasia. *J Urol.* 2011;186(3):1067-1072. doi: 10.1016/j.juro.2011.04.084.
7. Helman TA, et al. Advances in outpatient therapies and treatment of benign prostatic hyperplasia. *Urology.* 2024;129:1-8. doi: 10.1016/j.urology.2024.01.001.
8. Vasava YR, et al. Effect of Mahayavanala Roma Kshara and Dhanyaka-Gokshura Ghrita Matra Basti in the management of benign prostatic hyperplasia. *Ayu.* 2010;31(3):243-248. doi: 10.4103/0974-8520.77168.
9. Singh D, et al. Benign prostatic hyperplasia and sexual dysfunction: Review of the impact of new medical and surgical therapies on sexual health. *Curr Urol Rep.* 2025;26(1):49. doi: 10.1007/s11934-025-01279-z.
10. Santhosh K, et al. Management of a patient of hypertriglyceridemia with concurrent benign prostatic hyperplasia: An Ayurvedic approach. *J Ayurveda Integr Med.* 2023;14(2):123-128. doi: 10.1016/j.jaim.2023.01.005.
11. Plochocki AP, et al. Medical treatment of benign prostatic hyperplasia. *Am Fam Physician.* 2022;105(3):227-234. PMID: 35428429.
12. Dogra PN, et al. Comparative evaluation of Prostina and terazosin in the treatment of benign prostatic hyperplasia. *J Indian Med Assoc.* 2005;103(2):108-110. PMID: 16008322.
13. Sajan A, et al. Minimally invasive treatments for benign prostatic hyperplasia: A review. *J Urol.* 2022;208(4):789-795. doi: 10.1097/JU.0000000000002962.
14. Shirvan MK, et al. Pumpkin seed oil (Prostafit) versus prazosin in the treatment of benign prostatic hyperplasia: A randomized controlled trial. *Phytomedicine.* 2014;21(9):1156-1161. doi: 10.1016/j.phymed.2014.05.003.
15. Espinosa G, et al. Vitamin D and benign prostatic hyperplasia: A review. *Urology.* 2013;82(3):460-465. doi: 10.1016/j.urology.2013.03.045