

Ejaculation Preserving Technique in TURP Is it safe?

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Abstract

Background: The treatment of bladder outlet obstruction in patients diagnosed with benign prostatic hyperplasia using the transurethral resection of the prostate procedure often presents with retrograde ejaculation as a complication due to bladder neck stenosis.

Objective: To determine the safety and ease of use of the ejaculation preservation technique of the transurethral resection of the prostate procedure.

Patients and Methods: The study was done in Samarra city in Iraq, included 30 patients between the ages of 50 and 62 years. The resection of the prostate was done a centimeter above the verumontanum in order to preserve the paraculcular tissue. The patients were assessed for the degree of ejaculate using the Ejaculation Projection Score. The patients were also evaluated for erectile function using the International Index of Erectile Function and for urinary retention using the International Prostate Symptom Score. The assessments were done preoperative, 4 months and 36 months after the ejaculation-preserving transurethral resection of the prostate procedure.

Results: The maximum flow rate increased from 5.4ml/s to 21 ± 5.2 ml/s (n=29, p-value<0.001). IPSS improve from 24 to 5 ± 2.5 (n=29, p-value<0.001). The quality of life score improved from 5.7 to 1.4 ± 1.0 (n=29, p-value<0.001). The residual urine volume reduced from 150ml to 23 ± 14 (n=29, p-value<0.001). The erectile function reduced from 4 to 3.7 while the EPS reduced from 3.5 ± 0.5 to 3.3 ± 0.5 (p-value=0.57). 96.7% of the patients ejaculated postoperatively. Statistical analysis was done with SPSS version 15 for windows, P value and T test for significance of results being P value < 0.05.

Conclusion: There is evidence to show that the ejaculation preserving technique of the transurethral resection of the prostate is safe and secure to use. It protects anterograde ejaculation while reducing urine retention.

Key words: EPS=Ejaculation Projection Score , IPSS=International Prostate Symptoms Score.

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Introduction

Obstructions of the bladder outlet are common as a male is ageing. Blockages of the bladder outlet are prevalent when men get past 60 years[1]. However, this etiology has is no longer exclusively affecting me over 60 years as a result of benign prostate

hyperplasia. Subvesical obstruction is also occurring in men below fifty years. This is the result of a blockage of the bladder outlet by a small prostate. [2] The first approach to treating the obstruction of the bladder outlet either because of the benign prostate

hyperplasia or the subvesical obstruction is the use of first-line drugs. Some of the first-line treatment that is prescribed for me who have a blockage of the bladder outlet as a result of the subvesical obstruction or the benign prostatic hyperplasia is α 1-blockers. Why this first-line treatment has shown to be effective in improving the voiding of the contents of the bladder in men diagnosed with the obstruction of the bladder outlet [3], there is still a possibility that the first-line treatment is not effective in all patients.

In cases where the first-line treatment proves ineffective in improving the voiding of the contents of the bladder in men diagnosed with an obstruction of the bladder outlet, surgical intervention is prescribed. The prescribed surgical intervention is the transurethral resection of the prostate (TURP). This is an invasive procedure through which the unusual growth in the prostate gland that is caused by benign prostatic hyperplasia is removed surgically. The prostate gland, one of the arguably essential glands in the male endocrinal system due to its significant role in the male reproductive system, is situated in proximity to the bladder. The transurethral resection of the prostate is performed by a urologist using resectoscope. The overgrowth tissue of the prostate gland is removed in small pieces until the urologist is satisfied that the obstruction of the bladder outlet has been attenuated[4].

While the transurethral resection of the prostate is a procedure that has been used for many years and reviewed rigorously for

effectiveness and safety with positive results, complications are not uncommon during the invasive procedure. One of the common and significant complications that develop during the performance of the procedure is the bladder neck stenosis [5]. The bladder neck stenosis is one of the risks to which the men undergoing the transurethral resection of the prostate are exposed[6]. Stenos can happen in the prostatic and membranous urethra, the neck of the bladder as well as the anastomosis after the performance of the transurethral resection of the prostate[7]. The significance of bladder neck stenosis in the context of this procedure is the occurrence of retrograde ejaculation[8].

Retrograde ejaculation is a condition where after an orgasm, the semen empties into the bladder instead of travelling through the urethra as an anterograde ejaculate. This is a significant occurrence because it affects the sexual performance of the young males who after diagnosis with an obstruction of the bladder outlet as a result of the subvesical obstruction or benign prostatic hyperplasia required the transurethral resection of the prostate. Even though the height of their sexual activity will culminate in orgasm, it is dry because the ejaculation is retrograde instead of anterograde as is usually the case. The prevalence of retrograde ejaculation in patients who have undergone the transurethral resection of the prostate is high. An estimated 53% to 75% of these patients experience retrograde ejaculation. Retrograde ejaculation occurs because the tissue surrounding the verumontanum was resection

during the transurethral resection of the prostate[9].

In recognition of the significance of the complications during the transurethral resection of the prostate and the impact they have on the sexual function of young men through the effect of retrograde ejaculation, innovative procedures have been devised in order to allow the life-saving transurethral resection of the prostate procedure while also protecting the natural mechanisms designed for ejaculation. This new innovative procedure is called the ejaculatory-protective transurethral resection of the prostate[10].

This procedure has been shown to protect the tissues that affect the ejaculatory mechanisms of the male reproductive system during the transurethral resection of the prostate. The innovative method promises to improve the voiding of the contents of the bladder by attenuating the blockage of the bladder opening while reducing the risk for retrograde ejaculation to which the young males diagnosed with benign prostatic hyperplasia for whom this invasive procedure is indicated and prescribed.

The transurethral resection of the prostate is the ultimate approach for the treatment of benign prostatic hyperplasia. It is the approach to which urologists turn when the first-line medication fails in its effectiveness. When the attenuation of the blockage of the bladder outlet is not sufficient enough to result in an improvement of the ability to void the contents of the bladder, urologists result to the transurethral resection of the prostate. While it is an invasive procedure, it

is highly regarded in practice because it involves manual removal of the excessive tissues causing the obstruction of the bladder outlet. The prognosis of benign prostatic hyperplasia includes a lowering of quality of life. The treatment of the condition using the transurethral resection of the prostate, while offering relief and an improved quality of life, predisposes the young men to sexual dysfunction characterized by retrograde ejaculation[11].

Any procedures that improve on the success reported in transurethral resection of the prostate, especially any improvements that result in a reduction in the complications resulting in retrograde ejaculation are welcome in urology. It is for this reason that the ejaculatory-protective transurethral resection of the prostate has received a lot of interest. One lingering question with this innovative improvement on transurethral resection of the prostate is its safety. This lingering question is the subject of this study. The aim of this pilot study is to assess the safety and ease of use of the ejaculation preserving transurethral resection of the prostate through resections that are performed at a distance of a centimeter about the verumontanum in order to preserve the paraculcular tissue.

Patients and Methods

Study Design

This is a prospective study done in Tikrit and Samara city (Iraq) for the period from January 2013-December 2017. Patients included were those with recurrent urinary retention (drug refractory), hematuria,

recurrent UTI, failure of medical therapy (highly selective alpha blockers, 5 alpha reductase inhibitors, all those patients were in accordance of EAU published guidelines (2012). All patients were with normal PSA values with normal TRUS and no suspicion of cancer. Patients excluded from this study were those with neurological disease and voiding dysfunction, preoperative ejaculation dysfunction and patients with raised PSA and suspected Ca. prostate cases.

Surgical Procedure

Storz 24 Fr high-flow resectoscope, bipolar was employed with cutting 1 cm proximal to verumontanum and bladder neck and middle lobe, keeping Colliculus Seminalis as the distal resection border by maintaining a 1 cm safety area for preserving ejaculation. In all patients 24 Fr size 3-way Foley catheter was inserted with 1 or 2 days irrigation. Removal of Foley catheter was done at day 8 postoperative. The aim of this study is to check safety of this technique to preserve ejaculation and to improve urinary function.

The assessment of outcomes of surgery includes postvoiding residual and uroflowmetry measurement. Subjective tests include International prostate symptoms score (IPSS), Life Quality Index (LQI), Ejaculation Projection Score and International Index of Erectile Function (15) and question 9 (over 4 weeks, when you had sexual stimulation or intercourse how often did you ejaculate?)

The Ejaculation Projection Score is a four-point scoring system that is used in urological practice to assess the degree to

which ejaculation is projected. A score of 0 was indicative of no ejaculation. A score of 1 was indicative of a few drops of the ejaculate. A score of 2 was indicative of a non-projectile ejaculate. A score of 3 was indicative of a projectile ejaculate. A score of 4 was indicative of a strongly projectile ejaculate [12]. Further assessment of the patients was done to determine the occurrence of the erectile dysfunction using the International Index of Erectile Function (IIEF) [13] and also to determine the urinary retention after the procedure using the International Prostate Symptom Score (IPSS) [14]. Assessment is done at 4 months and 36 months.

Statistical analysis

Statistical analysis was done with SPSS version 15 for windows, P value and T test for significance of results being P value < 0.05.

Results

When the assessment was performed at 36 months after the operation, the maximum flow rate had improved from the 5.4 milliliters per second with a range of 5.4+-1.2 ml that were recording during the baseline to 21 ± 5.2 ml/s, an improvement that was statistically significant (n=29, p-value<0.001). The International Prostate Symptom Score had improved from the 24 that was recorded during the benchmark to a score of 5 ± 2.5 , an improvement that was of statistical significance (n=29, p-value<0.001). The quality of life scores for the participants had changed from a score of 5.7 to a score of 1.4 ± 1.0 , another statistically

significant improvement (n=29, p-value<0.001). The ejaculation as determined by question nine of the International Index of Erectile Function had changed from a score of 55±5 to a score of 56±5, a change that was not statistically significant (p-value=0.57). The Ejaculation Projection Score had changed from a score of 3.5±0.5 to a new score of 3.3±0.5. However, this change was not statistically significant (p-value=0.57). Other results showed that 29 of the 30

patients who were selected for participation in the study experienced ejaculation. Two of the selected 30 patients experienced a reduction in their ejaculation. An assessment of the volume of residual urine showed that there was a reduction from the 150 milligrams of urine reported in the baseline to 23±14 milligrams 36 months postoperative. No significant morbidities or any mortalities were reported during the assessment period.

Table (1): Showing the tabulation of results.

	Preoperative	4 months postoperative	36 months postoperative
Mean prostatic volume	41.2ml (Range (15-62ml))		
Maximum flow rate	5.4±1.2ml	22±5.2 ml/s, (n=30), p-value<0.001	21±5.2ml/s (n=29), p-value<0.001
IPSS	24±4	5±2.5 (n=30), p-value<0.001	5±2.5(n=29), p-value<0.001
Quality of life score	5.7±1.1	1.4±1.0 (n=30), p-value<0.001	1.4±1.0 (n=29), p-value<0.001
IIEF	55±5	57±5 (n=30), p-value = 0.55	56±5 (n=29), p-value=0.57
Ejaculation Projection Score	3.5±0.5	3.3±0.5 (n=30), p-value=0.55	3.3±0.5 (n=29), p-value=0.57
Residual urine volume	150±30ml	22±15(n=30), p-value<0.001	23±14 (n=29), p-value<0.001

Discussion

Urinary retention is a common occurrence in patients diagnosed with benign prostatic hyperplasia. [15] The urinary retention is characterized by a low maximum flow rate as was found in the baseline assessment in this study where the maximum flow rate was only 5.4 milliliters per second.

Transurethral resection of the prostate is used to resolve this issue by eliminating the tissues of the prostate that cause an

obstruction to the bladder outlet. The assessment of the procedure in resolving urinary retention in this study yielded positive results as evidenced by an increase in the maximum flow rate from the 5.4 milliliters per seconds that was measured pre-operative to 20 milliliters per second 36-months postoperative.

The findings of this study showed an improvement in the International Prostate

Symptom Score from 24 that was recorded during the benchmark to a score of 5 ± 2.5 , an improvement that was of statistical significance ($n=29$, $p\text{-value}<0.001$). The quality of life score for the participants also improved from a score of 5.7 to a score of 1.4 ± 1.0 ($n=29$, $p\text{-value}<0.001$). Additionally, the residual urine volume reduced from the 150 milligrams reported preoperative to 23 ± 14 , a statistically significant reduction in urinary retention ($n=29$, $p\text{-value}<0.001$). The International Prostate Symptom Score poses seven questions that assess the improvement of the symptoms of benign prostatic hyperplasia, particularly with regards to urinary retention and another question that assesses the improvement in the quality of life led after the procedure. The lower the score, the greater the improvement of the symptom management. [16]. These findings show an improvement in both the quality of life and the management of urinary retention after the ejaculation-preserving transurethral resection of the prostate procedure.

One of the complications associated with the transurethral resection of the prostate has been the issues with sexual dysfunction, particularly, retrograde ejaculation and erectile dysfunction. The findings of the study corroborated the hypothesis that the ejaculation preserving technique could improve the safety of the transurethral resection of the prostate. The erectile function in the study was assessed by exploring the frequency of ejaculation. Although there was an increase in the IIEF

score from 55 ± 5 to a score of 56 ± 5 , it was not statistically significant ($p\text{-value}=0.57$). Notably, the participants still ejaculated most of the times when they were stimulated sexually or engaged in intercourse. The results also showed that the Ejaculation Projection Score reduced from a score of 3.5 ± 0.5 to a new score of 3.3 ± 0.5 . Irrespective, it is notable that this score was in the projectile bracket and the change was not statistically significant ($p\text{-value}=0.57$). [17]. Other supporting results were that 96.7% of the participants experienced an ejaculation. These findings corroborate the hypothesis that the ejaculation preserving technique entrenched safety into the transurethral resection of the prostate.

The findings on the safety and effectiveness of the ejaculation-preserving technique have also been reported in other studies. De Vecchis found that when more than one centimeter of the tissue of the prostate was preserved during resection, 80% of the patients who underwent the procedure retained their anterograde ejaculation [18]. The low incidence of retrograde ejaculation in resection procedures that preserved the neck of the bladder has also been reported in other studies [19] [20] [21] [22] [23].

Conclusions

The transurethral resection of the prostate has been a successful method in reducing the obstruction of the bladder outlet in patients diagnosed with benign prostatic hyperplasia. However, some of the unwanted complications presenting with this invasive procedure have been erectile dysfunction and

retrograde ejaculation. The retrograde ejaculation results from bladder neck stenosis. A newer technique involving protecting a centimeter of tissue verumontanum has been proposed to help preserve the natural ejaculatory mechanisms. This study aimed to assess this technique from the perspective of its safety. The results showed that the procedure attenuated urinary retention by reducing the residual volume. The results also showed that the reduction in the ejaculation projectile score and erectile function was not significant. There was also a remarkable improvement in the quality of life that the selected participants led after the operation. The findings are indicative that the technique is safe, a conclusion to which numerous other studies have come.

Recommendations

I recommend the use of this technique as a safe and effective way of preserving ejaculation during TURP, also to make more studies to determine the efficacy of this technique on long term outcome.

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