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Evaluation of Prostate Enlargement Surgery to Patients and Determining their Quality of Life and Resulting Complications

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Abstract: Background and Aim: The onset of benign prostatic hyperplasia (BPH) and the ensuing Lower Urinary Tract Symptoms (LUTS) are significantly predicted by age. The present study aims to evaluate the clinical outcomes before and after prostatic urethral lift surgery in patients with prostate enlargement. **Methods:** A total of 103 patients diagnosed with benign prostatic hyperplasia (BPH) were treated with prostatic urethral lift (PUL) In several hospitals in Iraq over the course of a one-year follow-up period, commencing in April 2023 and concluding in April 2024. The PUL procedure was performed on male patients aged 45-72 years. A comprehensive set of surgical and clinical data were meticulously recorded for each patient, encompassing various parameters such as surgical duration, mortality, morbidity, complications, pain rates, and the assessment of patients' quality of life following PUL surgery. **Results:** Our study showed that the most common symptoms in patients were difficulty initiating urination (33.01%) and urgency (14.56%). Prostate volume was 54.5 ± 3.8 ml, International Prostate Symptom Score (IPSS) was 21.2 ± 2.8, and maximum urinary flow rate was 5.6 ± 0.4 before surgery. Surgical results: Our results showed that the urethral elevation of the prostate at the time of surgery was 28.5 ± 4.9, the number of implants included 2.0 ± 0.4, the length of hospital stay was 2.1 ± 1.7 days, intraoperative complications were 13.59% of patients, postoperative complications were 10.68%, the most prominent of which was dysuria, which included three cases, IPSS (postoperative) was 4.5 ± 3.2, improved urination included 96.12%, and improved sexual function included 87.38%. **Conclusion:** In Iraq, a safe and efficient therapy for BPH is a prostate urethral lift. This procedure may be performed using local anesthetic, is fewer invasive, and can be suitable for people who are easily agitated.

Keywords: Benign prostatic hyperplasia (BPH); Prostatic urethral lift (PUL) Surgery; Symptoms; Complications; and General health quality of life questionnaire.

INTRODUCTION

It is a common condition in men as they get older (Kim, T.H. *et al*., 2014). In fact, about half of men between the ages of 51 and 60 suffer from BPH. Up to 90% of men over the age of 80 suffer from it (Thorpe, A. & Neal, D., 2003; Cindolo, L. *et al*., 2015).

BPH is having an enlarged prostate. Although the prostate is usually the size of a walnut or a golf ball in adult men, it can increase in size and become as large as an orange (Verhamme, K.M. *et al*., 2003). As the gland enlarges, it can compress the urethra. But, other symptoms, such as a weak urine stream or the need to push or exert force, can usually be controlled (Rassweiler, J. *et al*., 2006; Oelke, M. *et al*., 2013; Gratzke, C. *et al*., 2017).

BPH itself may not require any treatment, but if it starts to cause symptoms, treatment can help. BPH is a benign condition. However, BPH and cancer can occur at the same time (Miano, R. *et al*., 2008).

BPH primarily leads to an increase in the volume of the transitional zone and, secondarily, of the entire prostate (Reich, O. *et al*., 2008). A prostate enlargement that can be felt during a digital rectal examination or measured in imaging diagnostics is called benign prostate enlargement (benign prostatic enlargement, BPE). In men with BPE, the percentage of the transitional zone volume (>5%) and the total prostate volume increase (>25 cm³), the proximal prostatic urethra becomes elongated (>1 cm), and the angle between the proximal and distal prostatic urethra becomes steeper (>35°) (Baquero, G.A. & Rich, M.W., 2015; Cantwell, A.L. *et al*., 2014).

A narrowing of the lumen of the urethra is called bladder outlet obstruction (bladder outlet obstruction, BOO) when there is an increased detrusor pressure during urination during urodynamic measurement with a simultaneously attenuated urine stream (McNicholas, T.A. *et al*., 2013).

METHODOLOGY

1. Data Collect

Between April 2023 and April 2024, we conducted cross-sectional research of BPH patients receiving prostatic urethral lifts In several hospitals in Iraq. Patients who smoked were obese, had a prostate volume within 30 and 80 milliliters, and were between the ages of 45 and 72 were the inclusion

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criteria. The following were the exclusion criteria: women, those suffering from a number of diseases, including cancer, thyroid gland, and others. Ages, BMI, health history, ASA%, signs, and marital, economic, along with educational statuses were among the baseline demographics as well as clinical data gathered. All outcomes of patients' data were collected and analyzed by SPSS, version 22.0.

Prostatic Urethral Lift Outcomes

Under cystoscopic supervision, tiny implants are placed transurethral during the PUL operation to enlarge the swollen prostatic lateral lobes as well as lessen blockage. The size and shape of the adenoma determine how many implants are needed; usually, two implants are utilized to form an uninterrupted anterior voiding channel. Following the surgery, patients were seen for follow-up visits one week, one month, and one year later. The purpose of the IPSS was to assess if urinary symptoms had improved subjectively. The objective urine status was measured using uroflowmetry. Reduced erectile functions were assessed using the International Index for Erectile Functioning 5 (IIEF5) scale. At every follow-up, all patients received IPSS, IIEF5, and Uroflowmetry. The IPSS, IIEF, or maximal urine flow rate (Qmax) were the main outcome measures. In addition, we enrolled surgical parameters as follows: time of operation, length of stay in hospital, pain VAS scores, and complications. Also, we performed an SF - 36 questionnaire describes the evaluation of general health quality of life in a range of 0 - 100, where high degrees explained the maximum improved of quality of life at patients.

RESULTS

Table 1: Demographic patients' characteristics

Variables	No. of patients, 103	Percentage, %
Age		
< 60	38	36.89%
≥ 60	65	63.11%
Sex		
Men	103	100%
BMI, {kg/m2}		
Underweight	11	10.68%
Normal weight	13	12.62%
Overweight	30	29.13%
Obese	49	47.57%
No. of smokers		
Yes	59	57.28%
No. of comorbidities		
Hypertension	68	66.02%
Diabetes mellitus	49	47.57%
Ischemic heart disease	34	33.01%
Anemia	8	7.77%
Others	6	5.83%
Education status		
Primary	26	25.24%
Secondary	45	43.69%
University	32	31.07%
Economic status, $		
Low, < 500	57	55.34%
Moderate, 500 – 900	34	33.01%
High, > 900	12	11.65%

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Table 2: Identifying clinical symptoms and determining of symptom scores of prostates.

Parameters	No. of patients, 103	Percentage, %
Symptoms		
Frequent Urination	4	3.88%
Urgency	15	14.56%
Weak Urine Stream	18	17.48%
Difficulty Starting Urination	34	33.01%
Straining to Urinate	9	8.74%
Incomplete Emptying	11	10.68%
Dribbling at the End of Urination	12	11.65%
Prostate volume, mL	54.5 ± *3.8*	
International Prostate Symptom Score		
Total score	*21.2 ± 2.8*	
Storage subscore	*8.5 ± 1.4*	
Voiding subscore	*12.6 ± 1.3*	
Maximum urinary flow rate	*5.6 ± 0.4*	
International Index of Erectile Function	*19.8 ± 3.2*	

Table 3: Surgical outcomes of prostatic urethral lift (PUL)

Variables	No. of patients, {n = 103}	Percentage, %
Operation time, min	28.5 ± 4.9	
Anesthesia used		
Local	79	76.70%
General	24	23.30%
Number of implants	2.0 ± 0.4	
Length of stay in hospital, days	2.1 ± 1.7	
ICU admission	4	3.88%
Intraoperative complications	14	13.59%
Bleeding	5	4.85%
Perforation	3	2.91%
Urethral or Bladder Injury	2	1.94%
Discomfort	2	1.94%
Anesthesia-Related Issues	2	1.94%
Mortality rate		
Yes	2	1.94%
No	101	98.06%

Table 4: Postoperative outcomes

Items	***Variables***	***Patients, 103***	***Percentage, %***
Patients Satisfaction			
	Very Satisfied	73	70.87%
	Satisfied	17	16.50%
	Neutral	8	7.77%
	Dissatisfied	5	4.85%
Pain VAS score			
	1st day	4.32 ± 1.08	
	1 week	3.57 ± 0.44	
	1 month	2.10 ± 0.33	
	12 months	0.96 ± 0.14	
Complications		11	10.68%
	Hematuria	1	0.97%
	Dysuria	3	2.91%
	Urinary Retention	2	1.94%
	Urinary Tract Infection (UTI)	1	0.97%

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	Pelvic Pain	2	1.94%
	Implant-Related Issues	0	0.0%
	Sexual Dysfunction	1	0.97%
	Urinary Incontinence	1	0.97%
	Re – Intervention	0	0%

Table 5: Assessment improvements of sexual health at patients

Items	Number of patients {n = 103}	%
IPSS (postoperative)	4.5 ± 3.2	
Improving of urination	99	96.12%
Sexual function		
Improving	90	87.38%
Deterioration	13	12.62%
Continence performance		
Improving	96	93.20%
Worse	7	6.80%

DISCUSSION

Prostatic Urethral Lift (PUL) at Patients with Prostate Enlargement PUL is a type of minimally invasive surgery that, in contrast to more conventional surgical techniques like transurethral resection from the prostate (TURP), preserves erectile as well as ejaculatory function, making it a desirable alternative for patients seeking pain relief without serious side effects (Huh, J.S. *et al*., 2012). PUL is intended to relieve lower urinary tract symptoms (LUTS) brought on by benign prostatic hyperplasia (BPH) (Chin, P.T. *et al*., 2012).

Research continuously indicates that PUL greatly improves BPH patients' quality of life. Patients frequently report less uncomfortable symptoms, such as urgency and nocturia, along with incomplete bladder emptying, which improves their emotional and everyday functioning (Sønksen, J. *et al*., 2015; Michel, M.C. & Vrydag, W., 2006; Wilt, T.J. *et al*., 2003). The maintenance of sexual function in PUL is a crucial factor in increasing quality of life. PUL permits patients to continue their regular sexual activity; the most common negative incidents correlated with PUL involve dysuria, hematuria, as well as pelvic pain (Garcia, C. *et al*., 2015). These detrimental incidents are generally resolved for at least one week. Hematuria was noticed the majority frequently within the present research that solved in supportive care for two a few weeks. Continence function had been preserved throughout the follow-up period of time. Deterioration for continence had been significantly correlated in a clinically important decrease within health-related QOL (Jones, P. *et al*., 2016).

Up to five years post the procedure, long-term follow-up studies show continued benefits in quality of life. Due to the procedure's efficacy and short recovery period, patients express high levels of satisfaction (Jones, P. *et al*., 2016; Perera, M. *et al*., 2015; Tsui, J.F. & Dixon, C.M., 2016). It has been demonstrated that PUL considerably raises peak urine flow rate (Qmax). The improvement is clinically significant and adequate to relieve symptoms in the majority of patients, even if it might not be as noticeable as with PUL (Uren, A.D. & Drake, M.J., 2017).

It maintains sexual function while dramatically enhancing the quality of life, urine flow rate, or symptom severity (Ko, K.J. *et al*., 2017). PUL is a useful substitute for traditional surgical methods, offering long-lasting relief suffering minimal side effects, while it might not be appropriate for all individuals, especially those with severe BPH (Jeong, S.J. *et al*., 2012). Long-term follow-up studies and more research will be conducted to enhance patient selection and results. By maintaining sexual function and reducing annoying urine symptoms, PUL enhances the quality of life (Sokhal, A.K. *et al*., 2017).

CONCLUSION

PUL was determined to be a safe and effective treatment for BPH. Following PUL, patients exhibited rapid improvements in health-related quality of life, with complications and pain levels decreasing significantly without any major adverse effects. The operation can be performed using local anesthetics, is less invasive, and is suitable for individuals who tend to become easily agitated.

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