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42 Consecutive Open Suprapubic Prostatectomies Without Blood Transfusion or Continuous Bladder Irrigation

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Abstract

Purpose: To share our experience on 42 consecutive cases of open suprapubic prostatectomy done without blood transfusion or continuous bladder irrigation.

Methods: Prospectively collected data on forty-two consecutive trans vesical Prostatectomies that were done using a modified suprapubic prostatectomy technique from May 2016 to Sept 2017(group 2), were compared with an older series of transvesical Prostatectomies done from January 2003 to April 2016, using the traditional 5 and 7 o'clock haemostatic sutures (group 1).

Results: The groups were similar with respect to age, BMI, PSA, enucleated prostate volume, duration of surgery and commorbidities. The mean change in haematocrit in group 2 was 6.0(±2.8) compared to 6.6(±4.3) in group 1; P=.446. The mean duration of admission was 16.5(±9.6) days in group 1, compared to 6.94(±0.6) days in group 2; P=.000. The clot retention rate in group 1 was 36.3% compared to 9.8% in group 2; P=.000. The overall complication rate in group 1 was 37.6% (59/157) compared to 23.8 %(10/42) in group 2; P=.034. The transfusion rate in group 1 was 37.3 % with a mean blood transfusion of 1.14(±1.5) pints compared to zero blood transfusion in group 2; P=.000. There were 9 mortalities in group 1, compared to zero mortality in group 2; P=.000.

Conclusion: The modified suprapubic prostatectomy technique was associated with better haemostasis. It enabled open suprapubic prostatectomy without bladder irrigation and blood transfusion and was associated with improved surgical outcomes compared to the traditional 5 and 7 o'clock haemostatic suture technique.

Keywords: Blood Transfusion; Continuous Bladder Irrigation; Haemostasis; Open Suprapubic Prostatectomy; Surgical Outcomes

Introduction

The surgical treatment of BPH has evolved from open surgery (suprapubic, retropubic and trans-perineal prostatectomy) to the minimally invasive treatments and transurethral surgical options such as TURP [1] (monopolar or bipolar) and Holmium Laser Enucleation of The Prostate (HOLEP) [2]. Also, laparoscopic procedures including single port surgery and robot-assisted approaches have been described and are in use [3]. Despite these advances in technology, open surgery has continued to retain a place, though a diminishing place in the treatment of BPH. This is because more and more patients present these days with bigger prostates, haven failed medical treatment [2]. Also in many parts of the world especially in the developing world, the equipment and skilled personnel for the minimally invasive treatments may be lacking. In addition, hip ankylosis, concomitant bladder pathology like stones and diverticular may preclude minimally invasive procedures [4] of the open surgical techniques suprapubic prostatectomy is the commonest method used. The most worrisome peri-operative complication of suprapubic prostatectomy is bleeding necessitating blood transfusion. This has been a major challenge for urologists ever since Freyer [5] described the suprapubic approach to simple prostatectomy in 1900. This is evidenced by the myriad of haemostatic techniques and maneuvers that have been described in the literature since then. The list is long and includes maneuvers for separation of the bladder neck from the prostatic fossa as described by Lower [6] and Harris [7] and others [8-10], prostatic fossa gauze packing [11], Traction on the bladder neck using the catheter balloon [12-14], use of rectal pressure balloon [15] and

temporary clamping of the internal iliac arteries [16]. Some have even advocated a combination of transurethral electro coagulation and open surgery for better haemostasis [17]. The multiplicity of haemostatic techniques shows that the problem of haemostasis in open prostatectomy is largely unsolved, and intra and post operative bleeding will often result in blood transfusion [18], re-exploration [19] and sometimes death of the patient [11]. Transfusion rates for suprapubic prostatectomy range between 1-57.1% [18,20]. In many parts of the developing world, blood and blood products are scarce. In addition, blood transfusion puts an additional economic burden on the patient and carries the risks of transfusion reaction and perhaps more importantly the inadvertent transmission of infections such as the human immunodeficiency virus and hepatitis virus. Therefore, any strategy that eliminates blood transfusion from prostatic surgery is a very welcome development for urologic surgery. A modified suprapubic prostatectomy technique was described in 2010 [21,22] and adopted by us in 2016 with slight modifications. This technique has enabled us to consistently eliminate blood transfusion and continuous bladder irrigation from open simple prostatectomy. We therefore share our experience of this technique.

Patients and Methods

Following ethical approval by the hospital ethics committee, prospectively collected data on 42 consecutive patients undergoing open suprapubic prostatectomy for BPH using a modified suprapubic prostatectomy technique from May 2016 to Sept 2017, were analyzed (group 2). All patients were operated on by the author using a modified suprapubic prostatectomy technique. The indications for surgery were severe LUTS and urinary retention necessitating urethral catheterization or suprapubic cystostomy. This data set was compared with our old data set of patients operated on prior to adopting the modified suprapubic prostatectomy technique. In these patients the traditional 5 and 7'oclock haemostatic sutures were used. This data dates back to January 2003 to April 2016. Only 166 cases were available for analysis (group 1). All surgeries were done by the author, who had 15 years post fellowship experience at the time of the study. Data collected and analyzed include demographic and clinical data such as age, Body Mass Index (BMI), American Society of Anesthesiologists (ASA)score, total Prostate Specific Antigen (PSA), enucleated prostate volume, pre and post-operative International Prostate Symptom Scores (IPSS), pre and post-operative residual urine, pre and post-operative Haematocrit (HCT), change in HCT, duration of surgery, number of clot retention episodes, number of clot retention episodes requiring evacuation with the 60cc bladder syringe, hospital stay and complications. Post operative HCT was estimated when urine was consistently clear, usually on post operative day 2. All enucleated prostates were sent for histology.

Pre-Operative Workup

Preoperative work up consisted of thorough history, evaluation of IPSS (for patients not on indwelling catheter), Full blood count and Esr (FBC, ESR), serum electrolyte urea and creatinine(S/E/U/Cr) estimation, Total prostate specific antigen(PSA) estimation, pro zstate biopsy for patients with PSA above 4ng/ml or with suspicious DRE. Other investigations included urinalysis and urine culture, random blood sugar, platelet count, retroviral screening, chest x-ray, Electrocardiogram (ECG) and trans- abdominal ultrasound scan. The volume of the enucleated prostate was measured using Archimedes principle; (A 1L capacity graduated plastic measuring cylinder was used. It was filled with tap water up to 500cc level and the enucleated prostate was dropped in it. The volume of the prostate was determined by the volume of fluid it displaced). All enucleated prostates were sent for histology. We ensured sterile urine, adequate control of diabetes and hypertension, adequate platelet count, minimum HCT of 33% (HB of 11g/dL) and withdrawal of aspirin at least 10 days before surgery. One pint of blood was grouped and cross matched for each patient. Our threshold for transfusion was set at HCT < 27% (HB <9gm/dL).

Operative Technique

Patients were administered i.v ceftriaxone 1gram and i.v metronidazole 500mg 15 minutes before surgery. All surgeries were done under epidural anesthesia. Patients were monitored throughout the duration of surgery using a multi parameter patient monitor. All patients had a modified suprapubic prostatectomy [21] with slight modifications. We insisted on haemodilution with at least 2 liters of normal saline prior to enucleation of the prostate, except if it was contraindicated by the patient's cardiac status. This maneuver effectively reduces the absolute quantity of blood lost by the patient during surgery. After finger enucleation of the prostatic adenoma, the prostatic fossa was packed transiently for about 1 to 2 minutes with a warm gauze pack. The Ureteric Orifices (UOs) were identified before application of haemostatic sutures and when necessary i.v frusemide 20 to 40mg was given to aid identification of the UOs. Haemostatsis was secured by two rows of running 2/0 polyglactin suture, suturing the mucosa of the bladder neck to the prostatic capsule, from the 1 o'clock to 11 o'clock position as previously described. Additional bleeding points were either electro fulgurated, or suture ligated. A 2-way, size 22F silicone Foley urethral catheter was used to drain the bladder. The catheter balloon was inflated to 40ml and used to apply traction to the bladder neck. We did not narrow the bladder neck to the size of the surgeon's index finger as previously described but narrowed it if necessary, just sufficiently enough to prevent the catheter balloon from slipping into the prostatic fossa. The purpose of this modification was to reduce the chances of bladder neck stenosis.

The catheter traction was maintained by means of two gauze bandages tied to the catheter and pushed snuggly against the penile tip. The gauze bandages were removed after two to three hours to prevent pressure ulcers of the external urethral meatus. The urethral catheter was also taped to the patient's thigh at the end of surgery with adhesive plaster as an additional measure to maintain the traction on the bladder neck. The bladder was closed in 3 layers with polyglactin suture. The integrity of the bladder closure was checked by filling the bladder with normal saline using the 60ml bladder syringe. At the same time a bladder wash out was done, evacuating any blood clots. The abdominal wound was closed in layers without draining the perivesical space. No patient had bladder irrigation and we did not place a suprapubic tube.

Post-Operative Management

Patients were maintained on intravenous fluids and the pre-operative antibiotics were continued till the 4th post operative day, following which they were converted to oral drugs. Post operative analgaesia consisted of a combination of intramuscular diclofenac and pentazoscine. Urethral catheters were spigotted on the 5th post operative day and removed 24hours later. If patients voided satisfactorily after catheter removal they were discharged home on the same day. Blood loss was estimated by determining the difference between the pre and post operative HCT. Follow up in the out-patient clinic was at 2weeks, one month, three months and six monthly thereafter. During the follow up visits patients were evaluated for any complications by voiding history, urine cultures, IPSS and trans-abdominal ultrasound estimation of post void residual urine. The major components of our technique include, minimum pre-operative HCT of 33%, use of epidural anesthesia, haemodilution to at least 2Litres of normal saline prior to enucleation of the prostate, the extended running suture of the bladder neck, limited narrowing of the bladder neck and finally traction on the bladder neck with the catheter balloon.

Statistical Analysis

Data were analyzed using SPSS Version 17, Chicago IL, United States. Student's t test was used to determine whether the observed differences in means were significant. Categorical variables were analyzed with the χ^2 test. $P < 0.05$ was taken as significant.

Results

Forty-two consecutive patients had a modified suprapubic prostatectomy without blood transfusion (group 2). Thirty-nine of these patients (93.0%) were on catheter. while 3(7.0%) were not on catheter. The International Prostate Symptom Score (IPSS) could not be determined for the patients on longstanding indwelling catheter, however mean IPSS for the rest of the patients was 26.3(±1.6) Commorbidities were seen in 24 patients; Four patients (9.5%) had type 2 diabetes while 20 patients (47.6%) were hypertensive. All patients had their diabetes or hypertension properly controlled before surgery. All Patients were either ASA 2(88.1%) or ASA 3(12%) and none was operated on as an emergency. The mean age in this study was 67.2(±9.3) years. There were 4(9.5%) incidental prostate carcinomas and one bladder cancer detected intra operatively. The mean change in HCT was 6.0(±2.8). 60% of patients had a HCT change of between 1-6% and there was no mortality.

When compared with our older series (group 1) that were operated on using the traditional 5 and 7'o clock haemostatic sutures, the groups were similar with respect to age, BMI, PSA, enucleated prostate volume, duration of surgery and comorbidities (Table 1).

Reps	Group 1. N=166 Mean(±SD)	Group 2. N=42 Mean(±SD)	P-Value
Age(yrs)	65.6((±7.0)	67.2(±9.3)	0.908
BMI(kg/m²)	23.7((±3.9)	23.9(±4.2)	0.206
PSA(ng/ml)	14.4((±14.8)	17.4(±15.1)	0.932
Enucleated Prostate Volume(mls)	81.7((±54.0)	73.1(±47.7)	0.73
Duration of Surgery(minutes)	99.9((±15.4)	100.9(±15.4)	0.264
Hospital Stay	16.5(±9.6)	6.94(±0.6)	0
Overall complication Rate.No(%)	59/157(37.6%)	10/42(23.8%)	0.034
Clot Retention rate	36.30%	9.80%	0
Commorbidities	**Group 1.No.(%)**	**Group 2. No (%)**	

DM	22(13.3%)	4/42(9.5%)	0.327
HTN	73(44.0%)	20(47.6%)	0.533
Estimation of blood loss	**Group 1. Mean (±SD)**	**Group 2. Mean(±SD)**	
Pre-op HCT	36.8((±3.8)	36.9(±3.8)	0.087
Post op HCT	30.2((±3.6)	30.9(±3.7)	0.064
Change in HCT	6.6(±4.3)	6.0(±2.8)	0.446
Categorization of change in HCT	**Group 1. No of Patients(%).**	**Group 2. No of Patients(%).**	
Δ in HCT of 1-3%	47(28.3%)	9/40(22.5%)	0.183
Δ in HCT of 3.1-6%	49(29.5%)	15/40(37.5%)	0.854
Δ in HCT of 6.1-9%	40(24.1%)	12/40(30.0%)	0.474
Δ in HCT of 9.1-12%	18(10.8%)	4/40(10.0%)	0.621
Δ in HCT of 12.1-15%	12(7.2%)	0(0%)	0
Transfusion rate	62(37.3%)	0(0%)	0
Mortality	9(5.4%)	0(0%)	0

Table 1: Clinical and demographic data of patients operated on with and without the modified suprapubic prostatectomy technique.

The change in PCV in group 1 was higher than that in group 2 but the difference was not statistically significant. However, there were statistically significant differences between the groups with respect to hospital stay, overall complication rate, blood transfusion rate and mortality. The transfusion rate in group 1 was 37.3 % with a mean blood transfusion of 1.14(±1.5) pints compared to zero blood transfusion in group 2. There were 9 mortalities in group 1, compared to zero mortality in group 2. The rest of the patient clinical data are detailed in (Table 1).

The overall complication rate in group 1 was 37.6% (59/157) compared to 23.8 %(10/42) in group 2; P=.034. The commonest complication observed in both groups was post prostatectomy LUTS. This was seen in 11.5% of patients in group 1 and 11.9% of patients in group 2 (Table 2).

Reps	**Group 1. No (%) N = 166**	**Group 2. No (%) N = 42**	**Clavien Dindo Classification**
Missing Data	9	0	-
Overall Complication rate	59/157(37.6%)	(10/42)23.8%	- -
Post prostatectomy LUTS	18(11.5%)	5(11.9%)	2
Clot retention.	57(36.3%)	4(9.8%)	1
Clot Retention requiring evacuation.	57(36.3%)	4(9.8%)	3A
Wound Infection	4(2.5%)	3(7.1%)	1
Wound dehiscence	3(1.9%)	0	3A
Burst Abdomen	1(0.6%)	0	3B
Epididymorchitis	2(1.3%)	(3/42)7.1%	2
UTI	15(9.6%)	1/42(2.4%)	2
Septicaemia	2(1.3%)	0	2

Bladder Rupture	1(0.6%)	1/42(2.4%)	1
2^0 Haemorrhage	5(3.2%)	0	1
Suprapubic urinary fistula	2(1.3%)	0	1
Urethral Stricture	3(1.9%)	0	3B
Delireum	1(0.6%)	0	2
Seizure disorder	1(0.6%)	0	2
Prostatitis	1(0.6%)	0	2
Cardiac Arrythmias	1(0.6%)	0	2
Left ventricular failure	1(0.6%)	0	2
Mortality	9(5.4%)	(0)0%	5

Table 2: Modified Clavien Dindo Classification of Complications observed in Group 1 and Group 2 Patients.

shows the details of the complications seen in both groups. Currently the duration of follow up in group1 patients is between 20 to 60 months, while the follow up period in group 2 is between 3 to 19months. Follow up was by means of voiding history, administration of the IPSS form and if indicated transabdominal ultrasound estimation of post void residual urine and cystoscopy. Mean post-operative IPSS for group 2 patients was 2.2(range 0-7). We have not encountered any patient with bladder neck stenosis.

Discussion

Peri -operative bleeding associated with open suprapubic prostatectomy has continued to be a challenge in urology. This is evidenced by the myriad of haemostatic techniques described in the literature and the drive for newer less invasive treatment options. The commonest method of haemostasis has been the application of haemostatic sutures at the 5 and 7 o'clock position of the bladder neck where the main trunk of the prostatic arteries enters the prostate [17,22]. Since Freyers' [5] original description of suprapubic prostatectomy, there have been several modifications in haemostatic technique. Key modifications being measures aimed at separating the bladder neck from the prostatic fossa as described by Lower [6] and Harris [7] and others [8-10], prostatic fossa gauze packing [11] and traction on the bladder neck using the catheter balloon [12-14]. Despite these modifications, peri-operative haemorrhage has continued to be a challenge after OSP. A modified suprapubic prostatectomy technique was described in 2010 [21,22] which showed promise of reducing blood loss and therefore avoiding blood transfusion.

The two main components of this modified suprapubic prostatectomy technique are the use of haemostatic running sutures from the 1o'clock to 11 o'clock position of the bladder neck and traction on the bladder neck using the catheter balloon. The sutural haemostasis is based principally on the work of Flocks [23]. In his seminal study of the vasculature of the prostate using a dye injection technique, he was able to show that there is no single prostatic artery, but that 4 or 5 branches of the inferior vesical artery running almost parallel to each other supply the prostate on each side and are conveniently called the 'prostatic' arteries. He showed that these vessels are distributed from the 7 to 11 o'clock and the 1 to 5 o'clock positions of the bladder neck. This is in contrast to the traditionally held believe that prostatic arteries enter the prostate at the 5 and 7 o'clock positions. Thus, to achieve maximal haemostasis, there is need to encompass the 7 to 11 o'clock and the 1 to 5 o'clock positions of the bladder neck.

The second component of the modified suprapubic prostatectomy technique is bladder neck traction using the inflated urethral catheter balloon. Bladder neck traction is not a novel technique of haemostasis for prostatectomy as it has been used by other authors [12-14]. It has also been shown to reduce post-operative bleeding after TURP [24]. The aim of applying bladder neck traction is to compress the vesicoprostatic venous plexus situated at the groove between the bladder and the prostate and reduce venous bleeding. It is also directed at any arterial bleeders which may have been missed by the running suture of the bladder neck. Perhaps a more important haemostatic mechanism of bladder neck traction is the separation of the prostatic fossa from the bladder cavity, by the catheter balloon that is tightly fitted around the bladder neck. Separation of the prostatic fossa from the bladder cavity is an established principle of haemostasis after open prostatectomy. This concept was first presented by Lower in 1927 [6] and Harris in 1930 [7] using an absorbable bladder neck suture. Hryntschak modified and popularized this technique in 1951 [8].

Since then there have been modifications by De La Pena and Alcina [9] and later Malament [10] who popularized the removable bladder neck partition suture. If properly applied the tight-fitting catheter balloon limits the reflux of blood from the prostatic fossa

into the bladder cavity, thus preventing clot formation and clot retention. Avoidance of clot retention is critical to reducing post operative blood loss after open prostatectomy [25]. In addition, separation of the prostatic fossa from the bladder cavity (as opposed to inflation of the catheter balloon within the prostatic fossa) allows the natural involution of the prostatic fossa to take place. This is an important natural mechanism for achieving haemostasis post operatively. This natural involution of the prostatic fossa was studied by Goodyear and Beard [26], who showed by means of serial postoperative urethrograms that the prostatic fossa, like the uterus, contracts to 50% of its size within a few minutes and in 6 to 12 hours it contracts to 25% of its size, following which it gradually contracts completely.

The modified suprapubic prostatectomy technique enabled us to carry out 42 consecutive open suprapubic Prostatectomies without blood transfusion the mean age in this study was 67.2(±9.3) (Table 1) and this is similar to the mean age of patients undergoing open suprapubic prostatectomy in other studies [21,22]. The mean pre and post operative HCT in group 2 was 36.9(±3.8) and 30.9(±3.7) respectively, giving a mean change in haematocrit of 6.0 (±2.8), equivalent to a mean change in HB of 2g/dl (±0.9). This value is lower than the mean change in HCT of 6.6 (±4.3) seen in group 1;P=.446. Also no patient in group 2 had a HCT change in the range of 12.1-15%, whereas twelve patients (7.2%) in group 1 were in this category; P=.000.This mean change in HCT seen in group 2, is slightly higher than the change in HB of 1.06g/dl(range 0.3 to 2.1) of Okorie, et al. [22] who originally described the modified suprapubic prostatectomy technique, but similar to the change in HB of 1.8g/dl of Moslemi, et al. [12] who used only bladder neck traction for haemostasis in a study of 202 patients undergoing transvesical prostatectomy. Similarly, Shahapurkar V, et al. [13] used only bladder neck traction in 170 patients undergoing transvesical prostatectomy and documented an average blood loss of only 18.9ml! (Range 0-50). Labeeb [27] used sutural haemostasis from 3 to 9 o'clock position in 425 patients undergoing transvesical prostatectomy and recorded an average blood loss of only 125cc, a mean decrease in haematocrit of only 3.2% and no blood transfusion. Similarly, Amen-Palma, et al. [28] used sutural haemostasis from 3 to 9 o'clock position in 117 patients and observed a mean decrease in HB of 1.74g/dL.

Blood transfusion rates of between 1 to 57.1% [18,20,29] have been documented after OSP using various haemostatic techniques with the highest percentages coming from studies using the traditional 5 and 7o'clock haemostatic sutures. The modified suprapubic prostatectomy technique described above confers the advantage of more effective haemostasis and therefore no need for blood transfusion. Prior to our adoption of the modified suprapubic prostatectomy technique our blood transfusion rate was 37.3% (group 1). This difference in transfusion rate was statistically significant compared to the present series (Table 1). The dangers of blood transfusion, the cost and the challenges of obtaining blood for transfusion especially in third world countries are very well known. Apart from blood transfusion reactions, there is a potential risk of inadvertent transmission of HIV and Hepatitis viruses. In some settings the non-availability of blood for transfusion could be a challenge. Also, the cost of obtaining blood for transfusion poses a significant additional increase to the cost of surgery. In the light of these, any modification in surgical technique that can consistently eliminate blood transfusion from open prostatectomy should be a welcome development.

We had a clot retention rate of 9.8% in group 2 Vs 36.3% in group 1. P=0.000. Clot retention was usually managed by evacuation with the 60ml bladder syringe in the ward. No patient in group 2 required a return to the theatre either for clot evacuation or outright re-exploration whereas one patient in group 1 required a return to the theatre for cystoscopic evacuation of clots. Okorie, et al. [21] reported a similar clot retention rate of 5.1% and no re-exploration in a series of 39 patients that were operated on using the modified suprapubic prostatectomy technique. Clot retention and re-exploration rates of 2.4% - 13.5% [12,19,22,30] and 0% - 8% [11,19,22], respectively have been documented in the literature. Clot retention and re-exploration rates are a reflection of the effectiveness of haemostasis. Clot retention can pose a real threat to the patient's life especially when it involves a return to the theatre for cystoscopic evacuation or re-exploration. The technique also enabled us to do suprapubic prostatectomy without Continuous Bladder Irrigation (CBI). CBI is a frequent component of the post-operative protocol after OSP [31]. Its purpose is to wash out blood from the bladder before it clots thereby avoiding clot retention, but some studies [21,22,31,32] have shown that with adequate haemostasis, CBI can be safely eliminated from the post operative management protocol. Elimination of CBI has considerable benefit for the patient, his relations and the hospital staff. This benefit is in terms of money saved and man hours of nursing care conserved. A cost benefit analysis reveals that elimination of blood transfusion and CBI from OSP can save the patient approximately N42,000.00 (115USD). This represents the cost of two pints of blood, N20,000.00 (54.8USD), cost of 20-30litres of normal saline for irrigation 12,000.00(32.9USD) and the cost of extra nursing care, approximately N10,000.00 (27.4USD). In a resource poor environment such as ours, this can amount to a considerable reduction in the cost of surgery.

The overall complication rate in this study was 23.8% (group 2). This is similar to the 28% complication rate documented by Pariser, et al. [33] in a review of 35,171 patients undergoing simple prostatectomy. This overall complication rate was much lower than the 37.6% complication rate observed in group 1. The difference was statistically significant P=0.034. Most of this difference was accounted for by the higher clot retention rate of 36.3% seen in group 1(Table 1). Also group 1 patients had a longer hospital

stay compared to group 2 patients; 16.5(±9.6) days Vs 6.94(±0.6) days, P=.000. There was no mortality in the present study group compared to 9 mortalities in group 1(5.4%); P=.000. Four of these mortalities (44.4%) were due to haemorrhage and clot retention issues. These data show that our previous surgical technique which relied on the 5 and 7 o'clock haemostatic sutures is associated with poorer haemostasis and increased morbidity and mortality compared with the modified suprapubic prostatectomy technique.

Conclusion

The modified suprapubic prostatectomy technique is associated with better haemostasis. It enabled open suprapubic prostatectomy without blood transfusion and continuous bladder irrigation and was associated with improved surgical outcomes compared to the traditional 5 and 7 o'clock haemostatic suture technique. This technique can be universally adopted as a standard surgical technique for transvesical prostatectomy.

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