

Original Article**Initial Experience of Prostatic Urethral Lift (UroLift®) Procedure : A Minimally Invasive Treatment for Symptomatic Benign Prostatic Hyperplasia**Sachin K. Karnwal¹, Kalyan Kumar Sarkar², Prithwiraj Ghoshal³, Kaushik Sarkar⁴**Abstract :**

UroLift®, an emerging treatment for BPH, is growing in popularity due to its minimal invasive nature and reduced side effects. UroLift is a mechanical intervention that opens up the anterior prostatic urethra through retraction of the lateral lobes of the prostate using nitinol and stainless steel implants. Many men with benign prostatic hyperplasia (BPH) discontinue medical treatment because they are unhappy with their current treatment. Although surgery and ablation using different types of energy are still the standard treatment for BPH, many men seek less invasive procedures that can improve symptoms without the complications associated with tissue eliminating procedures. Prostatic urethral lifts open the prostatic urethra via a permanent implant delivered under cystoscopic visualization. The implant actually "retains" the lateral prostate lobe, creating a passage through the blocked prostate urethra. Urinary function and symptoms improve after the procedure without the major complications of prostatectomy.

Key Words :

Prostatic urethral lift, UroLift®, benign prostatic hyperplasia, prostate, LUTS.

Introduction :

UroLift® is becoming a popular treatment for BPH because it is less invasive and has fewer side effects. Over 30% of men over 50 have BPH, and medications don't always work well or cause side effects. When medications fail,

surgery may be needed^[1]. Oral medications are attractive, but symptom relief is modest as witnessed by International Prostate Symptom Score (IPSS) improvement. The incidence of side effects along with inadequate relief from the drugs prompt over 25% of men to discontinue treatment prematurely^[2]. Beyond medical therapy Transurethral resection of the prostate (TURP) is considered to be the "gold standard" for BPH offering the best IPSS improvement^[3]. This improvement, however, comes with a 20% perioperative morbidity rate and potential long term complications including incontinence (3%), strictures (7%), erectile (10%) and ejaculatory (65%) dysfunction^[4,5]. Newer laser treatments aim to reduce these risks, but still have adverse effects. The Prostatic Urethral Lift procedure is well described in the literature^[6]. The UroLift (NeoTract Inc., Pleasanton CA, USA) procedure (Figure1) separates the prostate lobes using permanent implants placed under local anaesthesia as an outpatient procedure. It is faster and more reliable than other therapies, with minimal bleeding and few complications like retrograde ejaculation or incontinence. This technique is preferred for its effectiveness and ease of use, offering a safer alternative for men with BPH who don't need drastic measures right away^[4].

Case Presentation:

A 72 years old male was referred to the urology department with acute urinary retention for which

¹1st Year Post-doctorate Trainee, ²Consultant, ^{3,4}Assist. Professor — Department of Urology RKMS VIMS

Corresponding Author : **Sachin K. Karnwal**, Department of Urology, RKMS VIMS, Email : skarnwal106@gmail.com, Mobile: 77058556654

he needed urgent catheterization. He was at this stage recovering from an acute myocardial event and percutaneous coronary intervention had been performed.

He had history of increased frequency of micturition, poor stream, and urgency for one year before this admission. He was on daily Aspirin 75mg and Ticagrelor 90mg. He had moderate BPH on DRE (Digital Rectal Examinatin) and his prostate volume was about 30 grams on ultrasound (Fig. 2 A) with normal upper tracts. He failed a trial of catheter removal. Cardiologists did not recommend surgical intervention at this stage as anti-platelet medications could not be stopped. After 6 months on indwelling catheter he was referred again for possible surgical intervention with permission to hold Ticagrelor but that single anti-platelet aspirin should continue.

Urodynamic study showed decreased flow rate with adequate detrusor muscle contractions. A preoperative flexible cystoscopy (Fig. 2 b) was done which demonstrated enlarged prostate, with occlusive left lateral lobe.

The UroLift® procedure was recommended as a minimally invasive procedure which could be performed in a patient continuing with aspirin^[7].

The patient had a preoperative urine culture, which was negative.

Procedure :

The main aim of the operative technique is to create a smooth channel in the front part of the prostate region, connecting the bladder neck to verumontanum.

The UroLift® procedure was performed in the operating room, under spinal anaesthesia. Using a small needle that emerges from the device (Fig. 3a, 3b), four small, permanent implants were placed to hold the prostate lobes apart and widening the urethral opening. 1st implant was placed (Fig. 4a) on the left at 2 o'clock position 1.5cm distal to the bladder neck, and 2nd implant was placed on the right (9 o'clock position 1.5 cm distal to the bladder neck). Two implants were placed further in front of the verumontanum on right and left side. Final cystoscopy demonstrated a patent anterior urethral channel and no significant bleeding at the implant sites (Fig. 4 b).

The entire procedure took 15 minutes, without any incision, thermal energy or removal of prostate tissue. The patient was put on Foley's catheter for next 5 days and on removal of catheter after 5 days patient was able to fully void and empty his bladder.

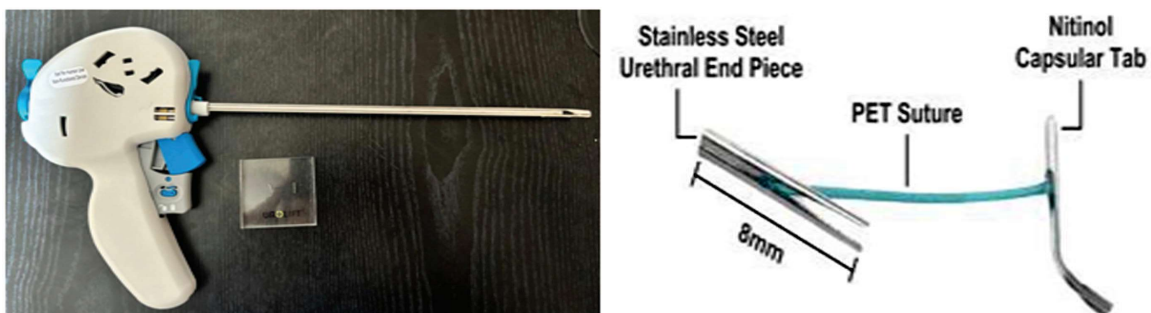


Fig. 1. UroLift® system (TELEFLEX) a) Delivery system is composed of a handheld delivery device that fits into a Storz 20 F sheath and houses a Storz 2.9 mm 0 degree lens. A Storz custom bridge allows for 2.9 mm lens to be used for cystoscopy as well. b) The delivery device houses an implant consisting of a nitinol capsular tab (left), stainless steel urethral end piece (right) and a polyester monofilament.

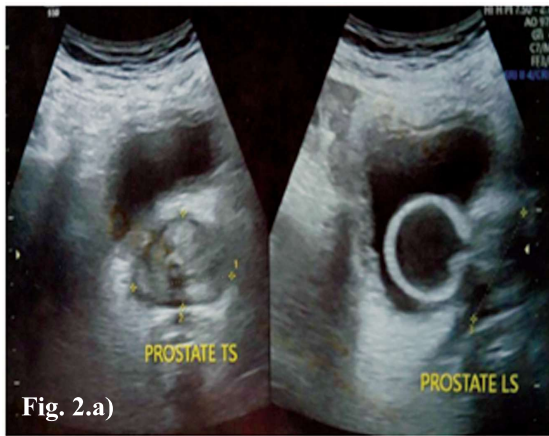
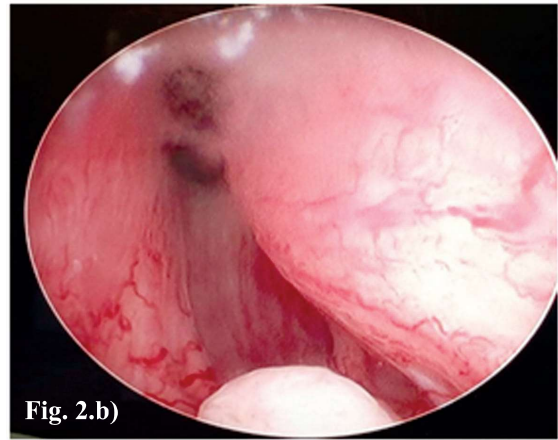
**Fig. 2.a)****Fig. 2.b)**

Fig. 2.a) Pre-operative USG enlargement of prostate (PROSTATE TS,LS).

Fig. 2.b) Pre-operative Flexible cystoscopic view showing enlargement of prostate Lt lobe>Rt lobe with small enlargement of median lobe

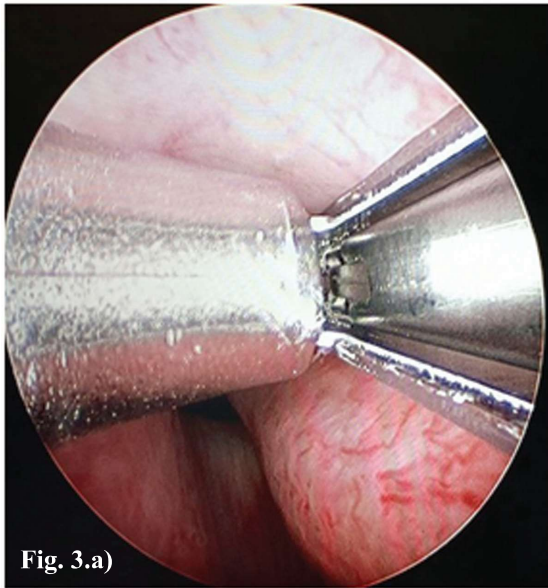
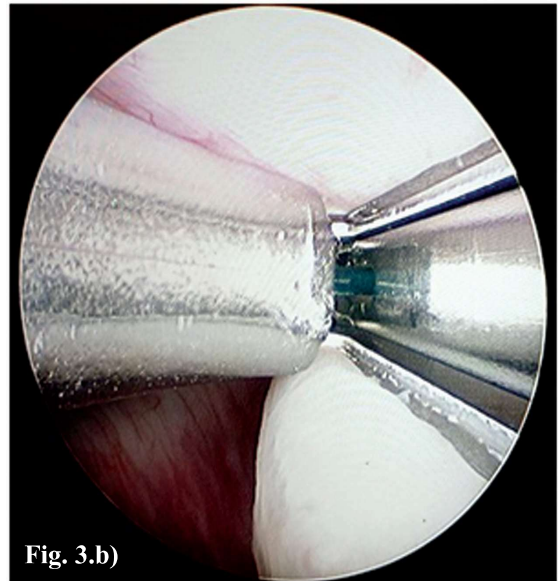
**Fig. 3.a)****Fig. 3.b)**

Fig. 3. a). Placement of the UroLift® implant is in the anterior third of the prostatic fossa, before treatment the lateral lobes are firmly opposed compressing the lateral lobe tissue approximately 10 degree.

Fig. 3 b). Deployment of the UroLift® implant. After treatment the lateral lobes will be separated.

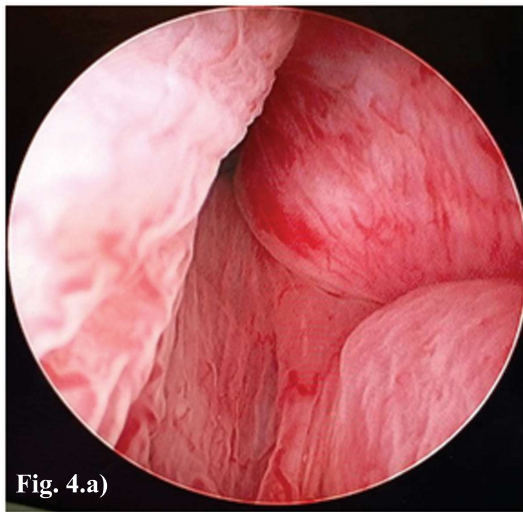


Fig. 4.a)

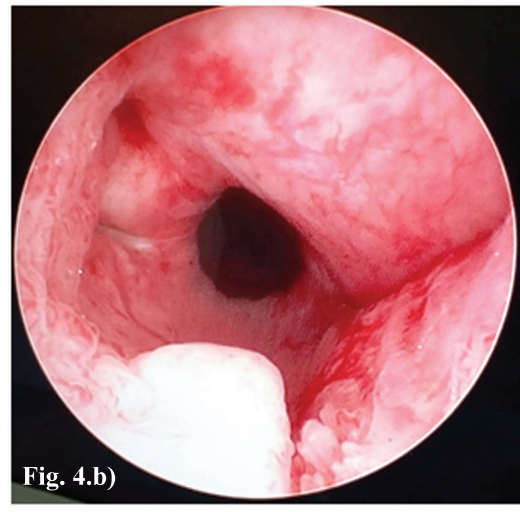


Fig. 4.b)

Fig. 4. a) Deployment of the 1st UroLift® implant on Right Lobe.

Fig. 4.b) Four UroLift® implants hold back the prostatic lobes, creating a continuous anterior channel from bladder neck to veru montanum.

Discussion :

The American Urological Association BPH guidelines^[3] recognize that TURP remains the benchmark for interventional BPH therapy. TURP is highly effective in improving symptoms and urodynamic outcomes and is associated with only a 15% retreatment rate over 8 years^[4]. While clearly effective in treating BPH, TURP is associated with a 20% morbidity rate including perioperative and intermittent postoperative bleeding, necessity for blood transfusions, TUR syndrome, necessity for prolonged catheterization and hospitalization, urinary incontinence, urethral strictures, erectile dysfunction and a very high retrograde ejaculation rate.^[4,5] It can be done under local anaesthesia as an outpatient and has been shown to result in a 40% mean improvement in both IPSS and urinary flow at 2 years. A

remarkable advantage when compared to other interventional therapies is that patients report immediate improvement in symptomatology. Patients also report preservation of ejaculatory function.

Conclusion :

The UroLift® implant is placed using local or general or regional anaesthesia. It has been proven to provide rapid relief of symptoms while preserving prostate and sexual function. Performing the procedure correctly can reduce expected postoperative effects, such as some discomfort and haematuria, and make this minor treatment more effective. Results are durable with retreatment rates comparable to TURP.

Conflict of interest : None declared