

Canadian **U**rological Association
*The Voice of Urology in **Canada***



Association des **U**rologues du Canada
*La voix de l'urologie au **Canada***

Diagnosis and management of BPH

Speaker

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Disclosures

Speaker	Advisory Boards	Speaker's Bureau	Payment/Honoraria	Grants/Research Support	Clinical Trials	Investments	Patents
Naeem Bhojani	Boston Scientific Olympus Procept	-----	-----	Boston Scientific	Procept: Water II study	-----	-----



Learning Objectives

As a result of attending this session, participants will be able to:

- Understand the work up for a patient suffering from BPH
- Determine best management for patients suffering from BPH
- Elucidate novel surgical management options for BPH patients



Male LUTS is a growing international burden

- *These data represent prompted self-reported LUTS in men. LUTS, lower urinary tract symptoms.
Irwin DE, et al. *BJU Int.* 2011;108:1132–1139.



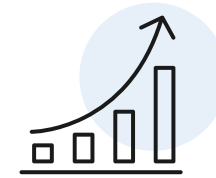
45%

of adult men
have reported
experiencing LUTS



930 million

men worldwide were
estimated to be suffering
from LUTS in 2008

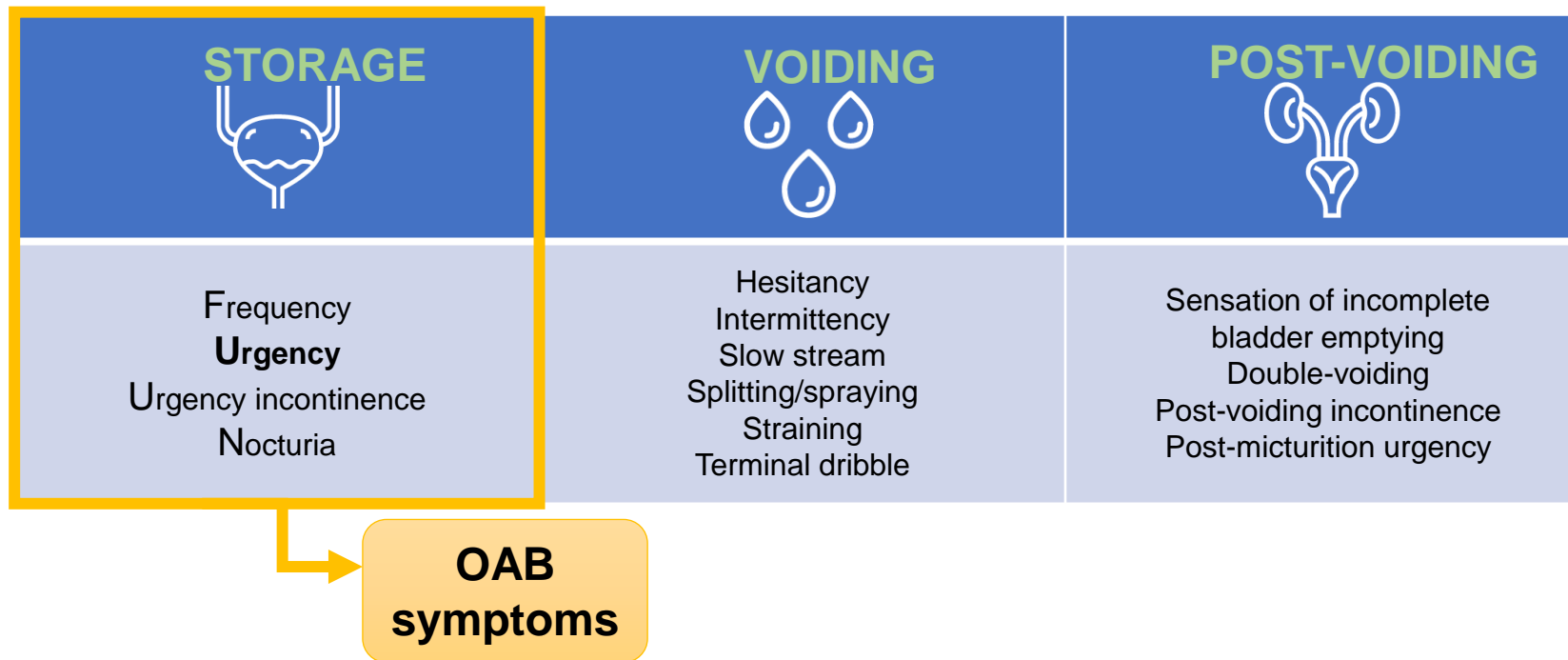


1.1 billion

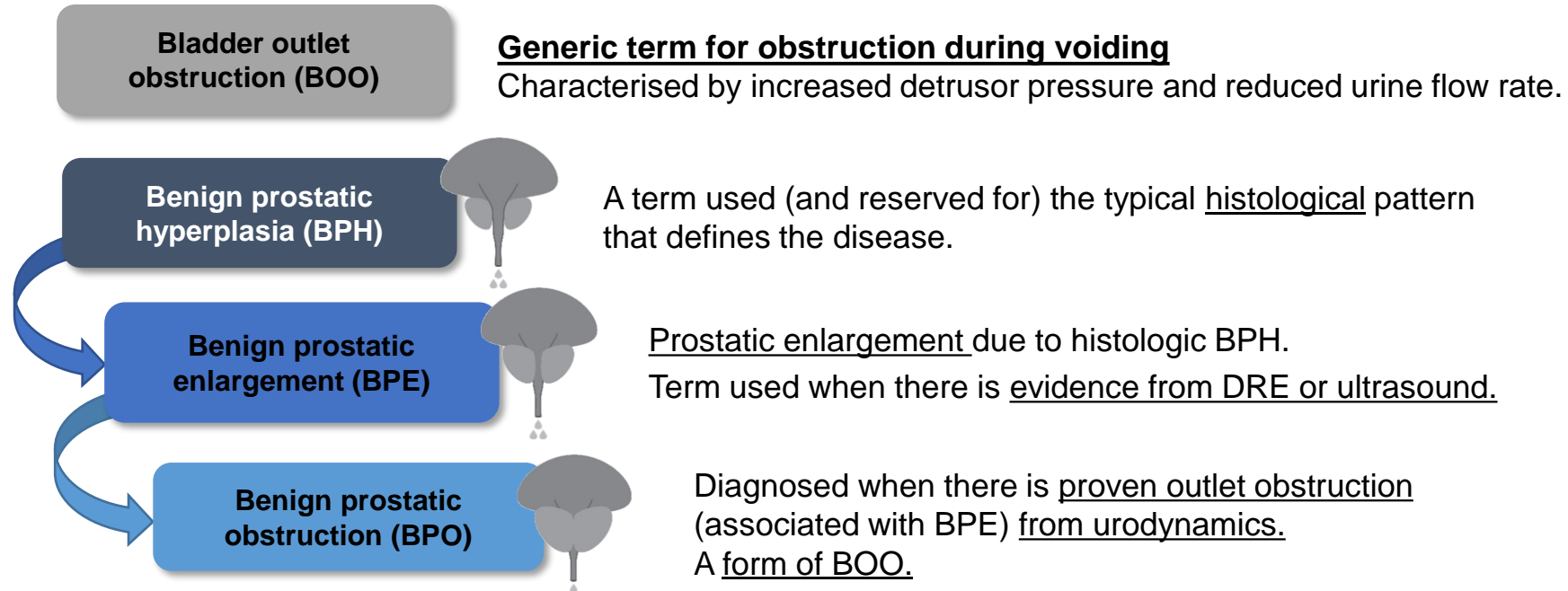
men, at least, were
expected to experience
LUTS by 2018 (10-year
growth)

Lower urinary tract symptoms

- D'Ancona C, et al. *Neurourol Urodyn*. 2019;38:433–477.

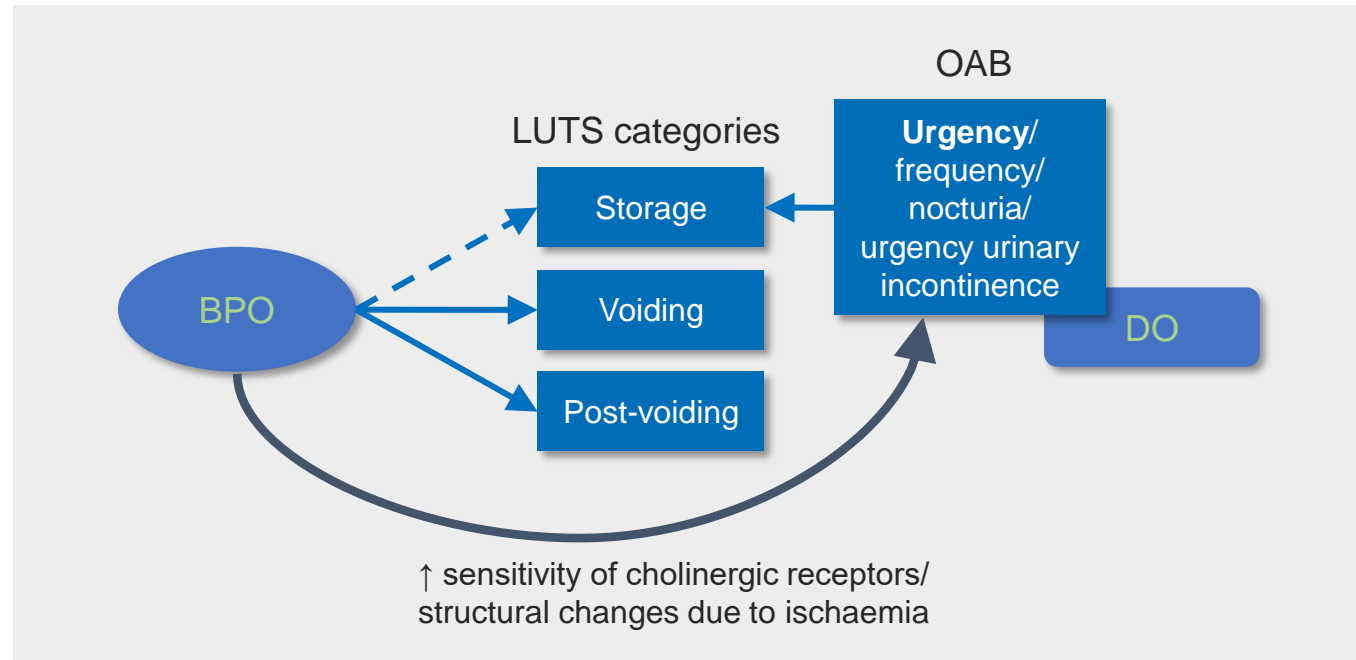


What effect can the prostate have?



- DRE, digital rectal examination.
Abrams P, et al. *Urology*. 2003;61:37–49.

The relationships between BPO, OAB and male LUTS



- BPH, benign prostatic hyperplasia; BPO, benign prostatic obstruction; DO, detrusor overactivity; LUTS, lower urinary tract symptoms. Adapted from Athanasopoulos A, *et al. Eur Urol.* 2011;60:94–105.

CUA GUIDELINE

Canadian Urological Association guideline on male lower urinary tract symptoms/benign prostatic hyperplasia (MLUTS/BPH): 2018 update

J. Curtis Nickel, MD¹; Lorne Aaron, MD²; Jack Barkin, MD³; Dean Elterman, MD⁴; Mahmoud Nachabé, MD²; Kevin C. Zorn, MD⁵



CUA guidelines

- Initial evaluation
 - History
 - Physical examination
 - Urinalysis
- Recommended
 - Symptom inventory
 - IPSS (International prostate symptom score)
 - PSA?
- Optional
 - Serum creatinine
 - Urine cytology
 - Uroflow
 - Post void residual volume
 - Voiding diary

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International Prostate Symptom Score (I-PSS)

Patient Name: _____ Date of birth: _____ Date completed: _____

In the past month:	Not at All	Less than 1 in 5 Times	Less than Half the Time	About Half the Time	More than Half the Time	Almost Always	Your score
1. Incomplete Emptying How often have you had the sensation of not emptying your bladder?	0	1	2	3	4	5	
2. Frequency How often have you had to urinate less than every two hours?	0	1	2	3	4	5	
3. Intermittency How often have you found you stopped and started again several times when you urinated?	0	1	2	3	4	5	
4. Urgency How often have you found it difficult to postpone urination?	0	1	2	3	4	5	
5. Weak Stream How often have you had a weak urinary stream?	0	1	2	3	4	5	
6. Straining How often have you had to strain to start urination?	0	1	2	3	4	5	
	None	1 Time	2 Times	3 Times	4 Times	5 Times	
7. Nocturia How many times did you typically get up at night to urinate?	0	1	2	3	4	5	
Total I-PSS Score							

Score: 1-7: *Mild* 8-19: *Moderate* 20-35: *Severe*

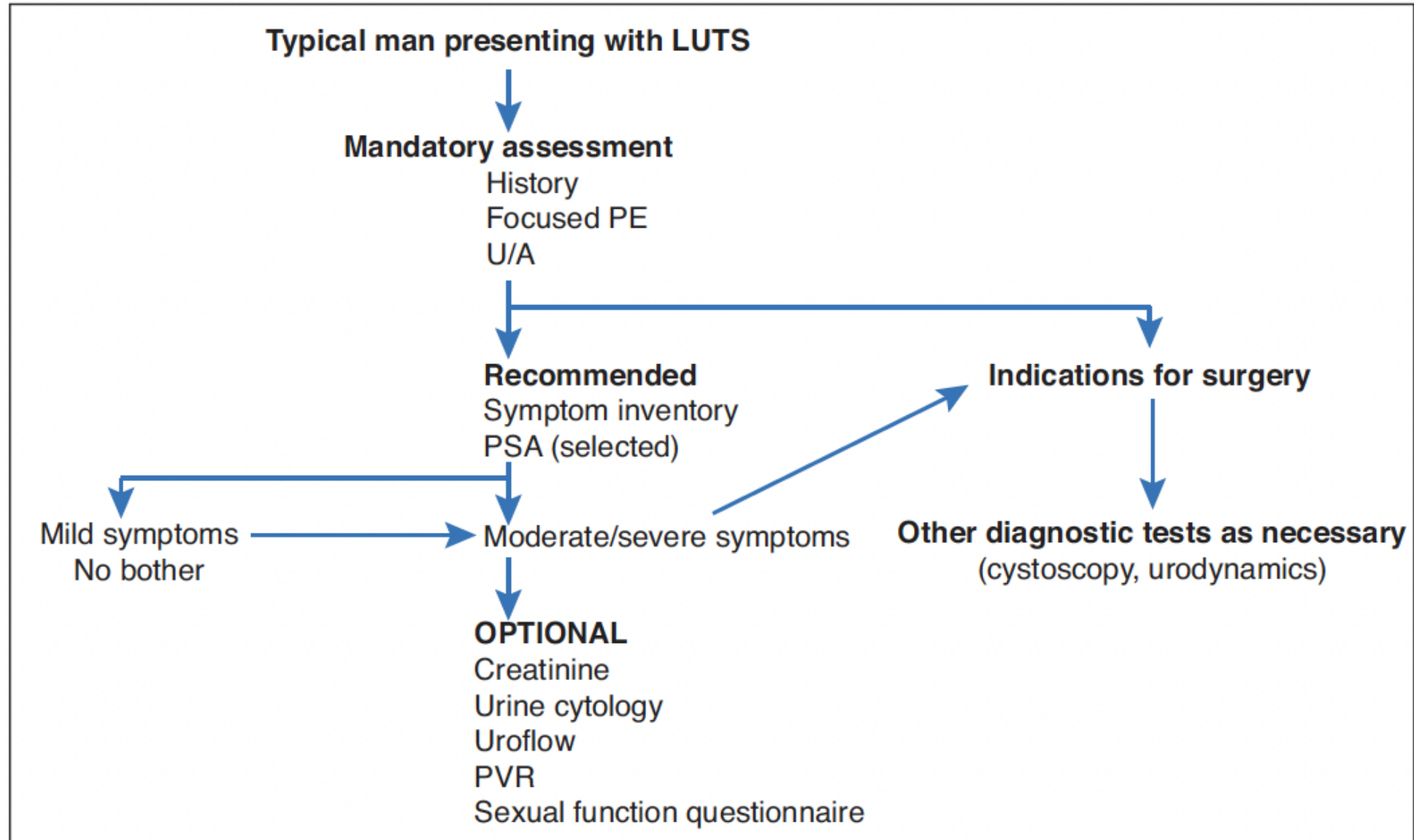
Quality of Life Due to Urinary Symptoms	Delighted	Pleased	Mostly Satisfied	Mixed	Mostly Dissatisfied	Unhappy	Terrible
If you were to spend the rest of your life with your urinary condition just the way it is now, how would you feel about that?	0	1	2	3	4	5	6

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Nickel, J. C., et al. (2018). Canadian Urological Association guideline on male lower urinary tract symptoms/benign prostatic hyperplasia (MLUTS/BPH): 2018 update. *Canadian Urological Association Journal*, 12(10). <https://doi.org/10.5489/cuaj.5616>

Principals of Treatment

Principles of treatment

- Guided by
 - Severity of symptoms
 - Degree of bother
 - Patient preference

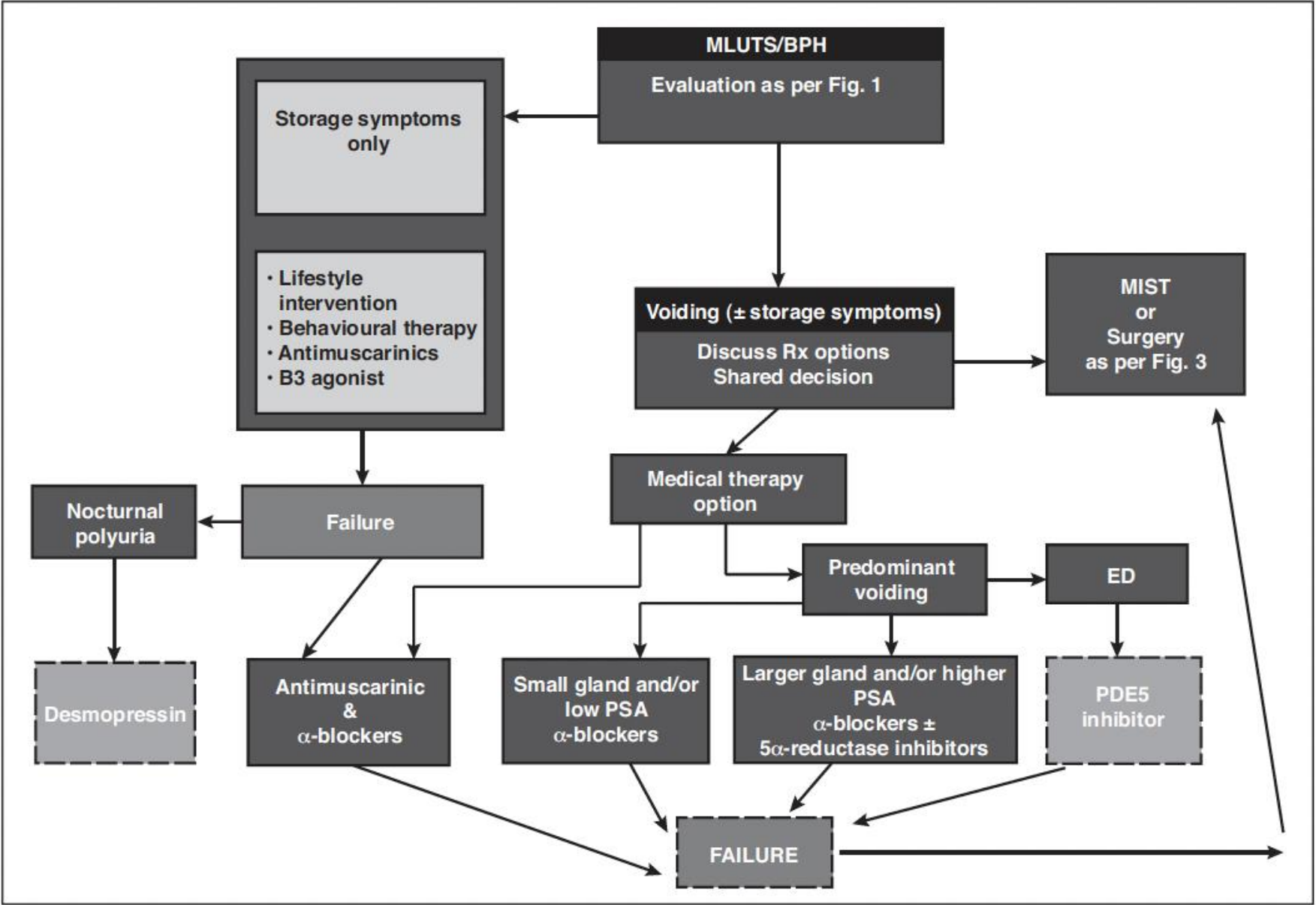
Lifestyle changes

- Fluid restriction
 - Especially prior to bedtime
- Avoidance of caffeinated beverages, alcohol
- Avoidance/monitoring of some drugs
 - Diuretics, decongestants, antihistamines, antidepressants
- Timed or organized voiding (bladder retraining)
- Avoidance or treatment of constipation
- Weight loss and prevention or treatment of conditions associated with metabolic syndrome
- Pelvic floor physical therapy

Medical therapy

Medical therapy

- Alpha blocker
- 5-alpha reductase inhibitor
- Combination
- Phosphodiesterase type 5 inhibitors
- Antimuscarinic/beta 3 agonist
- Desmopressin



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Medical Treatment for BPH-LUTS

- Alpha Blockers

- Do not alter the natural progression of the disease
- Most common adverse effect is dizziness (2–10%)
- Retrograde ejaculation
- Alfuzosin (10mg), Tamsulosin 0.4mg), Silodosin (8mg)
- Guideline: **STRONG** recommendation as an excellent first-line therapeutic option for men with symptomatic bother who desire treatment

Bozlu M, Ulusoy E, Cayan S, et al. A comparison of four different alpha 1-blockers in benign prostatic hyperplasia patients with and without diabetes. *Scand J Urol Nephrol* 2004;38:391-5. <https://doi.org/10.1080/00365590410015678>



Medical Treatment for BPH-LUTS

- 5 alpha reductase inhibitors

- Alter the natural progression of the disease (acute urinary retention & surgery)
- Efficacy is noted in patients with a prostate volume >30 cc (and/or PSA levels >1.5 ng/ml) → 25-30% shrinkage
- Side effects: erectile dysfunction (9%), decreased libido (6%), ejaculation disorders (2%), and rarely, gynecomastia (2.8%)
- Guideline: **STRONG** recommendation for men with enlarged prostates

Trost L, Saitz TR, Hellstrom WJ. Side Effects of 5-Alpha Reductase Inhibitors: A Comprehensive Review. Sex Med Rev. 2013 May;1(1):24-41. doi: 10.1002/smrj.3. Epub 2015 Oct 21. PMID: 27784557.



Medical Treatment for BPH-LUTS

- Combination (alpha blocker and 5ARI)
 - Clinical trial results have shown that combination therapy significantly improves symptom score and peak urinary flow compared with either of the monotherapy options.
 - Decreased risk of urinary retention and/or prostate surgery but
 - Additive side effects (ejaculatory disturbances)
 - Guideline: **STRONG** recommendation for men with enlarged prostates
 - Discontinuing the alpha blocker after 6-9 months of combination therapy is appropriate

McConnell JD, Roehrborn CG, Oliver OM, et al for the MTOPS Research Group. The long term effect of doxazosin, finasteride and combination therapy on the clinical progression of benign prostatic hyperplasia. *N Engl J Med* 2003;349:2385-96. <https://doi.org/10.1056/NEJMoa030656>



Medical Treatment for BPH-LUTS

- PDE5 inhibitors

- Tadalafil 5 mg daily, due to its longer half-life, is approved for male LUTS.
- Studies have shown improvements in IPSS, storage and voiding symptoms, and quality of life
- Recommend long-acting PDE5Is particularly men with both MLUTS and erectile dysfunction

Gacci M, Corona G, Salvi M, et al. A systematic review and meta-analysis on the use of phosphodiesterase 5 inhibitors alone or in combination with α -blockers for lower urinary tract symptoms due to benign prostatic hyperplasia. Eur Urol 2012 May;61(5):994-1003. [https:// doi: 10.1016/j.eururo.2012.02.033](https://doi.org/10.1016/j.eururo.2012.02.033)

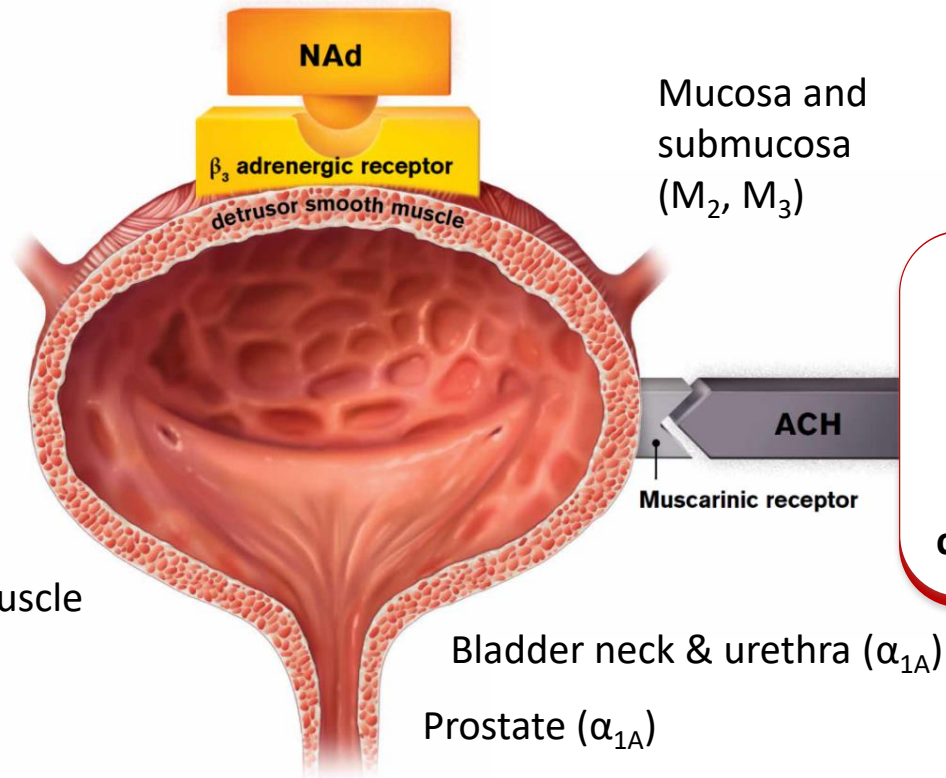


Bladder Functioning Involves Both The Muscarinic And B-3 Adrenergic Receptors

M = muscarinic
 α = α_1 and α_2 -adrenergic
 β = β_3 -adrenergic
NAd = noradrenaline
ACH = acetylcholine

STORAGE PHASE
Sympathetic nerves
release NAd, activating
 β -adrenoceptors to
relax the bladder

Detrusor muscle
(M_2 , M_3 , β_3)



VOIDING PHASE
Parasympathetic
nerves release
ACH, activating
M receptors to
contract the bladder

Bladder neck & urethra (α_{1A})
Prostate (α_{1A})

In OAB, the bladder leaves the storage phase by suddenly and involuntarily contracting.

Medical Treatment for BPH-LUTS

- Antimuscarinic and Beta-3 Agonist
 - Storage symptoms (urgency, frequency, nocturia) are a bothersome component of MLUTS
 - Low rates of urinary retention
 - Caution used in elderly men and bladder outlet obstruction (BOO) (with post void residual >250–300 cc)
 - Suggest AM or B-3 useful therapies in MLUTS with caution in those with significant BOO and/or PVR

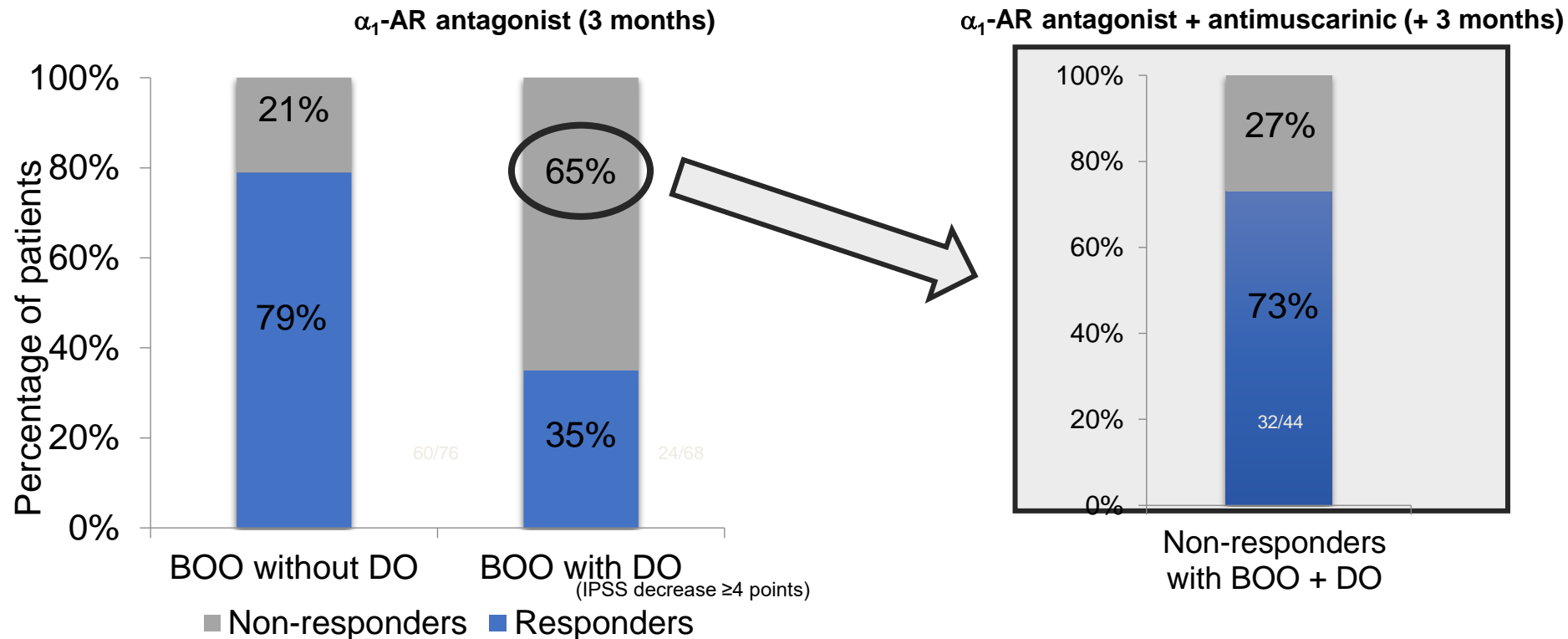
Tubaro A, Batista JE, Nitti VW, et al. Efficacy and safety of daily mirabegron 50 mg in male patients with overactive bladder: A critical analysis of five phase 3 studies. *Ther Adv Urol* 2017;10;9:137-54. <https://doi.org/10.1177/1756287217702797>

Kaplan SA, Herschorn S, McVary KT, et al. Efficacy and Safety of Mirabegron versus Placebo Add-On Therapy in Men with Overactive Bladder Symptoms Receiving Tamsulosin for Underlying Benign Prostatic Hyperplasia: A Randomized, Phase 4 Study (PLUS). *J Urol* 2020 Jun; 203(6):1163-1171. <https://doi.org/10.1097/JU.0000000000000738>

Chapple C, Herschorn S, Abrams P, et al. Tolterodine treatment improves storage symptoms suggestive of overactive bladder in men treated with alpha-blockers. *Eur Urol* 2009 Sep;56(3):534-41. <https://doi.org/10.1016/j.eururo.2008.11.026>



α_1 -adrenergic receptor antagonist monotherapy is not sufficient in all men with LUTS

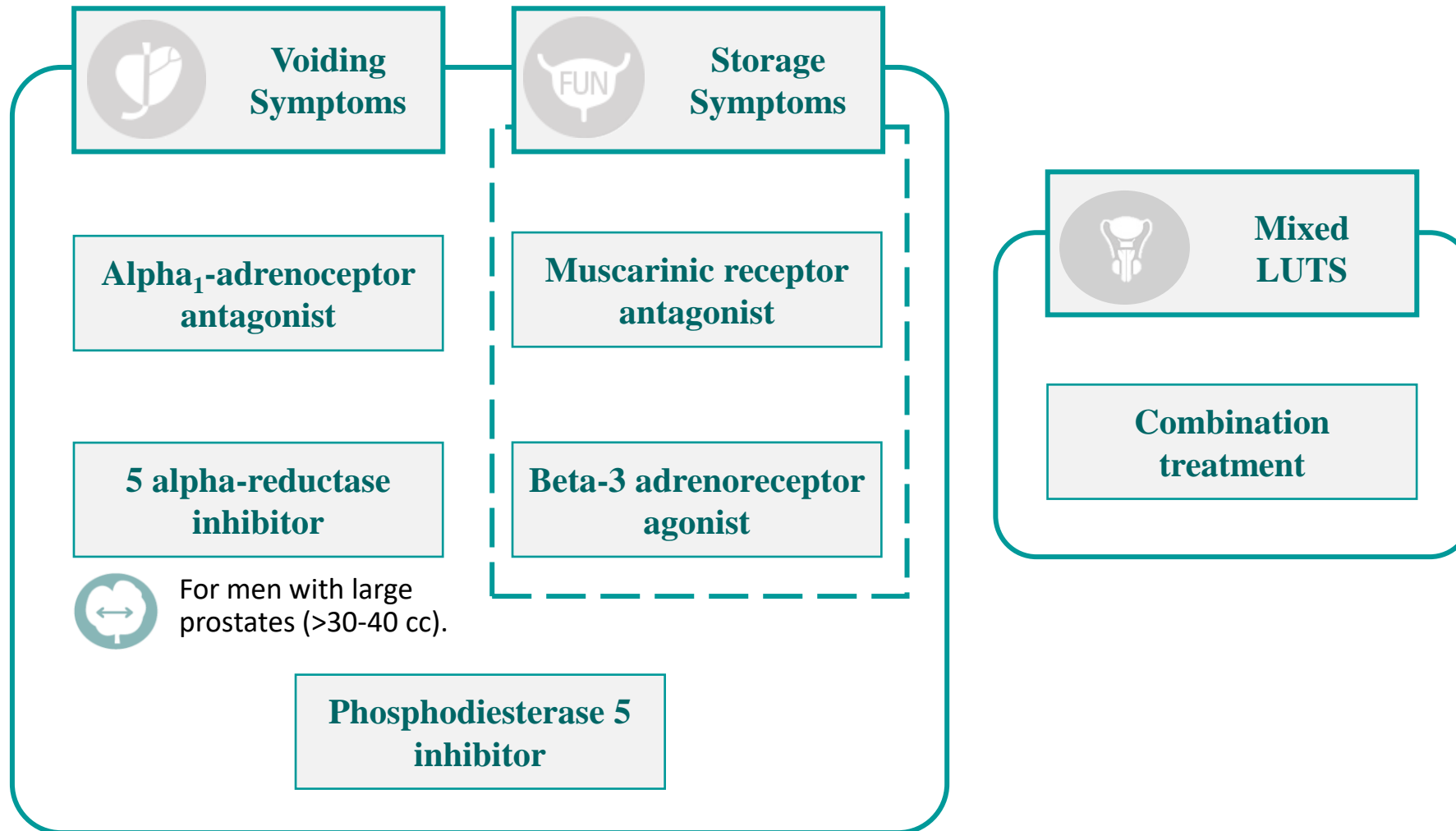


Medical Treatment for BPH-LUTS

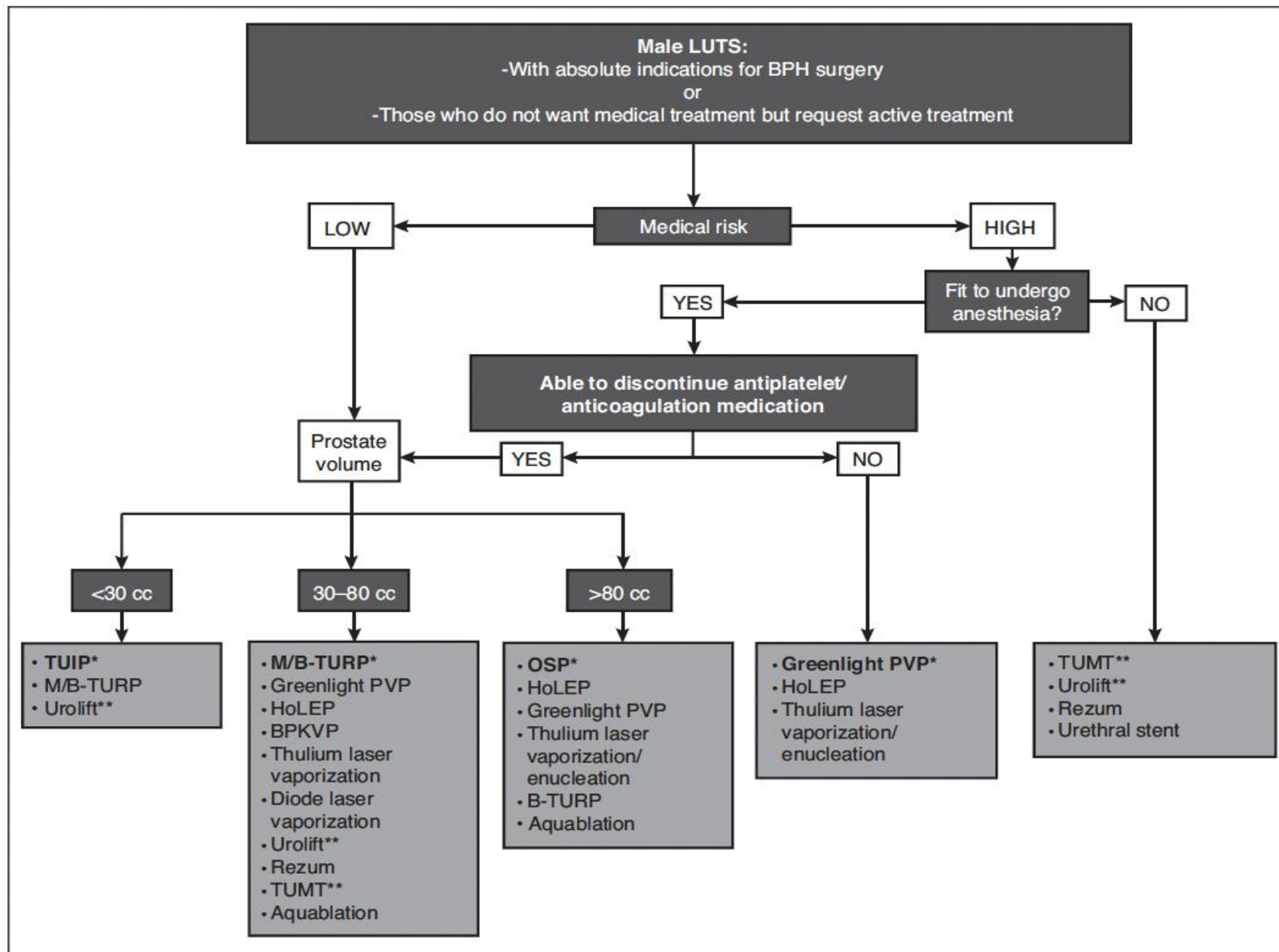
- Desmopressin

- Synthetic analogue of the antidiuretic hormone, arginine vasopressin (AVP)
- Reduces total nocturnal voids
- Increases hours of undisturbed sleep by reducing urine production
- Low risk of hyponatremia when baseline sodium is normal
- Sodium must be checked at baseline, at 4-8 days and at 30 days after initiation of treatment

Summary of key treatment recommendations for men



Surgical therapy



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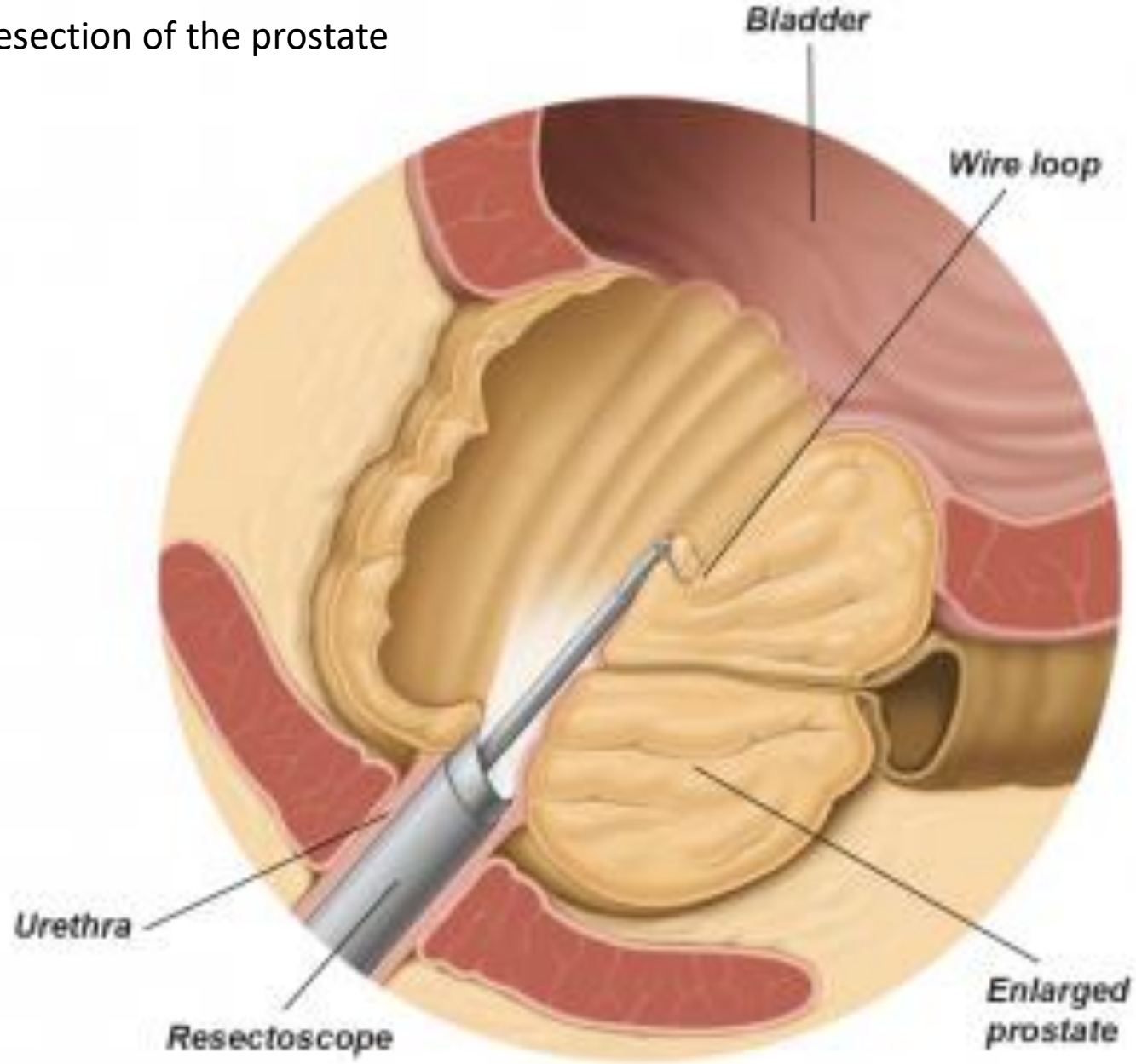
*Current standard/first choice.

**Must exclude the presence of a middle lobe.

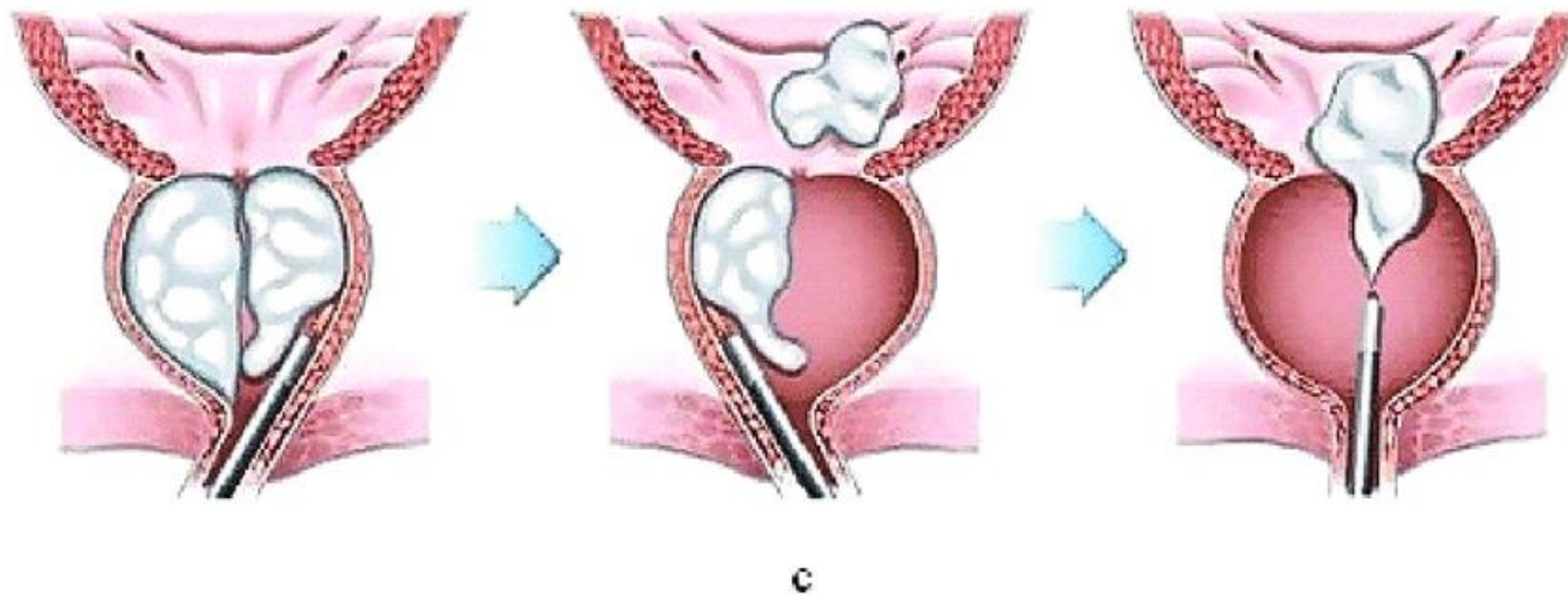
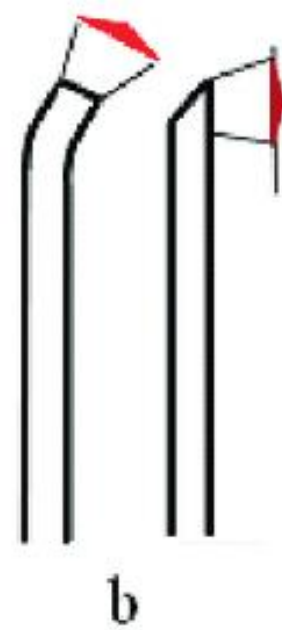
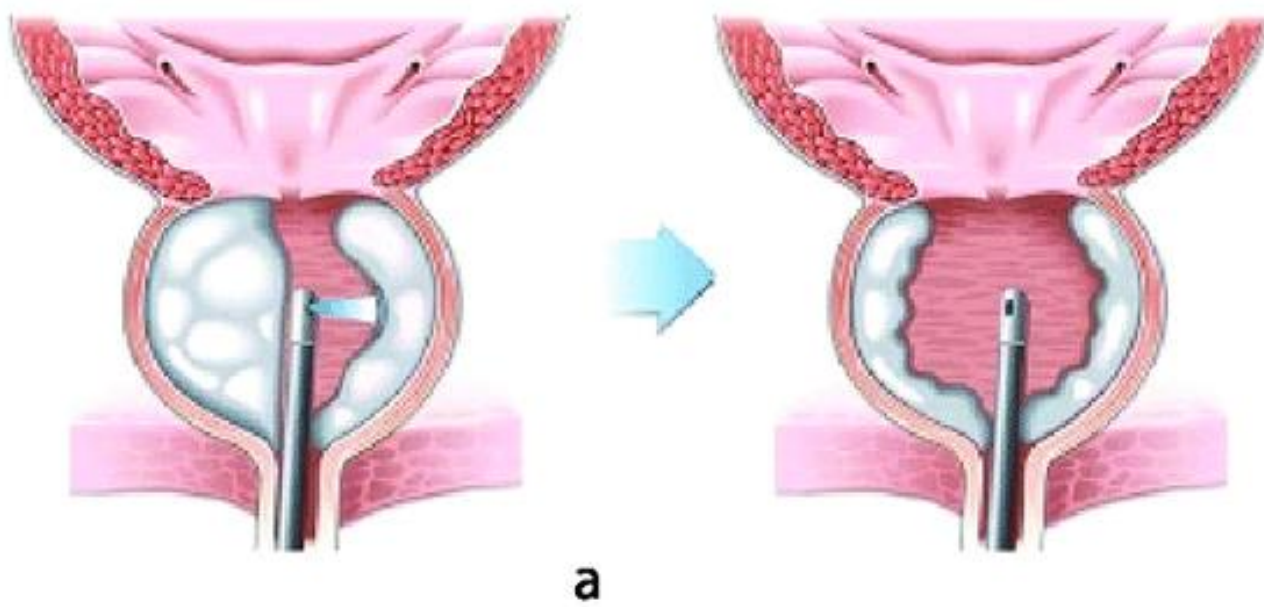
Evolution

- Monopolar turp
- Open simple prostatectomy
- MONOPOLAR TURP
- OPEN SIMPLE PROSTATECTOMY
- BIPOLAR TURP
 - BUTTON
- UROLIFT
- REZUM
- HOLEP
 - BIPOLAR ENUCLEATION
 - GREENLIGHT ENUCLEATION
 - THULIUM FIBER LASER ENUCLEATION
- GREENLIGHT VAPORIZATION
- AQUABLATION
- ROBOTIC SIMPLE PROSTATECTOMY

Monopolar transurethral resection of the prostate



Vaporization vs Enucleation



Enucleation



Summary

- CUA BPH guidelines
 - Storage vs voiding sx
- Medical management still effective
- Significant evolution in the surgical management of BPH
 - Now many more options than ever before
 - Surgery can now be made to measure



Thank you



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