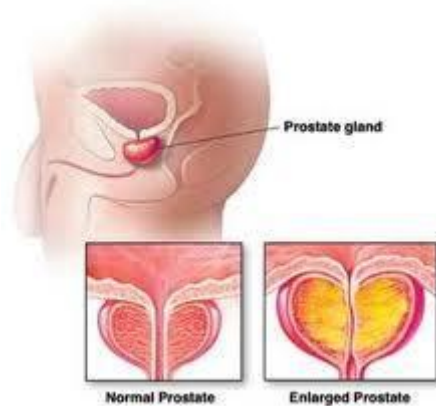


## GREENLIGHT PHOTOSELECTIVE VAPORIZATION OF THE PROSTATE – PVP

The prostate enlarges in all men and is an inevitable consequence of aging. As the prostate enlarges, it compresses the urethra and causes difficulty with urination in one out of four men.

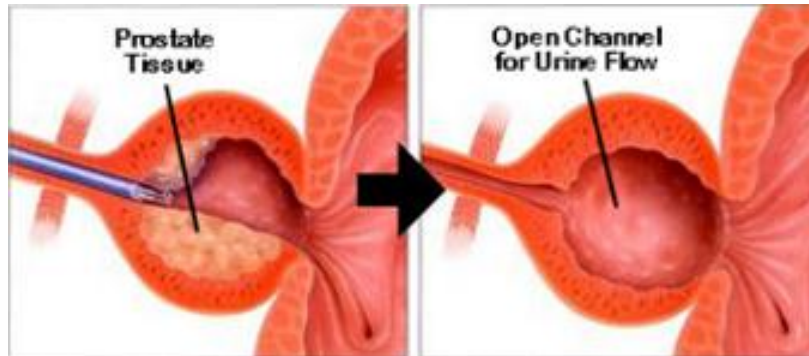


As the prostate causes obstruction and crowds in on the urinary channel, the bladder has to work harder to push urine past the obstruction. The bladder muscle becomes thicker and less elastic. When the bladder is less elastic, it can no longer stretch further to hold increasing volumes of urine. It reaches a certain point, and then it wants to empty. As the bladder storage capacity decreases, the patient experiences frequency and urgency.

When treatment for the enlarged prostate (BPH) is required, there are a variety of choices available. For many men, drug therapy provides excellent treatment. However, for some men, ongoing treatment with medication is not the answer. Some men have bothersome side effects related to the pills they take for the enlarged prostate. Proscar and Avodart, pills which reduce the size of the enlarged prostate, can interfere with sexual function in a subset of men. The alpha blockers – Hytrin, Cardura, Flomax and Uroxatral – work by relieving the trip of the prostate as it crowds in on the urethra. Possible side effects include dizziness, lightheadedness, nasal stuffiness, and retrograde ejaculation (retrograde ejaculation describes the circumstance where a man has an orgasm but the ejaculated fluid flows back into the bladder rather than out through the tip of the penis). In addition to these potential side effects, another drawback to drug therapy for some men may be cost. Estimates for the annual cost of brand name drug therapy range from \$300 to \$1,500 annually.

Indications for BPH treatment include urinary retention, large postvoid residual which can interfere with kidney function, bleeding, recurrent urinary infection, and bothersome voiding symptoms. When pills are not working or when they cause side effects, different types of intervention are available. A recent review lists over a dozen types of procedures available to treat BPH. Current standards for intervention for the enlarged prostate include transurethral resection of the prostration (TURP), transurethral microwave thermotherapy (TUMT), transurethral needle ablation (TUNA), and different types of laser coagulation of the prostate. In recent years, photoselective vaporization of the prostate (PVP) has emerged as one of the most effective and minimally invasive procedures available for managing BPH.

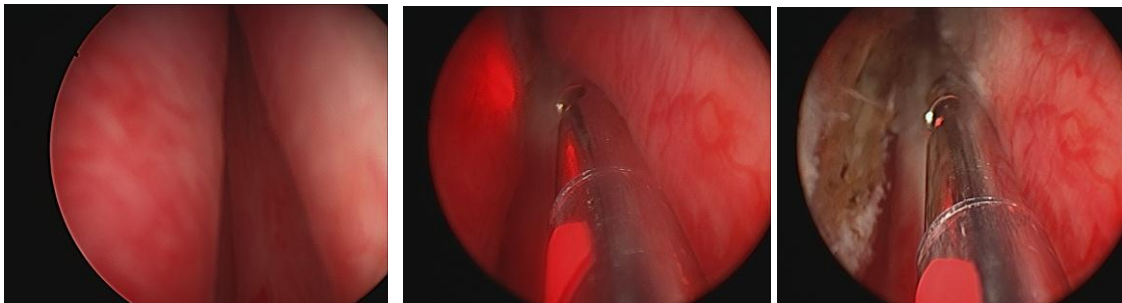
TURP has been the gold standard for years for the treatment of BPH. In a TURP, the actual enlarged portion of the prostate is shaved away, which opens up the blocked portion of the urethra.



The drawback to TURP has been its invasive nature with its attendant risks of bleeding, incontinence, and impotence, as well as the need for a one- to five-day hospital stay and significant restrictions on activity for a six-week postoperative period.

Less invasive procedures, including TUMT, TUNA, and laser coagulation use heat to coagulate the enlarged portion of the prostate so that over the next several months the enlarged portion of the prostate reduces in size to lead eventually to improved urination. However, unlike TURP, these procedures do not actually remove any of the enlarged and obstructing portions of the prostate.

PVP uses a Green Light laser (called a KTP laser) to remove the actual enlarged and obstructing portions of the prostate by vaporization.



Enlarged prostate crowding urinary pathway

Laser fiber ready to start vaporization

Part of obstructing prostate removed by vaporization

With vaporization, the obstructing parts are removed (like TURP) which distinguishes it from the other procedures that coagulate the prostate. With vaporization (removal), the urinary channel is opened up which leads to more immediate improvement in urinary flow. Compared to TURP, PVP has the following advantages: Outpatient or overnight procedure, less chance of bleeding, faster return to activities and reduced time period of catheterization.



PVP is typically done in an outpatient setting with a regional or general anesthesia. Most men are asked to stop one week in advance any medications which can promote bleeding, such as aspirin, and anti-inflammatory medications (i.e., Advil, Nuprin). If men are on Coumadin, which is a blood thinner, this should also be stopped one week in advance. Men are typically sent home several hours after the procedure. Men have a catheter in for overnight. Postoperatively, men may notice for the first 6-8 weeks urinary frequency (the need to urinate more often), urgency (the need to urinate promptly once the urge is felt), and dysuria (burn or discomfort with urination). They may see blood which may develop on an intermittent basis over several weeks. Increased fluid intake is recommended during the first several weeks, preferably water, to promote increased urinary output. Strenuous exercise and heavy lifting, including bike riding, running on treadmills, working with vibrating equipment (e.g., riding a tractor mower), and engaging in sexual intercourse should be avoided for two weeks. For most patients, the PVP procedure typically does not interfere with sexual function and men are still able to have an erection and orgasm the same as they did preoperatively. Retrograde ejaculation, also known as "dry climax", develops in a third of the men. After intervention to relieve the obstruction is carried out, it may take some time for the bladder to regain some elasticity to then allow lessening of frequency and urgency.

In summary, PVP has emerged as an attractive minimally invasive outpatient procedure which provides significant improvement in the majority of men typically with a low risk of adverse effects and offers the added advantage of a prompt return to normal lifestyle.