ISSN: 0975-833X

Available online at http://www.journalcra.com

International Journal of Current Research
Vol. 15, Issue, 01, pp.23540-23545, January, 2023
DOI: https://doi.org/10.24941/ijcr.44740.01.2023

INTERNATIONAL JOURNAL OF CURRENT RESEARCH

RESEARCH ARTICLE

GREEN LIGHT HPS LASER VS TRANSURETHRAL RESECTION OF THE PROSTATE FOR THE TREATMENT OF BENIGN PROSTATIC HYPERPLASIA

[1]Dr. Vineet Ajitsaria, [2]Dr. Pankaj Babubhai Patel, [3]Dr. Hardik jagdishkumar Yadav, [4]Dr. Ishan P Shah and [5,*]Dr. Kalgi Shah MD Medicine

[1]Assistant Professor in Department of Surgery Nootan Medical College & Research Institute, Visnagar; [2]Assistant Professor In General Surgery Nootan Medical College And Research Center Visnagar; [3]Consulting Urologist; [4]Head-Clinical Operations, PhD scholar Nootan Medical College & Research Institute, Visnagar; [5]Associate Professor Department of medicine Nootan Medical College & Research Institute, Visnagar

ARTICLE INFO

Article History:
Received 14th October, 2022
Received in revised form
17th November, 2022
Accepted 19th December, 2022
Published online 30th January, 2023

Key words:
BPH, TURP, PVP.

**Corresponding Author:*
Dr. Kalgi Shah MD Medicine

ABSTRACT

Background: BPH is the major etiology of lower urinary tract symptoms (LUTS) in men >50 years of age**.** In our study, we described our institutional prospective study comparing the efficacy and outcomes of Greenlight laser photovaporisation of prostate (PVP) and transurethral resection of prostate (TURP) for the treatment of benign prostatic hyperplasia (BPH). **Aims and objectives:** To study and compare prospectively, study complications & their management and surgical treatments modalities in high risk patients outcome ofPVP and TURP. **Materials and methods:** The prospective study was conducted between September 2019 and August 2022, at department of Surgery, Nootan Medical College & Research Centre, Visnagar**.** A total of 150 patients with BPH were enrolled in the study. 75 patients underwent PVP and 75 patients underwent TURP. Out of 75 TURP patients, 38 patients underwent monopolar TURP and rest 37 underwent bipolar TURP. **Results and discussion:** Average age for PVP is 67.9 years, 64.02 years for monopolar TURP is and 66.15 years for bipolar TURP. Mean operative time for PVP is 46.68 min, 38.55 min for monopolar TURP and 38.37minfor bipolar TURP. Transient dysuria is found in 6% in PVP, 1% in monopolar and 0% in bipolar, TUR syndrome and blood transfusion is 0% in patients undergoing PVP. **Conclusions:** PVP might be considered as safe and effective surgical procedure for the treatment of patients with BPH at high risk such as heart disease, diabetes mellitus, hypertension, COPD and cerebrovascular accident. Duration of surgery is longer in PVP but complications such as TUR syndrome, blood transfusion, capsular perforations, clot retention and urethral stricture are lower in PVP

Citation: ***Dr. Vineet Ajitsaria, Dr. Pankaj Babubhai Patel, Dr. Hardik jagdishkumar Yadav, et al.*** **2023.** "Green light hps laser vs. transurethral resection of the prostate for the treatment of benign prostatic hyperplasia*". International Journal of Current Research*, 15, (01), 23540-23545.

INTRODUCTION

Benign prostatic hyperplasia (BPH) is a highly prevalent disease afflicting mankind. BPH is the major etiology of lower urinary tract symptoms (LUTS) in men >50 years of age. These symptoms are usually assessed by the International Prostate Symptom Score (IPSS) and associated with a variable degree of bother. Pharmacologic treatment should be routinely discussed with patients who have moderate-to severe symptoms (IPSS ≥8), bothersome symptoms, or both, with attention to the benefits and risks of various options.[1] Surgical therapy, aiming at relieving obstruction, is indicated after the failure of maximal drug therapy or with complications of the disease. According to the European Association of Urology (EAU)- guidelines[1] surgical treatment is usually required when patients have experienced

- Recurrent or refractory urinary retention,
- Overflow incontinence,
- Recurrent UTIs,
- Bladder stones or diverticula,
- Treatment-resistant macroscopic hematuria due to BPH/BPE
- Dilatation of the upper urinary tract due to benign prostatic obstruction (BPO), with or without renal insufficiency.
- Surgery is usually needed when patients have not obtained adequate relief from LUTS or PVR using conservative or medical treatments.

Transurethral resection of the prostate (TURP) has been the gold standard to treat lower urinary tract symptoms (LUTS) secondary to benign prostatic hyperplasia (BPH). However, recent innovations in energy-based interventions have provided alternative treatment options for patients with BPH and may have clinical and economic benefits when compared to TURP. Among these technologies, the potassium-titanyl-phosphate laser, which permits the photoselective vaporization of the prostate (PVP), has the potential to be cost-effective compared to TURP; it appears to provide similar outcomes and can be performed in an outpatient setting. In our study, we described our institutional prospective study comparing the efficacy and outcomes of Greenlight laser photovaporisation of prostate (PVP) and transurethral resection of prostate (TURP) for the treatment of benign prostatic hyperplasia (BPH). In our study, we described our institutional prospective study comparing the efficacy and outcomes of Greenlight laser photovaporisation of prostate (PVP) and transurethral resection of prostate (TURP) for the treatment of benign prostatic hyperplasia (BPH).

AIMS AND OBJECTIVES

- To study and compare prospectively outcome of two approaches of treatment Greenlight laser photovaporisation of prostate (PVP) and transurethral resection of prostate (TURP) for the treatment of benign prostatic hyperplasia (BPH)
- To study complications & their management occurring after PVP and TURP.
- To compare Greenlight 120-W photoselective vaporization (PVP) and transurethral resection of prostate as surgical treatments modalities in high risk patients

MATERIALS AND METHODS

STUDY DESIGN AND POPULATION: The study was conducted between September 2019 and August 2022, at department of Surgery, Nootan Medical College & Research Centre, Visnagar

Study Type:

This was a prospective, randomized comparative study and comprised of two groups of patients:

Group 1 - Who underwent Green light HPS Laser Photoselective vaporization of prostate.
Group 2 - Who underwent TURP (monopolar or bipolar TURP).

INCLUSION CRITERIA: Diagnosed with symptomatic/obstructive symptoms secondary to BPH requiring surgical intervention. Had prostate specific antigen (PSA) normal for age group or with a negative TRUS-guided biopsy if PSA is elevated. IPSS value > 19 Peak urinary flow < 15 mL/sec on minimum of 125 mL voided volume. Willing and able to comply with all follow-up requirements including multiple follow-up visits.

EXCLUSION CRITERIA: Neurogenic bladder disorder. Urethral strictures. History of prostate adenocarcinoma or Any previous prostatic, bladder neck or urethral surgery.

Sample size – A total of 150 patients with BPH were enrolled in the study. 75 patients underwent PVP and 75 patients underwent TURP. Out of 75 TURP patients, 38 patients underwent monopolar TURP and rest 37 underwent bipolar TURP.

OBSERVATIONS AND RESULTS

Demographic factors

Table 1. Number of patients

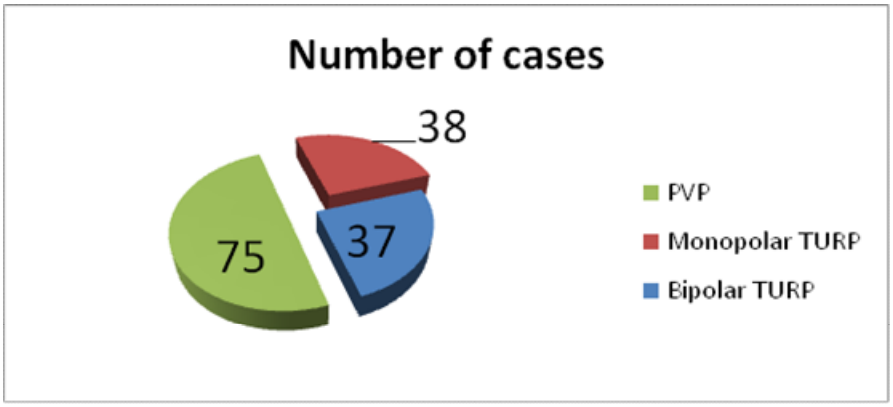

Table 2. Patients presenting with associated comorbidities (PVP vs. Bipolar TURP)

Comorbities	No of patient (PVP)	No of patient (Bipolar TURP)
Ischemic heart disease (IHD)	11(14.66)	2 (5.4%)
Diabetes mellitus (DM)	9 (12%)	3 (8.57%)
Hypertension (HTN)	12 (16%)	12 (32.4%)
DM with HTN	8 (10.66%)	3 (8.57%)
COPD	10 (13.33%)	5 (13.51%)
Parkinsonism	1 (1.33%)	0
HTN with Cerebrovascular accident (CVA)	3 (4%)	1 (2.7%)

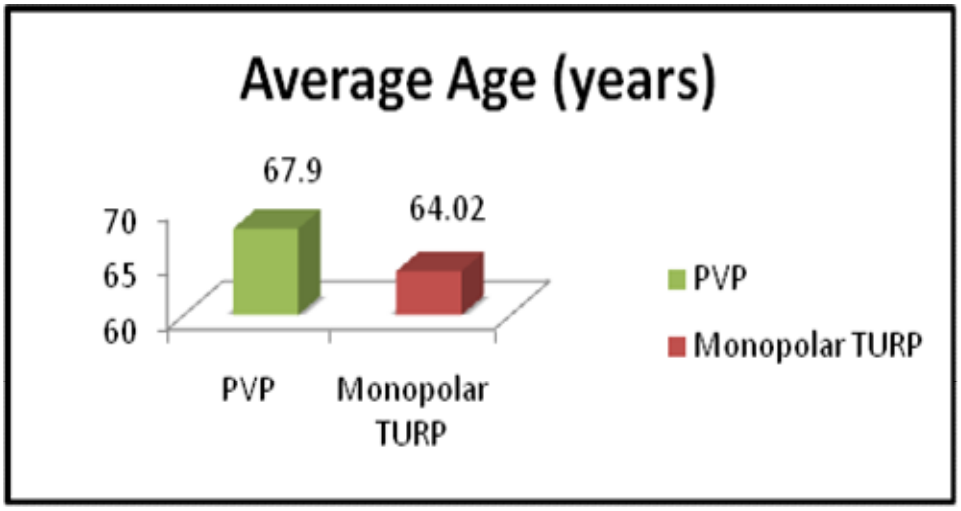

Table 3. Average age (PVP vs. Monopolar TURP)

Table 4. Prostate Size (PVP vs. Monopolar TURP)

Prostate size (gm)	No of patient (PVP)	No of patient (monopolar TURP)
25 - 30	18	3
31 – 40	20	15
41 – 50	19	12
51 – 60	5	4
61 – 70	6	2
71 – 80	2	1
81 – 90	3	1
> 90	2	0
Total	75	38

Table 5. Number of patients with retention on presentation (PVP vs. Monopolar TURP)

Procedure	Patients with retention
PVP	41 (54.66%)
Monopolar TURP	25 (65.78%)

Table 6. Average post-void residual (PVR) volume of patients on presentation (PVP vs. Monopolar TURP)

Procedure	Average PVR (ml)
PVP	89.85
Monopolar TURP	70.38

Table -7: Mean operative time taken for PVP and monopolar TURP (PVP vs. Monopolar TURP)

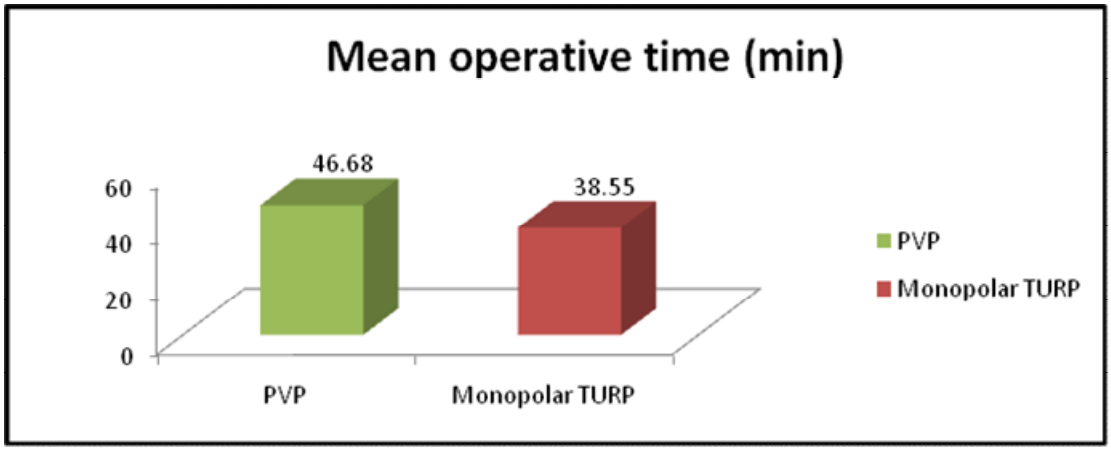

Table 8. Change in Hemoglobin level after the operative procedure (PVP vs. Monopolar TURP)

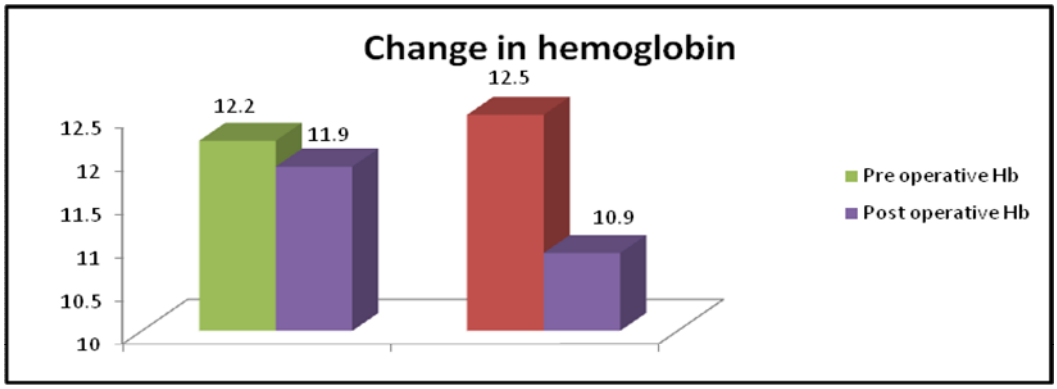

Table 9. Average age (PVP vs. Bipolar TURP)

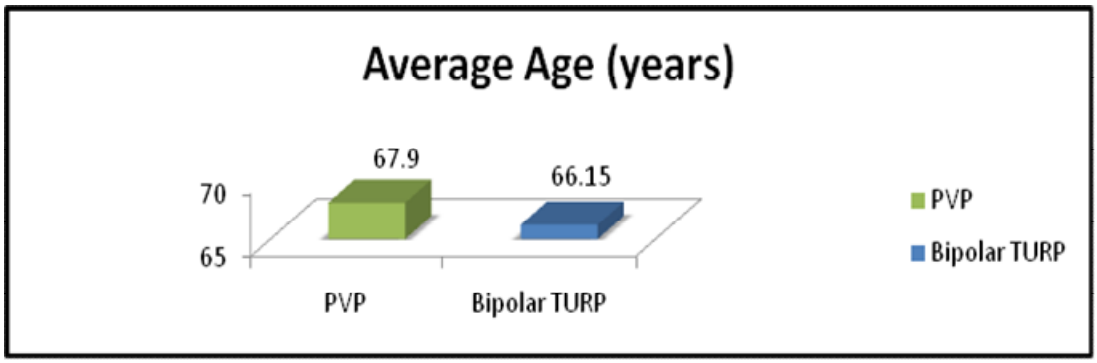

Table 10. Prostate Size (PVP vs. Bipolar TURP)

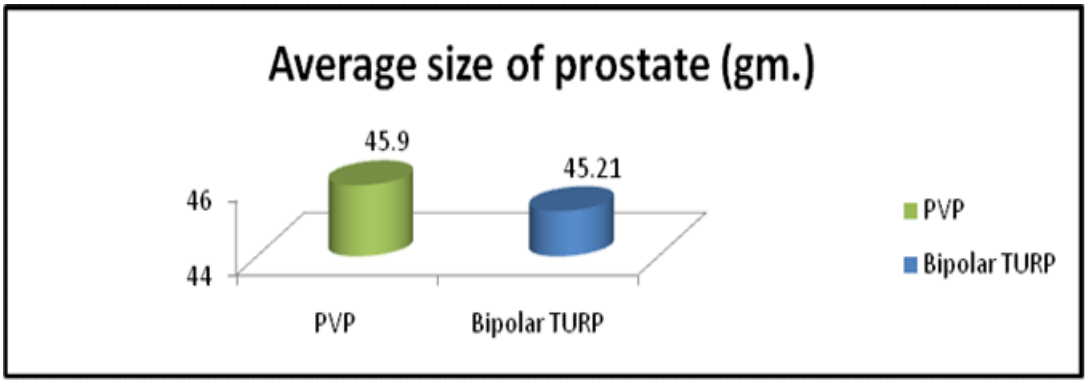

Table 11. Number of patients with retention on presentation (PVP vs. Bipolar TURP)

Procedure	Patients with retention
PVP	41 (54.66%)
Bipolar TURP	21 (56.75%)

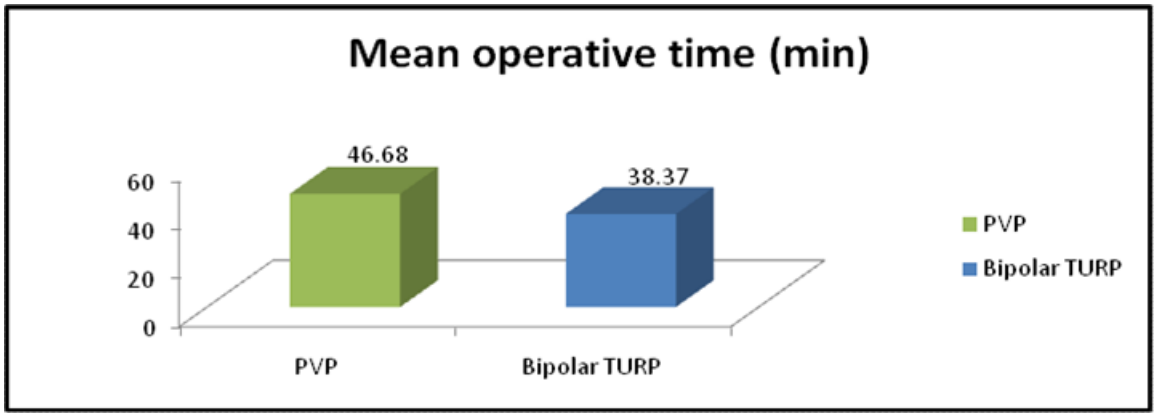

Table 12. Mean operative time taken for PVP and bipolar TURP (PVP vs. Bipolar TURP)

Table 13. Complications in PVP and Monopolar TURP vs Bipolar TURP

Complications	PVP	Monopolar TURP	Bipolar TURP
TUR Syndrome	0	1 (2.63%)	0
Blood Transfusion	0	2 (5.26%)	1 (2.7%)
Clot Retention	1 (1.33%)	1 (2.63%)	1 (2.7%)
Capsular Perforation	1 (1.33%)	2 (5.26%)	1 (2.7%)
Transient Dysuria	6 (8%)	1 (2.63%)	0
UTI	4 (5.33%)	2 (5.26%)	2 (5.4%)
Stricture urethra	0	1 (2.63%)	0

IPSS

	Present study			**Kumar et al**			**Capitan et al**	
IPSS	**PVP**	**Monopolar URP**	**Bipolar TURP**	**PVP**	**Monopolar TURP**	**Bipolar TURP**	**PVP**	**TURP**
1 month	6.25	6.07	6.21	9.84	9.81	9.78	11.88	15.16
3 months	6.55	6.46	6.12	7.4	7.56	7.47	9.6	12.31
6 months	7.07	6.17	6.8	6.96	7.08	7.08	8.31	10.23
12 months	7.23	7.12	7.3	7.01	7.07	6.94	8.11	8.61

Maximum flow rate (Qmax)

Qmax (ml/sec)	Present study	Kumar et al	Capitan et al	Lukacs et al36						
	PVP	Monopolar TURP	Bipolar TURP	PVP	Monopolar TURP	Bipolar TURP	PVP	TURP	PVP	TURP
1 month	19.45	20	.19.64	17.71	17.92	18.07	20.64	18.91	16	14.9
3 months	20.15	20.2	19.8	18.79	19.01	19.27	23.85	21.62	17	15.7
6 months	21.4	19.6	20.6	20.66	20.05	20.48	23.93	22.23	16.3	16.3
12 months	20.2	19.3	21.2	19.58	18.89	19.93	22.53	22.95	16.7	16.8

Post void residual volume (PVR)

PVR (ml)	Present study	Kumar et al	Lukacs et al36					
	PVP	Monopolar TURP	Bipolar TURP	PVP	Monopolar TURP	Bipolar TURP	PVP	TURP
1 month	36.6	34.73	34.4	48.01	43.56	48.73	20	13
3 months	29.2	30.8	28.7	37.98	36.73	39.98	10	15
6 months	26.7	26.4	24.45	29.7	26.11	30.38	10	19
12 months	22.2	24.2	26.6	30.78	26.71	31.09	0	7

In the present study there was no significant difference between PVP, monopolar TURP and bipolar TURP in terms of change in IPSS at 12 months follow up. Urinary flow rate (maximum flow rate and post void residual volume) improved equally and simultaneously after both treatment modalities. Kumar et al, Capitan et al and Lukacs et al study findings are comparable to the present study.

Assessment of learning curve in PVP: There was significant decrease in length of operative time in group III (51 to 75 patients) when compared to group I (1 to 25 patients) of PVP patients although mean prostate gland size was comparable in each group. Wheelan et al have seen similar finding that one of the advantages of PVP is the short learning curve, a combination of online modules, observation and mentoring of 5 cases is sufficient for most urologists.

CONCLUSIONS

- PVP might be considered as safe and effective surgical procedure for the treatment of patients with BPH at high risk such as heart disease, diabetes mellitus, hypertension, COPD and cerebrovascular accident.
- Green light PVP is good option for those patients with high cardiovascular risks and are on anticoagulant, which gives it an edge over both monopolar or bipolar TURP.
- In terms of intra operative complications, complications such as TUR syndrome, blood transfusion, capsular perforations and clot retention are lower in PVP than TURP.
- Duration of surgery is longer in PVP group than in TURP.
- Duration of catheterization and hospital stay are shorter post operatively for PVP than monopolar or bipolar TURP.
- Drop in hemoglobin post operatively is significantly lower for PVP than monopolar or bipolar TURP.
- On follow up, transient dysuria is more common in PVP than TURP.
- Urethral stricture is more common in TURP than PVP.
- Learning curve is shorter in PVP.
- Long-term functional results showed dramatic improvement in both groups regarding reduction of IPSS and PVR and improvement of Qmax, with no significant difference between PVP and TURP groups.

REFERENCES

McVary KT, Roehrborn CG, Avins AL, et al. Update on AUA guideline on the management of benign prostatic hyperplasia. J Urol 2011;185:1793-803.

Morgagni GB. The seats and causes of disease investigated by anatomy, book 3. Johnson & Paine: London; 1760 [p.; 460].

J. Paul Whelan, James M. Bowen, Natasha Burke. A prospective trial of GreenLight PVP (HPS120) versus transurethral resection of the prostate in the treatment of lower urinary tract symptoms in Ontario, Canada. Can Urol Assoc J 2013;7(9-10):335-41

Oesterling JE. Benign prostatic hyperplasia. Medical and minimally invasive treatment options. N Engl J Med. 1995; 332:99–109

AUA Practice Guidelines Committee AUA guideline on management of benign prostatic hyperplasia (2003). Chapter 1: Diagnosis and treatment recommendations. J Urol. 2003; 170:530–47.

Chute CG, Panser LA, Girman CJ, et al. The prevalence of prostatism: a population- based survey of urinary symptoms.J Urol 1993;150:85-9.

McConnell JD, Roehrborn CG, Bautista OM, et al. The long-term effect of doxazosin, finasteride, and combination therapy on the clinical progression of benign prostatic hyperplasia. N Engl J Med 2003; 349:2387-98.

Crawford ED, Wilson SS, McConnell JD, et al. Baseline factors as predictors of clinical progression of benign prostatic hyperplasia in men treated with placebo. J Urol 2006; 175:1422-7. Barber NJ, Muir GH. High-power KTP laser prostatectomy: the new challenge to transurethral resection of the prostate. Curr Opin Urol 2004; 14:21-5.

Campbell-Walsh Urology, 11th Edition: By Alan J. Wein, Louis R. Kavoussi, Alan W. Partin and Craig A. Peters, Elsevier Title ISBN: 978-1-4557-7567-5

Cunha GR, Chung LWK, Shannon JM, et al. Hormonal induced morphogenesis and growth: role of the mesenchymal-epithelial interaction. Recent Prog Horm Res. 1983;39:559–598.

****