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Research Article

**MANAGEMENT FOR PROSTATE CANCER TREATMENT
RELATED POSTERIOR URETHRAL AND BLADDER NECK
STENOSIS WITH STENTS.**¹Dr Nazrah Shabbir, ²Dr Farkhanda Naseem, ³Dr Feroz Tariq.¹MBBS, University of Lahore, Lahore.²MBBS, Amna Inayat Medical College, Sheikhpura.³MBBS, Sahiwal Medical College, Sahiwal.**Article Received:** February 2020**Accepted:** March 2020**Published:** April 2020**Abstract:**

Approximately 200k men have been diagnosing with prostate cancer annually in the US. Those getting treatment of prostate cancer are at definite risk of having posterior urethral stricture. Radical prostatectomy has complication in 1 to 25% of the cases whereas radiation therapy may end up with forming stricture by the side of complete length of posterior urethra. Luckily many of the strictures are manageable to simple endoscopic technique. Commonly two methods could be used in men. In the first method basically there is abdominal or open perineal surgery in which the strictured section is cut out and a conjunction is established. After successful removing the stricture through this surgery the consequences may end up having incontinence and other technically challenging. And the other option which is known as urinary diversion the last expedient left for final solution. A study conducted in 2001 has stated that Urolume urethral stent used for unmanageable stricture related treatment for prostate cancer. Initial reports collected were in favor of an overall success with more than 80%. Participants who were having Urolme stents placed because of posterior urethral stricture as a result of prostate cancer included in the study. Total 40 men were included in the study. The current study has reported that Urolume stenting is appreciated for them who are suffering from post-prostate cancer treatment stricture and for those who are not in favor of going under open reconstructive surgery.

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INTRODUCTION:

Approximately 200k men have been diagnosing with prostate cancer annually in the US. Those getting treatment of prostate cancer are at definite risk of having posterior urethral stricture.[1] Radical prostatectomy has complication in 1 to 25% of the cases whereas radiation therapy may end up with forming stricture by the side of complete length of posterior urethra.[2] Luckily many of the strictures are manageable to simple endoscopic technique.[3] Commonly two methods could be used in men. In the first method basically there is abdominal or open perineal surgery in which the strictured section is cut out and a conjunction is established.[4] After successful removing the stricture through this surgery the consequences may end up having incontinence and other technically challenging.[5] And the other option which is known as urinary diversion the last expedient left for final solution.[6] A study conducted in 2001 has stated that Urolume urethral stent used for unmanageable stricture related treatment for prostate cancer. Initial reports collected were in favor of an overall success with more than 80%. [7,8]

The aim of the study is to discuss the experience with stents and the management with prostate cancer linked with urethral stricture.

MATERIALS AND METHODS:

Participants who were having Urolume stents placed because of posterior urethral stricture as a result of prostate cancer included in the study. Total 40 men were included in the study. The purpose of the study was explained to them in their first language. A written informed consent was signed. Initial success was explained as after stent placement procedure a patent urethra attained for more than 6 months without any requirement of peripheral procedures. Overall treatment success was defined as a currently stable stricture for greater than 6 months regardless of the number of secondary procedures required. Incontinence was defined as the need for more than 1 pad daily. Chi-square test was used to analyze categorical variables. The unpaired t test was used to assess differences among continuous variables.

RESULTS:

Total 40 individuals were recruited into the study. In which 24 men underwent radiation therapy as a primary intervention whereas 16 undergone adjuvant therapy after radical prostatectomy for prostate cancer. A total of 14 men (37%) underwent radical prostatectomy alone. After the comparison of both groups, irradiated men disclosed that radiation causes the stricture to develop later but were longer (3.8 vs 2.6 cm, $p = 0.002$). Those who had not undergone irradiation

therapy went for anastomotic Bladder neck contracture of which expands into the bulbar urethra.

Strictures due to radiation in the proximal bulbar urethra involved 4 patients, the prostatic urethra in 7 patients, the membranous urethra in 9 patients whereas the bladder neck contracture in 18 individuals with many strictures. The primary success rate of Urolume stent placement was 49% with average follow up of 3.2 ± 3.5 -year. After a total of 34 secondary endoscopic procedures in 19 men the overall success rate was 89%.

In 3 men (11%) treatment ultimately failed. All had received radiation therapy. Three of the 4 patients elected urinary diversion while 1 underwent salvage prostatectomy. Overall median time to stricture recurrence after stent placement was 8.9 months. Men with recurrence had longer initial strictures than those without recurrence (4.6 vs 3.1 cm $p = 0.04$) but were equally as likely to have received radiation (54% vs 50%, $p = 0.5$, table 2). However, men with radiation experienced recurrence sooner (mean 10.2 ± 11.2 vs 21.1 ± 20.1 months, $p < 0.001$ and required more secondary procedures (mean 1.9 ± 0.8 vs 1.1 ± 0.4) at a similar mean follow-up (2.0 ± 2.0 vs 2.6 ± 3.1 years, $p = 0.4$). On multivariate analysis neither stricture length (HR 1.4, 95% CI 0.8–2.3, $p = 0.4$) nor radiation exposure (HR 1.2, 95% CI 0.6–11.4, $p = 0.5$) was an independent risk factors for failure. The site of recurrent obstruction varied but was proximal to the stent in 10 men (53%), in the stent in 6 (32%) and distal to the stent in 5 (26%) while in 2 it was proximal to as well as in the stent. In 8 men (42%), including 6 (75%) with prior radiation therapy, the additional procedure included placement of a second Urolume stent. In 6 of the men obstructing calcification was present in the stent, which was treated with laser ablation. All men with perineal pain had membranous strictures and had received radiation. Median time to pain resolution was 4 months (range 1 to 13). One man still had improved but persistent pain 15 months postoperatively. In 1 patient with prior sigmoid resection for carcinoid tumor a postoperative rectourethral fistula developed at 3 weeks, which was treated with diverting ileostomy. This was reversed after spontaneous fistula closure at 1.5 months. The overall incontinence rate was 82% with a higher rate in men who did versus did not receive radiation (96% vs 50%, $p < 0.001$) Incontinent men had longer strictures (3.3 ± 0.6 vs 2.4 ± 1.9 cm, $p = 0.05$). All men with strictures involving the bulbar or membranous urethra were incontinent. Only 1 of the 7 nonirradiated patients with incontinence postoperatively had been continent preoperatively. All 7 men who remained continent after stent placement had strictures less

than 2 cm (mean 1.5) and all had pure BNC that required a single 2 cm or less stent. Of the 14 men who had received radiation and reported continence preoperatively only 1, who had BNC, remained continent after stent placement.

DISCUSSION:

The current study has evaluated that for uncooperative posterior urethral stricture Urolume stents has been effective secondary to prostate cancer treatment. Results show that Urolume stenting is a reasonable option for this difficult urological problem. To consider the stricture stable, numerous procedures are needed to be done and many of them could be compulsory for lifetime in some individuals.[9, 10] Literature has reported that there is 50-75% intermediate success rate of stenting with very minimum almost 25% of reoperation.[11,12] Our initial and final success rates of 48% and 89%, respectively, are in accordance with these previous studies but our 53% stent specific reoperation rate was slightly higher than previously reported. In the current study the initial and final success rate was 49% and 85% respectively almost similar in the given literature whereas the reoperation rate which was 53% was minimally high as compared to previous studies.¹³ An experimental study has published in which it states that Urolume stent placement has been successful in 13 men of the result of prostate cancer therapy which discreetly recommended for posterior stricture. Another study conducted by Elliott *et al* reported that out of 32 men 22 had undergone posterior prostate cancer therapy and had stricture in posterior urethra.[14,15 13] of them were managed with open reconstructive surgery and attained 85% of success rate. However, in select men we have found Urolume stenting to be a reasonable option for posterior urethral stricture. While these stents have a poor track record for anterior urethral strictures,[16,17] for which many other superior reconstructive options are available, they have a place in our reconstructive armamentarium for posterior strictures [18, 19].

Many of the strictures are advised to be excised most irradiated men in this series had strictures that were extremely long at an average of 3.8 cm, which is almost 1.5 cm longer than strictures caused by surgery alone. Procedures that introduce significant patient morbidity likely have required pubectomy and/or salvage prostatectomy in the cases of surgical excision. Anastomosis of postoperative healing is must considered²⁰. To avoid major operation many of the individuals were willing to undergo for this stent procedure despite of risk factors. More than half of the man had to undergo for secondary operation as initial success rate was very poor unluckily. Whereas because of secondary procedure which was easy and well tolerated 83%

of the irradiated men have surpassed major operations for almost up to 2 years.

Another man who underwent combined brachytherapy and external beam radiation underwent successful salvage prostatectomy with the stent still in place, highlighting the fact that stent placement does not preclude future posterior urethral reconstruction.¹⁹ However, it appears that regardless of the predicted surgical outcome stent placement in the posterior urethra for PCa treatment induced stricture should only be done in patients and by surgeons willing to take on the responsibility of caring for a device that will possibly require a lifetime of maintenance.

CONCLUSIONS:

The current study has reported that Urolume stenting is appreciated for them who are suffering from post-prostate cancer treatment stricture and for those who are not in favor of going under open reconstructive surgery.

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